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Review

Political education in school

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Political education is a term with negative associations and triggering prejudiced approaches and discourses -maybe some paranoid thoughts- like “keep politics away from education!” in the minds of several people. This article deals with “political education” phenomenon almost never discussed and made subject to scientific researches in Turkey; and discussing what is tried to be achieved in the minds and actions of the children and youths via political education suggests integration as a cross curriculum of the formally neglected political education phenomenon we rather see at informal contexts. This study is a theoretical one based on literature review. It has been realized by review, compilation, synthesis and presentation of the existing researches on political education.

Key words: Education, good citizen, politics, political education.

INTRODUCTION

Today, schools not only provide the fundamental knowledge and skills the students need to enter the labor market, but also develop the competences students need to improve the culture of democracy, reinforce awareness of rights and responsibilities, rise of the idea of justice, enrichment of the freedom understanding, in brief construction of a sound social order looking for common good. Besides those duties, schools try to balance and improve political equality in the society by supporting disadvantaged students with restricted possibilities. The most fundamental conceptual and theoretical connection between education and politics show that both are based on a common sociological foundation and are two fundamental functions of societies.

In a wide range extending from Ancient Greek to Eastern Philosophy, from enlightenment philosophy to democratic theory, almost all significant thinkers of the political field established a connection between politics and education, and wrote texts that problematize that relationship (Komsuoglu, 2014: 3). No doubt, there is a mutual relationship between education and politics, which is both express and covert. Not only the changes and transformations in the political arena influence and determine educational processes but also educational processes influence and determine political culture.

However, about the relationship between education and politics -particularly in democratic countries- education and politics do not dominate each other. In other words, there is no such thing as one oppressing, trying to design, or forcing the other into the former’s will. However, education and politics are not two distinct sets. They have a mutually dependant relationship (İşik, 2013: [Footnote])

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Each implementation in the field of education does not server only an educational value, but also corresponds to a political meaning. For example, the rank of our country in international tests like PISA (The Program for International Student Assessment), PIRLS (Progress in International Reading Literacy Study), TIMSS (The Trends in International Mathematics and Science Study) or the recommendation decisions taken in the National Education Council or the duration or form of grading of compulsory education are matters of discussion in both the educational society and political environments. In similarly essentially political matters or problems like the USA’s deciding on concentrating its educational investments on basic sciences when the Soviet Union sent Sputnik, the first satellite of humanity into the space in 1957; education was considered the main component of the solution. Education was considered a fundamental point of exit in ensuring social integration of the immigrants accepting intensive migration. As those examples imply, politics cannot be thought in isolation from education and vice versa. As Plato and Aristotle expressed, politics is a human activity held everywhere, and is imperative in terms of meeting the natural needs of people (Havard, 1980: 936).

Politics does not involve humans only, but also corporations, establishments, societies and communities. In this context, school is a structure within politics which produces politics, examines political systems in effect, and shows their consistencies and inconsistencies (Sönmez, 2012: 58). Political concepts are introduced to children via education and school either directly or indirectly starting from early ages. School is both a surety of formation of socially qualified political culture and a means to political socialization (Türköne, 2005: 244).

School not only directly supports socialization and political participation via formal curriculum but also encourages the same indirectly through the school atmosphere, the sense of togetherness among teachers and students, its form of communication and interaction and the order of seating in classrooms etc. Besides school reduces social matters to student level, makes them rationally and collectively debatable to serve formation by students of political foresight or awareness, and their achieving the set of skills required for political participation. It fulfills the purpose indirectly via the school culture in the school. In other words, both school and the educational service in schools have a political content and function.

The political function of the school and education is to bring up good citizens. This, in fact, is particularly the common and fundamental purpose of political, democratic and citizenship education. Awareness and responsibility of citizenship is gained by people’s living it in practice and through the political education process (Pandey and Kumar, 1977: 518).

Political education is a process whereby citizens internalize the set of values of the political system. To clarify, political education is a process whereby people learn several matters such as how to socialize within political culture, how to think and act on politics and government, how to adapt to the political process, how to shape political system and how to make decisions (Pandey and Kumar, 1977: 517-8).

Political education is a term with negative associations and triggering prejudiced approaches and discourses - maybe some paranoid thoughts- like “keep politics away from education!” in the minds of several people. This article deals with “political education” phenomenon almost never discussed and made subject to scientific researches in Turkey; and discussing what is tried to be achieved in the minds and actions of the children and youths via political education, suggests integration as a cross curriculum of the formally neglected political education phenomenon we rather see at informal contexts. This study is a theoretical one based on literature review. It has been realized by review, compilation, synthesis and presentation of the existing researches on political education.

Political education in school

There are various opinions regarding the purposes of political education. For some, political education is preparation to a time when individuals will have the chance to think about political matters, form their personal decisions, and to materialize them. For some, political education is a process vesting rendering students the chance to learn about the politics of the groups and corporations they may be involved in at various degrees. Some merge the two opinions and consider political education as a process, which by having individuals at various age groups analyze the political nature of their groups and corporations, makes them politically literate and at the same time tries to ensure that individuals compare the policies of such groups with the political fashion of the adult world and the current political events -the very experience of such analysis and comparison is a means of elevating political awareness and literacy and preparing children to effective political activity in their adulthood-(McNaughton, 1982: 264-5). For some educators, the term political education expresses an ambiguity that needs to be eliminated. They claim that the term is oxymoronic, and implies a meaning like “education is political” (Frazer, 2010: 11).
There is in fact only one thing at the foundation of all such discussions and conflicts: What we wish to succeed about political education in the minds and actions of children and youths (McNaughton, 1982: 267). The final objective of political education in the mind and actions of an individual is no doubt in close relationship with what the individual figure needed by political systems of societies should be. At this point, maybe we should question whether political education is formal or informal.

For most people, political education process is informal because most people earn their political knowledge, opinions or attitudes by informal means like family, friend, media etc. Informal political education happens in schools too. School helps one to understand political events, and affects his/her appropriate role opinion as a citizen. Children are introduced to political system, parties, leaders etc. concepts and phenomena in the primary school and discuss matters related to politics in courses like history, geography more often in the secondary school (Denver and Hands, 1990: 263).

The purpose of political education in schools, no matter what the grade is, to teach the students how they can create students, how they can change society, and how they can be politically influential. The curriculum of political education should involve what needs to be done for protection and development of democracy, what elements they should be careful about when voting as a voter; and also have a form teaching several paths to political influence like party activism, organization, direct action and informal contact (Børhaug, 2008: 579).

International researches on political education in the school are mostly limited to curriculum and course book analyses. There are only a few studies on what happens in the classroom. Teachers in these studies are inclined to minimize education on political life, and instead to focus on how to live together in the classroom and school in a respectful and tolerant way (Børhaug, 2008: 583). Harwood (1985) thinks that teachers resist the idea of political education; that they do not conceive enough the targets and purposes of education, and that they do not trust their knowledge and skills in the field; and that they belittle the level of political knowledge of children. “For many of them, this is because they would (correctly) regard the notion of politics as being necessarily concerned with dissent, conflict and a lack of consensus, and feel that such harsh realities have no place in the comfortable view of the world that their primary schools propagate to children” (Ross, 1984: 131).

Nevertheless, political socialization literature suggests that the ages when children start to form political concepts are primary school ages, and several children may be in their most receptive ages to learn at least some socio-political concepts in primary schools. However, most primary school teachers never think of giving political education to children. The reason for that is, as Ross (1984: 131) says, is perception of the concept “politics” as opposition, conflict and lack of agreement, and the opinion that this has no place in the worldview propagated by primary schools to children. Thus, politics is something teachers wish to avoid. As a matter of fact, teachers refusing to allow development of political opinions falsify and deny several political experiences children take every day to the school (Harber, 1980; Akt: Ross, 1984: 131).

There is a concern in schools that political education can be an instrument to teaching certain political beliefs to children and youths (Jones, 1980). Although political education requires more debate than several subjects, it is considered “out of topic” as a general skill of life. Besides, political education is considered as a feature of hidden or informal curriculum, assumed a biased, ideological tool of brainwashing giving educators much more power on the youths particularly. Perhaps the conclusion to be drawn from such evaluations is that political education should be made in social organizations/structures such as “parties, pressure groups, social movements, interest groups and other social organizations” rather than schools and private high schools. However, in the event that political education is realized in political organizations only, then only a certain number of citizens will have passed political education. Furthermore, the education in question will not be very systematic, which, in fact, is not the main duty of political organizations (Frazer, 2006: 49).

At this juncture, it is a point of curiosity how early political concepts and phenomena develop or from which age those can be developed or what kind of political concepts primary school children use and when they start to appear. However, this is very hard to determine. Piaget concluded that primary school children cannot understand the concept of nationality and a political unit like nation, that children at this stage cannot evaluate different explanations about society, that they are unable to make generalizations or establish hypotheses (Ross, 1984: 132). There are also researches suggesting that political and social concepts develop very early. The research by Stevens (1982; Akt: Ross, 1984: 132) revealed that children have some fundamental political information, opinions and vocabulary as of the age of seven; and as their ages advance, this becomes both more specialized and diversified. Stevens concluded that several children reach a level of confidence enough to be interested in political matters; hold a political perspective by the age of 11, associate matters with principles, and are aware of political processes, activities and objectives. Similarly, Greenstein (1965) or Hess and Torney (1967) determined that political concepts and phenomena developed in very early stages (eight/nine to 17 years of age). As a matter of fact, a research (Jackson, 2006) on
168 children with ages varying between four and eight (36 four years old, 33 five years old, 29 six years old, 37 seven years old and 33 eight years old) has shown that children have positive orientation to political persons and symbols, and that such orientations came before the cognitive knowledge of political persons and symbols. As to Denver and Hands (1990) they took into consideration three aspects in analysis of political knowledge and sophistication: *Phenomenal knowledge*, *subject awareness* and *ideological awareness*.

As for Connell (1971)’s study, it is based on interviews with 119 children whose ages vary between 5 and 16 on various political matters (watching political perception of children over state hierarchy and personages, political parties and conflict, international politics, parents and media, particularly television). With this study, it has been revealed that children do more than just reproducing the opinions of adults and that political thinking forms pass different stages and grades. Connell determined four stages in development of political belief and established three stages in revelation of political standing (Table 1). According to Connell, the stages of development of political belief are as follows (as cited in Tomlinson, 1975: 252-4):

a) Children at the stage of conceptual thinking (5-6 years of age) are aware that there are special people, bad people and good people, but they do not know any political structure to put them in.
b) Children at the stage of pure realism (7-9 years of age) deduce from certain real persons and functions they may hear, and attach themselves to any figure considered politically significant.
c) Children at the stage of third development about 10-11

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<td>Stage</td>
<td></td>
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<td>Most judgments</td>
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<tr>
<td>1 Intuitive thinking</td>
<td>Confusion of political and non-political material; wild leaps in narrative and argument, fantasy</td>
<td>1 Politics not problematic</td>
<td>ad hoc, unqualified, not consistent. A few stable attitudes formed under adult instruction</td>
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<td>2 Primitive realism</td>
<td>Disappearance of fantasy; identification of a distinct political world at a remove from the self; appearance of task pool</td>
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<td>(a) Positions taken on issues; preferences expressed</td>
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<td>3 Construction of political order</td>
<td>Division of task pool; expansion of concrete detail about politics; perception of the multiple relationships among political actors</td>
<td>2 Politics problematic</td>
<td>(b) Alternative actions considered and sometimes undertaken</td>
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<td>4 Ideological thinking</td>
<td>Use of abstract terms in political argument; conceptions of societies and polities as wholes</td>
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Table 1. Stages in the development of political belief (Connell, 1971; as cited in Tomlinsen, 1975: 253).
years of age transition from a unilateral political power opinion to a vertical political role arrangement. At this stage, children are aware of political conflict; but awareness of political conflict takes place about 12 years of age. Children consider power institutionalized starting from the age of nine, and notice that people undertake roles by voting of people. Acquisition of the concept of domination by Connell’s subjects goes as far as 16 years of age. Development of the party system understanding is a good model in formation of the political system image. There are four aspects to children’s conceiving parties: They are interested in elections, they experience conflicts among themselves too, they bring out leaders, and produce a form of government. Those points or some of the same can be understood fragmentally starting from seven years of age; however, they form a relatively standard political party understanding as of the age of 12, and parties are considered competitors in earning the right to exercise power.

d) Connell has found out that political thought, interestingly gains comprehensive logical integrity between the ages of 13 to 16. It has been found out that young teenagers make more and more connections every day and that they form hierarchical thought on generalizations and root reasons. Most children, as of 15 or 16, will have formed “a political appearance that is and may qualify as a whole despite some inconsistencies and conflicts” in their minds. Connell uses the term “ideology” in the meaning of conscious political opinion, according to which most teenagers and adults do not have any ideology.

The three stages of development of political standings in response to such cognitive-developmental background of political belief are more easily conceived. In the first two cognitive stages up to 9 years of age, politics has no alternatives, thus there is no election problem. As different opinions are formed on political area, choices develop and positions are taken. This is first realized relatively in isolation and fragments and then in a more interrelated and probably in a way to go as far as open ideologies (as cited in Tomlinson, 1975: 254-5).

The research by Adelson et al. coincides with the research of Connell. Adelson conducted a research with 450 teenagers from varying social classes and three nations, which are, USA, Western Germany and Britain involving both sexes whose age ranges between 11 to 18, and who are both normal and highly smart. The objective is to explore the political action world of teenagers of different ages and how they form a political philosophy. Adelson et al. thought that the best methodology is to avoid talking about up-to-date political realities with the subjects. Therefore, they benefited in their interviews fundamentally from a hypothetical condition whereby they asked the subject to imagine a group of a thousand people on an island in the Pacific forms a political order and law system, and in general encounters numerous government problems. As a result of the research, no difference on sex basis was found; however, only tiny and expected differences were found out in connection with intelligence and social class. National differences are obvious, but not considered too significant. It has been determined that there is a major shift in the character of political thought at the ages of 12, 15 and 16; however, it was thought to arise from the age factor (as cited in Tomlinson, 1975: 254-5) (Table 1).

Prasad (1975) specified that political education has five dimensions (Table 2) and those five dimensions should be functionalized in a holistic approach (as cited in Pandey and Kumar, 1977: 519):

1) Political awareness,
2) political articulation,
3) political participation,
4) political involvement,
5) political judgement.

According to Ross (1984: 134-7), political education has aspects related to several social research projects; for example, common titles such as examination of friend groups (leadership, rules), games (making and implementation of rules, justice), examination of work places (power and authority, hierarchies, ownership and distribution) or police. Political education in primary schools can be made both in official curriculum and within the general operation and atmosphere of the school. It is not obligatory that the curriculum consists of a list of titles to be studied. It is adequate instead that the desired competences consist of a series of agreed concepts and skills. Ross defends political education also for improvement of covert political values in the school and classroom management and atmosphere. For him, both school and classroom are micropolitical organizations, and children notice their differences in power relationships with their experiences of belonging to such groups first. Children notice the hierarchical relationships among the personnel even in a tiny school.

Conclusion

Unfortunately, education is not analyzed enough as a political reality in Turkey; however it is dealt with on the basis of a reducing approach being considered a subject of politics² (Özsoy, 2012). Therefore, political education is a subject by some not conceived, by some, considered unnecessary to discuss, and by some abstained to deal with. We should tell this once more; wherever there is a

²Thinking of education as a political reality is seeing education as an “area”, a “relationship” and a “process” rather than an “epiphenomenon” a “tool”, a “means”, a “thing” or a “state” (Özsoy, 2012: 98).
The table below illustrates the dimensions and indices of political education.

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<td>Participation in Strategy Formation</td>
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If school is indeed “not preparation to life but life itself” as Dewey mentioned, the primary duty of education would be to ensure that children and youths face, mingle and live side by side with life and the realities, problems and forms of relationship of life. On the other hand, the real world is a political one. Pretending to be outside of what is political although life itself is political would create a state of alienation, which we, as the society, have to face (Gümüş, 2006: 261). It should be remembered that displacing or postponing political education with paranoid discourses like “Keep politics away from education” would aggravate that state of alienation.

**Conflict of Interests**

The author(s) have not declared any conflict of interests.

**REFERENCES**


Politics is “the art of doing something for the good of the people”. That definition of politics comes from its Greek origin. As to “siyaset (Turkish word for politics), it comes from stableman in Arabic. This is the source of the difference of perception of politics between the Eastern and Western worlds (Yetkin, 2013: 128). Politics originates from Greek while “politics” from Arabic.

There are no doubt some distinctive features. Although the primary category of politics is the society itself, the primary category of education is the individual within the society. Although politics know about the tension between societies, it is unaware of the tension between the individual and the society. Nevertheless, education is aware of the tension between the individual and the society, and tries to form a balance in between. While politics is a tool of governing, education is a tool of shaping (Rotenstreich, 1952).
A flipped course delivery: A practitioner approach with a case study

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Flipped course is used in well-developed educational institutions and technologically developed countries. It is quite experimental in nature for resource restricted educational institutions and developing countries. In this paper such cases are considered, where faculties make use of free resources available for conducting flipped courses. Traditionally courses are taught to the students using black board. Nowadays teachers have started using power point presentations for their teaching. Teachers cannot completely depend on black board teaching to demonstrate the applications and implementations of a course. In addition to the conceptual teaching, the students should be actively involved and motivated to make the course more effective. To make students get involved in learning about concepts of a course, the authors have designed and conducted different case studies. The methodology of delivering course and assessment methods are refined year after year using qualitative and quantitative measurements. Comparison of the outcomes is done by the authors with respect to students' performance year after year. This helps in refining the course content, course delivery and assessment methods. In this paper, authors discuss the different course delivery methodologies they are practicing with continuous refinements. The authors suggest different learning activities, assessment methods and their outcome analysis in this paper.

Key words: Active learning, outcome analysis, flipped course, student learning.

INTRODUCTION

Traditional course design

In traditional courses, most of the students are inactive in class. Making the students get involved in active learning is a typical task which has to be planned properly. Active learning happen in traditional classes accidently which are not scheduled priory. In traditional classes, there are no interesting technologies used for student interaction. Curriculum designers organize the design of courses which are needed for a student to get familiar with a particular professional course.

The courses are to be taught across the semesters of the years of the programme conduction. Students have theoretical exams for their assessments to grade their
Modern curriculum design

Learning of a course helps the students for their all round growth of knowledge. Curriculum designers should design the syllabi of different courses in a constructive way. Thus the students grow in their knowledge of conceptual and experimental skills. So they can design the courses from junior years to senior years in a pipelined or streamlined structure. Fundamentals courses of a Programme can be taught in the junior year. The intermediary courses can be taught to students in the intermediary years of the programme. Then the advanced courses can be covered and taught to students in senior years. So the students will have thorough knowledge of courses as they learn the concepts in stages throughout their complete programme (Anupama, 2015). Teachers have many ways to communicate with the students such as the websites, online forms, etc. There are new methods which are the findings of educational research to conduct different teaching delivery and assessments. In this paper, the authors consider few of the delivery methods for a course and assessments using modern methodologies. These methods surely improve the interest for the students in learning a course and get assessed.

Case study: Flipped compiler design course for engineering students

In this paper, authors consider the Curriculum designed for Computer science and engineering students (Figure 1). In first year, students study Fundamentals of Computing in which they learn C programming developing, compilation and execution. In second year, students study basics of Data structures, Algorithms, Discrete mathematics, Theory of computation, Microprocessor, Computer organization and Data communication. These are the important courses students learn to become a Computer Science and Engineer.

In Third year, the students learn compiler design. Before that, they have learnt the basics of compiler in Theory of Computation subject and the data structures. These courses are needed to be learnt for designing compilers. So students can understand about the stack usage easily in compiler operations. About algorithms students have learnt in Analysis of Algorithms course. This course helps the students for designing their compiler phases in an optimal way.

Microprocessors and Computer Organization courses help the students to study and learn about the Computers in detail. With the knowledge of the usages of system software students learn the purpose of translators. Students learn about translators and their working nature for each computer architecture. Students correlate machine architecture knowledge with the translators like assembler and compiler. As students learn microprocessor they can code a machine using assembly language program. This will help the teacher to link compiler code generation phase as code generator phase generates assembly language code (Figure 2).

Instead of teaching the students in traditional ways with black board, the authors use quiz component. This quiz conduction is used to make students to prepare for the course concepts. The authors have conducted the quiz as additional assessment component in their first attempt to deliver the course. Students show interest to prepare for the assessment of online quizzes more than the regular descriptive theory tests. So authors have motivated more active learning strategies in their courses. These authors have refined the active component in the next year. For that authors have selected a strategy to implement the course concepts in an experimental ways using tools. That also yields a fruitful performance improvement in the students’ interest and motivation. Students show interest in collaborative learning of course contents in group activities by sharing their knowledge.

Overview of course Structure

Refining a course in an autonomous institution

The objective is to flip the course delivery and assessment methods from the traditional methods of course conduction. Initially when the authors institutions
have moved to autonomous institution status, they have introduced the tutorial component only for problem oriented subjects. This tutorial is additional component and varying from traditional university curriculum delivery methods of courses. So the students get involved in problem solving during the tutorial sessions and additional faculties will be there to help students in solving problems.

Students have discussion with their peers during tutorial session and solve the problems in collaborative way too. Authors have introduced quiz component to improve their learning activity, so that they come prepared for quiz. Then the authors have used practical assignments to improve their practical skills to implement conceptual knowledge. This year authors have refined the course conduction thus the students involve actively in technical paper writing skills related to courses (Figure 3).

Course objectives

The authors want to standardize the course delivery methods in an outcome based education scenario, for which they have to determine the course objectives which are needed to be achieved by efficient course delivery, learning and assessment methods. This has to be done very much prior to the beginning of a course. So the teacher can plan and schedule the things accordingly. In this paper, authors consider the following course objectives which are set for compiler design course.

Compiler Design course will help students to achieve the following objectives:

1. Present fundamental concepts and techniques for compiler design and understand the scanning process of compiler
2. Identify the methods and strategies for parsing techniques.
3. Show the syntax directed translation schemes of compilers
4. Devise intermediate code generation schemes
5. Optimize the code for efficient utilization of CPU

Course outcomes

To measure the course objectives attainment, the course designer should specify the outcomes needed to be measured for a course. This has to be specified before the beginning of the course. In this paper, authors have defined certain course outcomes which have to be met at the end of the compiler design course.

At the end of the compiler design course students should be able to:

1. Identify the phases of a compiler and explain and perform the lexical analysis process of compiler
2. Create various types of parsing tables for syntax analyzer phase of a compiler
3. Devise and perform syntax-directed translation schemes for compiler
4. Formulate intermediate code generation schemes for compiler
5. Reorganize code for obtaining an effective code
Learning activities for flipped course

Quiz activity

Traditionally teachers conduct quiz orally to students by dividing them into groups and grade them. In some cases, it can also be conducted by making students to write answers in answer sheet. Faculty evaluates the answers of quiz later and assigns the grades to students accordingly. For the preparation of quiz, students need to prepare for the conceptual as well as problematic lessons of the course as homework. This improves the active involvement of students in understanding the concepts outside the class. As part of the flipped course conduction in this paper, authors attach quiz component which is different from traditional method of quiz conduction. The authors have conducted online quiz using Moodle Tool. Previously, the authors have used quiz component with courses like computer organizations through multiple choice questions (Veselin et al., 2015).

Using Moodle software for quiz conduction

As traditional methods of quiz conduction are time consuming, the faculty should look for softwares such as Moodle for the evaluation of quiz. Hence in this case study, the authors find Moodle software to be more effective in terms of time. Teachers find reducing malpractices such as copying and other things. This is because the questions are not same for all the students as the software has the option of assigning questions randomly.

Further, this quiz component results in effective and proper evaluation of students with regard to various courses offered.
**Conduction of Bridge course to teach tools**

As the courses consist of experimental nature, the authors suggest the faculty that they should teach students with demonstration of related tools. This helps students to simulate the concepts learnt in a course (Theodora et al., 2015). Teaching the tools during the regular class consumes student's time and leads deviation from regular course conduction. Bridge courses make students learn the tools or simulators. This helps them experiment their conceptual learning of a course. Bridge course can be conducted during vacation or during weekend or special classes (Qinran et al., 2015). In this case study, the authors want students to improve in their creative skills. In compiler design course, students solve the problems related to compiler phases. The authors have refined the learning method by replacing quiz component of course with practical assignments. This helps to involve students in active learning of compiler design tools. Using the tools students design compiler phases and learn compiler design using hands-on training. Students learn to work with the tools through the bridge course. Bridge course have been conducted for 2 days over 2 weekends.

**Group activities and online submissions**

Teachers should involve students in active learning and make them use the technology. For that teachers can make the students to perform activities in groups (Leonard et al., 1997). Transferring the assignment questions and the solutions can be done through online over internet communications between the students and teacher (Sousa et al., 2013). In this case study, the authors teach Lex and Yacc tools to students. They teach the way of coding to generate compiler phases using the tools. At the end of bridge course the authors give few assignment questions. Students should perform and submit the assignments in group of 2 (Loren et al., 2012) before dead line. So students actively get involved in the bridge course and complete the assignment in the stipulated time (Margaret and Amber, 2015).

**Sample of practical assignment questions**

The authors define the problems to be solved by students using Lex and Yacc tools. Students get supplied with the sample input to be given as well as the output to be yielded from their programming solutions. With reference to that students develop program solutions using the tools as the outcome of bridge course. The sample practical assignments problem definitions are stated below. Students are provided with the sample input and output to validate their program execution to avoid ambiguity in their solution.

**Problem definition 1**

Write a Yacc program to accept a statement and do error detection. Check for valid arithmetic expressions in input C program. Report the errors in the statements to user.

*Sample Input 1:*

\[
A=a+b+(f+6)/(f^*)
\]

*Output Expected for sample input 1:*

Valid arithmetic expression

*Sample Input 2:*

\[
A=a+b+(f-g-8))
\]

*Output Expected for sample input 2:*

Invalid arithmetic expression

**Problem definition 2**

Write a Lex program to accept a C program and do error detection and correction.

i) Check for un-terminated string constant in input C program; that is, a string constant beginning with double quotes and extended for more than one line. Intimate the error line numbers and the corrective actions to user.

ii) Check for valid arithmetic expressions in input C program. Report errors in the statements to user.

*Sample Input 1:*

```c
#include<stdio.h>
#include<conio.h>
void main()
{int a;
char c(10)="msrit";
a=a+b;}
```

*Output Expected for sample input 1:*

Valid string

Valid arithmetic expression

*Sample Input 2:*

```c
#include<stdio.h>
#include<conio.h>
#include<string.h>
void main()
{int a;
char c(10)="msrit";
a=a+b+h;
strcpy(c,"Bangalore");}
```
Figure 4. Case study: online form to submit the assignment.

Output Expected for sample input 2:
Invalid arithmetic expression in line number 8: + and / used adjacently.
Corrective action required: remove either + or / appropriately.
Invalid String in line number 9: " is opened but not closed.
Corrective action required: close the input string

Assessment of group activities

1) Using Online Forms

Assignment questions for group activities can be put in the website or it can be sent to the group mails of students. Teacher can make use of resources like google forms to accept the submissions from students. This resource is freely available, so faculty can use it for flipped course conduction in terms of assessment submissions (Heinrich, 2014).

For the bridge course assignment in this case study, the authors create online forms and send the links to students. Students submit their program solutions online along with their team details for assessing them. The authors evaluate the students’ code which was submitted through online forms. Then the authors assign the marks and send to their group mails. This reduces the consumption of paper for contacting and notifying students about their progress. The authors find this method as environment friendly (Berhanu, 2014) (Figure 4).

In Figure 4, online form for submitting the practical assignments is given. When it is submitted it will be in the responses of the google form, so faculty can assess it and send the grades along with remarks. In Figure 5, the responses submitted by students are shown.

Online course website for course

Developing Educational Institutions can launch their website using freely available website service providers. Teaching faculties can use Google sites or Wix, etc., so faculty can put their notifications, notes, questions on the website and students can refer to them whenever they want (Heinrich, 2014).

As part of this case study, this year the authors launch course website using free website providers. This is useful for guiding students online whenever faculty is away (Berhanu, 2014). The authors make important notifications, course reference materials, tutorial problems, assessment methods through the website. In Figure 6, week wise updating of course reference materials is shown section wise. In Figure 7, Web page of weekly tutorial problems is shown. Previous year semester end examination question papers are put up for students’ reference in web page as shown in Figure 8.

Using free/limited resources available online for course delivery and assessment methods

Moodle is a software through which, faculty can conduct online quizzes, assignment submissions, project
document submissions, etc. Moodle is an open source. Faculties can design their course websites to be in touch with students through online using free website providers. They can upload the study materials and notifications to students in web pages. Faculties can use online forms like google docs to create forms and collect surveys from
students. Using google sites, wix web sites templates, etc., people can create their websites and launch. Shared drives can be created through drives like google drives and those repository files can be shared among students.

**Refinement in course learning activity**

Course delivery and assessment methods are refined based on the feedbacks, surveys, performance of students in assessments. Based on the analysis of these data, course designer and deliverer modify the course contents and the assessment strategies. For this, new strategies are needed to improve the active learning involvement of students (El-adaway et al., 2015; Loren et al., 2012; Massimo et al., 2013).

**Technical paper writing**

For the advanced courses in senior year, faculty can ask students to do literature study over the existing systems
related to particular topic of a course. Based on that the students can be instructed to write technical papers and present for professional societies. This promotes the students’ skills to become researchers and creators. In this case study, after two refinement stages in the past two years, this year the authors introduce technical paper writing. It involves literature survey and writing technical paper on Compiler design phases and related topics. Students are new to technical papers writing. So the authors make repositories of papers and share to students through shared drives which are accessible online.

Repository of journal papers through shared drive online

Faculty can create repository of journal papers which she/he wants to share for students. Students download according to the specializations and put in the shared drive online. For this free shared services can be used online over the internet. Teaching faculties can make use of shared drive facility available with Google. This reduces the expenses in conducting flipped courses in developing educational institutions. In this case study, the authors create the repository of technical research papers. Repository consists of different categories like lexical analyser, parser, semantic analyser, intermediate code generator, code optimizer and code generator. The authors’ institutions have purchased online journals which are available in digital library. The authors have created the repository out of the digital library. So students can easily refer these repositories to do their literature survey and write technical papers related to compiler design. They need to present in conferences and publish in journals. After getting the review comments and acceptance notifications they need to show the proofs to faculty for assessment. This component is been assessed as part of their continuous internal assessment (Rosemary and Sidney, 2010).

ASSESSMENT RESULTS AND ANALYSIS OF CIE ASSESSMENT

CIE theory exams can be conducted in traditional way, to evaluate the conceptual and problem solving ability of students. Questions can be formed and categorized using revised blooms taxonomy. In Figure 9, CIE question paper analysis is shown as per blooms taxonomy. It depicts that 17% of the questions make the students to create solutions and write. Another 17% of questions make them to remember and write the concepts and 19% of the questions are to evaluate the concepts learnt. 14% are used to analyze and write, 13% for checking the understanding and 20% for making students to apply the knowledge to answer the questions.

Curriculum designers and teaching faculties can measure and analyze the course delivery methods by collecting the feedbacks and surveys as well as from the performance assessment results. By comparing them year wise (Lopatto, 2007), the flipped course objectives attainments can be drawn against the course outcomes. This has to be mentioned prior to the beginning of the course delivery. For this case study, the authors do the statistical analysis of all students’ performance in the continuous internal evaluation (CIE) tests. The CIE tests were conducted for 30 marks. Three CIE tests were conducted in equal distribution across the semester of 6 month duration. The authors have compared the performance of present year students with previous year students. In Table 1, the students’ CIE-descriptive question answering marks were analyzed statistically. Deviation of marks is very less for students of 2014 compared to that of 2013 batch students.

In Table 2, comparison of students marks test wise as well as year wise are shown compared to the 2013 batch student. The standard deviation of students’ marks got reduced for all tests of 2014 batch students. Mean values of tests 1 and 2 marks are more in 2014 year compared to 2013 with active learning methods, such as practical assignments. In test 3, the students of 2013 have done better and 2014 students have not performed well. The reason for this is practical assignments are not given
Table 1. Case study: statistical analysis of CIE-descriptive question and answering test marks.

<table>
<thead>
<tr>
<th>Year</th>
<th>Mean</th>
<th>Std Dev</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>20</td>
<td>5.81</td>
<td>5</td>
<td>30</td>
</tr>
<tr>
<td>2013</td>
<td>21</td>
<td>6.72</td>
<td>2</td>
<td>30</td>
</tr>
</tbody>
</table>

Table 2. Case study: statistical analysis of CIE-descriptive question and answering test marks.

<table>
<thead>
<tr>
<th>Year</th>
<th>Internal Assessment No</th>
<th>Mean</th>
<th>Std Dev</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>Test1</td>
<td>20.51</td>
<td>5.58</td>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Test2</td>
<td>21.1</td>
<td>6.00</td>
<td>1</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Test3</td>
<td>15.64</td>
<td>7.11</td>
<td>1</td>
<td>30</td>
</tr>
<tr>
<td>2013</td>
<td>Test1</td>
<td>16.89</td>
<td>6.85</td>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Test2</td>
<td>16.01</td>
<td>7.16</td>
<td>1</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Test3</td>
<td>23.72</td>
<td>7.54</td>
<td>2.5</td>
<td>30</td>
</tr>
</tbody>
</table>

from the course outcomes mapped to test 3. Further 2013 students have studied for the quiz prior to the test 3. This has helped them to perform better in test 3 and mean is higher than 2014 students.

Analysis of quiz assessment (2013) and practical assignment assessment (2014)

Quiz conduction has been done through Moodle software. Students get the questions in different order with options. The questions and options are jumbled up by software automatically. Students appear for quiz online individually. Finally, the assessment of quiz has been taken from Moodle software in excel format. Assessment marks get added to their theory Continuous Internal Evaluation (CIE) marks. Through Quiz, faculty can assess students remembering, understanding, analyzing and applying skills. Students’ collaborative skills are not involved in quiz as well as faculty cannot assess creative skill of students. This can be overcome by practical assignments. Students get involved collaboratively in practical assignments as they do assignments in group and they use their creative skills. Students learn in shared mode along with remembering, understanding, analyzing and applying skills (Table 3).

The authors compare the quiz marks with that of practical assignment marks of different years (Lopatto, 2007; Michael, 2004). They observe that the standard deviation of students’ marks in 2014 is lesser than the year 2013.

Table 3. Statistical analysis of active learning assessment marks.

<table>
<thead>
<tr>
<th>Year</th>
<th>Mean</th>
<th>Std Dev</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>14.3</td>
<td>3.02</td>
<td>3</td>
<td>19</td>
</tr>
<tr>
<td>2014</td>
<td>19.48</td>
<td>1.50</td>
<td>11</td>
<td>20</td>
</tr>
</tbody>
</table>

Table 4. Case study: Statistical analysis of semester end examination-descriptive question and answer.

<table>
<thead>
<tr>
<th>Year</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade</td>
<td>Percentage of students</td>
<td>Percentage of students</td>
</tr>
<tr>
<td>S</td>
<td>1.27</td>
<td>2.60</td>
</tr>
<tr>
<td>A</td>
<td>36.94</td>
<td>26.62</td>
</tr>
<tr>
<td>B</td>
<td>36.31</td>
<td>47.40</td>
</tr>
<tr>
<td>C</td>
<td>12.10</td>
<td>11.69</td>
</tr>
<tr>
<td>D</td>
<td>5.10</td>
<td>5.19</td>
</tr>
<tr>
<td>E</td>
<td>4.46</td>
<td>3.25</td>
</tr>
<tr>
<td>F</td>
<td>3.82</td>
<td>3.25</td>
</tr>
</tbody>
</table>

Semester end examination assessment analysis

Statistical analysis of Semester End Examination marks helps the curriculum designer to determine the effectiveness of flipped course conduction and assessment methods. The statistical information can be compared across the different years (Michael, 2004; Johnson et al., 2001). Statistical analysis of different course delivery and various assessment methods are done for refinement (Leon, 2015). This will surely help the faculty to know whether the new methods have improved the performance of students or not. In Table 4, statistical analysis of Semester End Examination marks conducted for this case study is shown. These are taken of compiler design course students of year 2013 and 2014. The S grade represents students have scored between 90 to 100 marks, A grade represents 80 to 89 marks, B grade represents 70-79 marks, C grade represents 60-69 marks, D grade, 50-59 marks, E grade represents 40-49 marks and F grade represents fail grade. The authors compare the percentage of students who scored F grade in 2014 with 2013. Similarly E grades, C grades are reduced in year 2014 compared to year 2013. There is a negligible decrease of 0.09% for D grades in 2014 and B grades also have increased in 2014. There is 10% decrease in A grade for 2014 and B grade scorers have increased by 11% compared to the year 2013. S grade scorers also increased by 1.4% in year 2014. Hence the authors
Figure 10. Case study: students' grade distribution in Semester End Examination in years 2013 and 2014.

Table 5. Analysis of course outcome attainments- with respect to students percentage of marks scored questions wise.

<table>
<thead>
<tr>
<th>Year</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course outcomes</td>
<td>Percentage of attainment</td>
<td>Percentage of attainment</td>
</tr>
<tr>
<td>CO1</td>
<td>60.01</td>
<td>73</td>
</tr>
<tr>
<td>CO2</td>
<td>63.29</td>
<td>83</td>
</tr>
<tr>
<td>CO3</td>
<td>65.57</td>
<td>80</td>
</tr>
<tr>
<td>CO4</td>
<td>78.27</td>
<td>73</td>
</tr>
<tr>
<td>CO5</td>
<td>75.93</td>
<td>60</td>
</tr>
</tbody>
</table>

identify that they should put in more effort to increase A grade scorers. For that, they should introduce more active learning strategies in their course (Figure 10).

Statistical analysis of students attaining the course outcomes in CIE

The authors desire to measure the course outcomes and analyse them. For that, they map the questions asked in the CIE assessment to the course outcomes (CO). Then they compared them year wise (Weili et al., 2015). In Table 5, the statistical analysis is shown for the years 2013 and 2014. It shows the students' average marks scored in each question. Questions get mapped to the course outcomes and with that percentage of course outcome attainment is calculated (Kim, 2013).

In 2014, the students have performed well in their CIE assessments. The authors observed that students learning outcomes are attained better for the course outcomes 1, 2, 3. This is because the practical assignments are related to the topics CO1, CO2 and CO3. Hence, the authors plan to refine the practical assignments related to CO4 and CO5, so that students actively learn CO4 and CO5 to enhance attainment level.

Analysis of students’ feedback during 2014

The teaching faculty can measure delivery methods and assessment methods using the surveys and feedback. Faculty can analyze the data to extract the effectiveness of their delivery and assessment strategies used during the course conduction (Anupama, 2015). For this case study, the authors have collected students’ feedback in 2014 using online forms and the responses are analysed (Matthew et al., 2014).

Table 6 shows the mid-term survey of students'
Table 6. Feedback analysis of students - 2014.

<table>
<thead>
<tr>
<th>Feedback questionnaires</th>
<th>Mid-term survey</th>
<th>Course exit survey</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Agree</td>
<td>Disagree</td>
</tr>
<tr>
<td>Lectures clear/well organized and presented at a reasonable pace</td>
<td>98%</td>
<td>2%</td>
</tr>
<tr>
<td>Class sessions increase the understanding of the course</td>
<td>95.9%</td>
<td>4.1%</td>
</tr>
<tr>
<td>Problems worked out in the classroom help to understand and solve questions on their own</td>
<td>95.9%</td>
<td>4.1%</td>
</tr>
<tr>
<td>Grading scheme clearly outlined and reasonable/fair</td>
<td>91.8%</td>
<td>8.2%</td>
</tr>
<tr>
<td>Assignment procedures clearly explained by the teacher</td>
<td>89.8%</td>
<td>10.2%</td>
</tr>
<tr>
<td>Attainment level of CO1</td>
<td>100%</td>
<td>0%</td>
</tr>
<tr>
<td>Attainment level of CO2</td>
<td>100%</td>
<td>0%</td>
</tr>
<tr>
<td>Attainment level of CO3</td>
<td>95.9</td>
<td>4.1%</td>
</tr>
<tr>
<td>Attainment level of CO4</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Attainment level of CO5</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

feedbacks. Mid-term survey helps to,

1. Improve the lectures and delivery methods for improving understanding
2. Refine problems solved in tutorials to improve the problem solving skills
3. Improve the grading schemes
4. Refine the instructions and guidelines
5. Refine assignments

So in course exit survey, the feedback gets improved to 100% in most of the feedback statements asked to students through online forms (Kim, 2013).

DISCUSSION

Teachers want their students to learn the course thoroughly. For this active involvement of students is required through active learning.

Active learning methodologies discussed in this paper

1. Online quiz conduction using computers
2. Homework assignments
3. Online submission forms
4. Online technical paper submission in shared drive
5. Group activities in collaborative manner

The above activities are experimented, analysed and compared for their effectiveness. For this case study, in 2014 the authors have introduced the practical assignments. This helps students get involved in designing compiler phases using lex and yacc tools. It helps the students to learn to work with compiler phases. This created an opportunity to experiment the theory of compiler design course.

In 2013, students actively learnt compiler design concepts using their preparation for quiz. This helped them to prepare for conceptual knowledge test and individual participation. But in 2014 students got an opportunity to work as a team using tools. The authors assisted them by conducting additional bridge course to fill the gap of compiler theory and the practical. For that, the faculty has used lex and yacc. Students have done collaborative work to develop programming solutions (Massimo et al., 2013; Leonard et al., 1997).

The authors measure (Johnson et al., 2001) the course outcomes attained using the grade scored by students. They use surveys to collect students’ feedback about the course outcomes attainment levels. This helps the authors to know how much understanding students have about the course. This helps to refine the delivery methods and the assessment methods.

This year 2015, the authors have created course website. This is useful to communicate to students the on-going compiler design course. The website provides the weekly reference materials and tutorial problems to be solved. This will help the students to update themselves with respect to course materials. This year, the authors have asked students to write technical paper on compiler design. This makes the students involve in compiler research study better. This helps the students to understand the basic concepts and improve their grades in CIE and in Semester End Examinations.

Conclusion

In this paper, the authors suggest useful strategies to
deliver the flipped course effectively. For that the authors suggest freely available resources over the internet such as Moodle software, Google online forms, Google web sites, wix websites, etc. This encourages students' involvement in active learning of practical assignments related to theory than quizzes. Further, the authors analyse that the practical assignments help students to learn the compiler design theory better. They observe that the practical assignments help students to improve in their grades in the assessments. With this, the authors conclude that having limited resources cannot restrict flipped course conduction. Teaching faculties can use freely available internet resources to provide better course delivery and assessment online. Faculty can host course references and assessments through freely available online resources.

Conflict of Interests

The author(s) have not declared any conflict of interests.

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REFERENCES


Full Length Research Paper

Unethical behaviours preservice teachers encounter on social networks

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The development of web 2.0 technology has resulted in an increase in internet sharing. The scope of this study is social networking, which is one of the web 2.0 tools most heavily used by internet users. In this paper, the unethical behaviours that preservice teachers encounter on social networks and the ways to deal with these problems are examined. A form consisting of open ended questions was given to preservice teachers. The form was developed by researchers who have studied the subject. By the end of the study, it was understood that 89% of the preservice teachers encountered inappropriate behaviours such as profanity, insults, sexually explicit photograph sharing, threats, unwanted video ads (advertisements) and verbal harassment. The results showed that teachers try to solve these issues by strengthening their privacy settings, reporting or blocking harassers, and that they also tend to share personal information only with friends and family. The preservice teachers stated that the most important unethical behaviours they came across on social networks were explicit content and personal information sharing. Teachers and preservice teachers ought to be informed about equality, respect to other opinions, human rights, personal privacy, media ethics and universal moralities with regard to online and social media content. Thus, it will be possible for them to inspire their students regarding the above mentioned values and contribute to the solution of the problems.

Key words: Social networks, preservice teachers, unethical behaviour.

INTRODUCTION

With the development of internet technology, Web 2.0 applications have enabled users to easily develop personal websites and share their thoughts, videos and photographs (Wikipedia, Myspace, Facebook, Friendster, Flickr, Twitter, Friendfeed, Youtube etc.). Namely, they have enabled users to connect to various other users in different ways. Social networks are web based services that allow individuals to set up public or private profiles and share their contact lists with others within a limited system. Social networks also allow other users to see and browse through listed contacts in the system (Büyüksöner, 2009). The social network site is defined by Ellison and Boyd (2013) as “a networked communication platform in which participants have uniquely identifiable profiles that consist of user-supplied content, content provided by other users, and/or system-provided data;
can publicly articulate connections that can be viewed and traversed by others; and can consume, produce, and/or interact with streams of user generated content provided by their connections on the site. Social networking sites (SNS), one of the tools of Web 2.0, have infiltrated people’s daily lives with amazing rapidity to become an important platform for computer-mediated communication (Lin and Lu, 2011). Nowadays social networks are used widely throughout the world and also within Turkey. Facebook has 1,310,000,000 active users globally and with 34 million active users in Turkey, it is ranked as number six among the most popular social networks worldwide (Quintly, 2014; TGNA (Turkish Grand National Assembly) Commission Report, 2012).

Twitter, another popular social network, has 645,750,000 users worldwide (Statistic Brain Research Institute, 2014). In Turkey, the number of Twitter users is over 5 million (TGNA Commission Report, 2012).

Social networking websites store user-related data in their database enabling individuals to connect with their friends, set up groups and share photographs, videos and opinions with people of common interests (Köktürk, 2013). In social networks users are allowed to decide on who can view their profiles; however, security settings are set up by default. Users can decide which other users may access their profiles as well as adjust privacy settings. This flexibility might be considered favourable when adult and informed users are taken into account but adults are not the only users on the internet. Research into social networks has shown that most users do not use security settings or they use very little even though they have the ability to administrate the security settings of the information they share (Gross and Acquisti, 2005; Litt, 2013). Although the legal age limit to create an account on social networks is 13, many users who are under 13 are known to use these networks (Yavanoğlu et al., 2012). While social networks provide various sharing opportunities they also expose users to various risks and ethical problems, such as: identity theft, violent media, pornography, viruses, profanity, misinformation, fake profiles, hate speech and attacks on personal lives (Haddon et al., 2012). Considering the ages of the social network users, the aforementioned issues become particularly important for users who are under 13 years of age. The results of a study conducted by TGNA (2012) have shown that 48% of children between the ages of 9-16 use social networks. One-third of the children who have a social network account who participated in the study in question are under 13 years of age. 85% of the children who use social networks have Facebook accounts. Even though more than half of the parents forbid their children to share their personal information online, 42% of the children choose the “Public” profile setting option which enables anyone to view their profiles. One-third of the children share their personal information only with friends. 19% of the children share their address details and 8% of them share their telephone numbers on social networking websites (TGNA, 2012).

In the United States, children and youths at the K-12 level were seen to have posted a large amount of their personal information to share on social networks (Washington Post, 2010).

Regarding the movements aimed at promoting the usage of social networks in the field of education, it is clearly seen that these networks are popularly used by many students and teachers for both social and educational purposes. When all these points are taken into account, the need to raise awareness in students about using social networks arises. Teachers play the most vital part in warning students about social networks. Raising awareness in teachers is crucial not only for their own benefit but also in terms of guiding their students and preventing risks and dangers that await students on social networks. In order to inform and raise awareness in teachers, touching on the risks and dangers on social networks in faculties of education may be the basis of future precautions that will be taken by teachers as well as recognizing the unethical behaviours and questioning the steps they take in terms of security measures.

Connectivism theory is the basis of the purpose of this study. Connectivism is a learning theory for the digital age and an approach that explains the process of learning about the meaning of information by establishing ties on networks (Siemens, 2005). The purpose of the study is to explore the perceptions of teachers about the risks and dangers while using social networks and help them realize the points to take into consideration regarding the measures that need to be taken with the security policies on social networks. With the help of the study, it will be possible to determine the frequency of use of social networks and preservice teachers’ activities and the unethical behaviours they encounter on such networks. In the study is to examine the unethical behaviours that preservice teachers face on social networks. The study has two different subgoals based on the aims set. These are:

1) To explore the views of preservice teachers on unethical behaviours they come across while using social networks.
2) To point out the particular unethical behaviours that emerge with the use of social networks as a communication media.

METHOD

Research model

Being a qualitative study, the research was conducted within the 2013-2014 academic year using maximum variation samplings with the participation of the preservice teachers studying at Kocaeli University in the Faculty of Education. The preservice teachers were given a form consisting of open ended questions. The confidentiality of the information that the preservice teachers
provided for the research was of ultimate importance. The forms that students filled in were transcribed by the researchers. They were carefully examined and the codes and categories that established the framework of the research were explored and also functional definitions were assigned. As part of the defined codes, the practices carried out with the preservice teachers were re-examined and the nature and frequency of code applications were determined.

Study group

The students of the Faculty of Education were the core of the study. The participants of the study were second, third and fourth-year students from the departments of Psychological Counselling and Guidance, Computer and Instructional Technologies (CIT) and Classroom Teaching. Prior to receiving the forms, the preservice teachers were told about the purpose of the study and volunteers were sought. 120 preservice teachers answered the forms. 111 forms were analyzed after the elimination of the ones with missing information.

Data collection tool

The open ended form used in the research was created by the researchers who examined the previous studies in the literature on this topic (Balcı and Gölcü, 2013; Bilgen et al., 2014; Büyükşener, 2009; Christofides et al., 2012; Can, and Işıbulan, 2012; Dilmaç, 2009; Genç et al., 2013; Gross and Acquisti, 2005; Grosseck et al., 2011; Hew, 2011; Lin and Lu, 2011; Özdemir and Akar, 2011; Yu et al., 2012). The expert opinions of three faculty members from the CIT field were sought and their responses helped the researchers to further develop and refine the form. In the form there were 6 items to determine the demographic information of the preservice teachers and 10 items regarding the unethical problems they faced on social networks. While the items about unethical issues were being developed, the questions were specifically designed to elicit detailed information from the preservice teachers. The preservice teachers were asked questions concerning their purposes in using social networks, their knowledge about the security and privacy settings, users they blocked on social networks, the social networks they used, the unethical behaviours they encountered on these networks and how they dealt with them, the most important problems they came across on social networks and whether it was appropriate for students and teachers to become friends on social networks. After the questionnaire had been developed, firstly the opinions of CIT experts were obtained. Experts gave feedback and offered the change of some of the questions in order to enhance the relevancy of the items in the form with the research questions. After the necessary changes had been made, 12 preservice teachers studying in the department of English Teaching in the Faculty of Education at Kocaeli University, who were exclusive of the study group, were given the form. According to the results of the pilot scheme, it was understood that the preservice teachers had difficulty in understanding and answering some of the open ended questions; thus the form was finalized pursuant to the necessary changes in the questions. The final version of the form consisted of two sections. The first section was composed of demographic information whereas the second section consisted of the opinions and suggestions of the preservice teachers about the unethical issues faced on social networks. This finalized form was given to volunteer students in the classroom environment by the authors.

Data analysis

No changes or corrections were made on the data obtained from the research. While the data was being analysed each form was given a numeric code from 1 to 111. At first the data were converted into text by the researchers using electronic spreadsheets and then it was sorted out by using content analysis, a qualitative research technique. The answers that preservice teachers gave to each question were classified and interpreted in terms of research purposes and then the frequency of the answers was determined. Since the categories were created by using qualitative research questions, items about each category were given using frequency and percentage rates. In this way, the researchers attempted to convert the qualitative data into quantitative data. The basic aim in converting qualitative data into quantitative data is to support reliability, decrease partiality and make comparisons among categories (Yıldırım and Şimşek, 2005). Content analysis was conducted by two researchers and in comparing the results a consensus was reached at a rate of 80%. These results establish the reliability of the coding. Both researchers carried out content analysis separately and the agreements and disagreements from the emerging opinions were examined. Reliability analysis of the qualitative data was carried out by Miles and Huberman’s (1994) formula:

\[
\text{Reconciliation Percent} = \frac{\text{Consensus}}{\text{(Consensus + Dissidence)}} \times 100
\]

The cases under various categories were discussed and the researchers tried to reach an agreement. The correspondence coefficient between the two coders was estimated. The coefficient, one of the indicators of reliability, was obtained as .82 for this study.

FINDINGS

Within the scope of the research, the findings obtained were compared to the previous research outcomes and presented below in accordance with the purposes of the research.

The demographic information of the participants in the research is seen in Table 1. According to the table, 49 (44%) participants from the psychological counselling and guidance department, 32 (28.8%) participants from the CIT department, and 30 (27%) participants from the classroom teaching department took part in the research. 80 (72.1%) of the participants were female and 31 (27.9%) of them were male. 34 (30.6%) of the preservice teachers were second-year students, 51 (45.9%) of them were third-year students and 26 (23.4%) of them were fourth-year students. 14 (12.6%) of the preservice teachers used social networks for half an hour a day, 31 (27.9%) of them used the sites for 1 to 2 hours a day and 36 (32.4) of them used social networks for 5 hours a day or more. The length of time for which the preservice teachers were members of social networks was as follows: 4 (3.6%) of them 1-6 months, 2 (1.8%) of them 1 year, 40 (36%) of them 2-4 years, 62 (55.9%) of them 5-7 years and 3 (2.7%) of them were members for 8 years or more. It was understood that most preservice teachers were members of social networks for 2 to 7 years on
Table 1. Demographic features of preservice teachers.

<table>
<thead>
<tr>
<th>Feature</th>
<th>F(n)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychological counselling and guidance</td>
<td>49</td>
<td>44.1</td>
</tr>
<tr>
<td>Computer and Instructional Technologies</td>
<td>32</td>
<td>28.8</td>
</tr>
<tr>
<td>Classroom Teaching</td>
<td>30</td>
<td>27.0</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>80</td>
<td>72.1</td>
</tr>
<tr>
<td>Male</td>
<td>31</td>
<td>27.9</td>
</tr>
<tr>
<td>Grade</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2nd</td>
<td>34</td>
<td>30.6</td>
</tr>
<tr>
<td>3rd</td>
<td>51</td>
<td>45.9</td>
</tr>
<tr>
<td>4th</td>
<td>26</td>
<td>23.4</td>
</tr>
<tr>
<td>Frequency of using social networks (daily)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Half an hour</td>
<td>14</td>
<td>12.6</td>
</tr>
<tr>
<td>1-2 hours</td>
<td>31</td>
<td>27.9</td>
</tr>
<tr>
<td>3-4 hours</td>
<td>30</td>
<td>27.0</td>
</tr>
<tr>
<td>5 hours and over</td>
<td>36</td>
<td>32.4</td>
</tr>
<tr>
<td>Subscription period of social network (annually)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-6 months</td>
<td>4</td>
<td>3.6</td>
</tr>
<tr>
<td>1 year</td>
<td>2</td>
<td>1.8</td>
</tr>
<tr>
<td>2-4 years</td>
<td>40</td>
<td>36.0</td>
</tr>
<tr>
<td>5-7 years</td>
<td>62</td>
<td>55.9</td>
</tr>
<tr>
<td>8 years and over</td>
<td>3</td>
<td>2.7</td>
</tr>
</tbody>
</table>

Table 1. Preservice teachers’ purposes of using social networks.

<table>
<thead>
<tr>
<th>The purposes of using social networks</th>
<th>Frequency (n)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connecting with friends</td>
<td>99</td>
<td>89</td>
</tr>
<tr>
<td>Finding old friends</td>
<td>64</td>
<td>57.6</td>
</tr>
<tr>
<td>Listening to / downloading music</td>
<td>42</td>
<td>37.8</td>
</tr>
<tr>
<td>Following sports teams /celebrities</td>
<td>34</td>
<td>30.6</td>
</tr>
<tr>
<td>Imitating the people around them (Curiosity)</td>
<td>21</td>
<td>18.9</td>
</tr>
<tr>
<td>Making new friends</td>
<td>9</td>
<td>8.1</td>
</tr>
<tr>
<td>Following agenda</td>
<td>9</td>
<td>8.1</td>
</tr>
</tbody>
</table>

The preservice teachers were given various options in order to understand their purposes for using social networks and they were allowed to mark more than one option. By examining Table 2, it can be seen that the preservice teachers used social networks mostly for communicating with friends (n= 99, 89%) and finding old friends (n= 64, 57.6). Also, listening to music (n= 42, 37.8%), following sports teams and celebrities (n=34, 30.6%) and imitating the people around them (n=21, 18.9%) were determined as the other common purposes.

Table 3 consists of the answers that the preservice teachers gave to the questions about security. 26.1% (n=29) of the preservice teachers shared their social network passwords with others whereas 73.9% (82) of them never shared their passwords with anyone and only 12.6% (n=14) of them stated that their passwords had been hacked. 93.7% (n=104) of the preservice teachers stated that they knew how to deactivate their accounts and 74.8% (n=83) of them indicated that they knew how to block users from viewing their profiles.

The privacy settings that the preservice teachers were aware of can be seen in Table 4. These are: timeline and tagging (n=94, 84.6%), photographs, albums, wall (n=100, 90.9%), friends list (n=94, 84.6%), about section (n=90, 81%), viewing friends list (n=85, 76.5%), connection settings (n=70, 63.6%) and ads (n=154, 48.6%). Most preservice teachers knew how to adjust the
Table 3. The information preservice teachers have regarding security settings.

<table>
<thead>
<tr>
<th>Security questions</th>
<th>Yes/No</th>
<th>Frequency (n)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does anyone else beside you know your social network password?</td>
<td>Yes</td>
<td>29</td>
<td>26.1</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>82</td>
<td>73.9</td>
</tr>
<tr>
<td>Has your password ever changed hands?</td>
<td>Yes</td>
<td>14</td>
<td>12.6</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>97</td>
<td>87.4</td>
</tr>
<tr>
<td>Do you know how to deactivate your account?</td>
<td>Yes</td>
<td>104</td>
<td>93.7</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>7</td>
<td>6.3</td>
</tr>
<tr>
<td>Do you know how to block someone who looks you up online?</td>
<td>Yes</td>
<td>83</td>
<td>74.8</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>28</td>
<td>25.2</td>
</tr>
</tbody>
</table>

Table 4. Frequencies of the social network privacy settings, blocked persons and shared personal information, used social networking website.

<table>
<thead>
<tr>
<th>Which of the social network privacy settings do you know?</th>
<th>Frequency (n)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timeline and tagging</td>
<td>101</td>
<td>90.9</td>
</tr>
<tr>
<td>Photograph-albums- wall</td>
<td>100</td>
<td>90.9</td>
</tr>
<tr>
<td>Friends list</td>
<td>94</td>
<td>84.6</td>
</tr>
<tr>
<td>About section</td>
<td>90</td>
<td>81.0</td>
</tr>
<tr>
<td>Viewing the friends list</td>
<td>85</td>
<td>76.5</td>
</tr>
<tr>
<td>Connection settings</td>
<td>70</td>
<td>63.6</td>
</tr>
<tr>
<td>Ads</td>
<td>54</td>
<td>48.6</td>
</tr>
<tr>
<td>Who do you block on social networks?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No one</td>
<td>31</td>
<td>27.9</td>
</tr>
<tr>
<td>Friends</td>
<td>30</td>
<td>27</td>
</tr>
<tr>
<td>Relatives</td>
<td>21</td>
<td>18.9</td>
</tr>
<tr>
<td>Harassers</td>
<td>20</td>
<td>18</td>
</tr>
<tr>
<td>Strangers</td>
<td>19</td>
<td>17.1</td>
</tr>
<tr>
<td>Abusers</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>Who do you share your personal information with on social networks?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Friends</td>
<td>64</td>
<td>57.6</td>
</tr>
<tr>
<td>Family</td>
<td>28</td>
<td>25.2</td>
</tr>
<tr>
<td>Everyone</td>
<td>19</td>
<td>17.1</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>2.7</td>
</tr>
</tbody>
</table>

Name of Social Networking Website

| Facebook | 99 | 89.1 |
| Twitter  | 12 | 10.8 |
| LinkedIn, Instagram, whatsup | 6 | 5.4 |

privacy settings; however, only half of them knew how to block ads.

As seen in Table 4, 27.9% (n=31) of the preservice teachers stated that they did not block anyone on social networks while 27% (n=30) of them said they blocked friends, 18.9% (n=21) of them stated they blocked
Table 5. Inappropriate behaviours preservice teachers encounter on social networks (profanity, sexually explicit messages, mockery etc.).

<table>
<thead>
<tr>
<th>Inappropriate behaviours</th>
<th>Frequency (n)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obscene comments, insults</td>
<td>48</td>
<td>26.5</td>
</tr>
<tr>
<td>Mockery</td>
<td>25</td>
<td>13.8</td>
</tr>
<tr>
<td>Sharing sexually explicit photographs</td>
<td>24</td>
<td>13.3</td>
</tr>
<tr>
<td>Not encountering an ethical problem</td>
<td>20</td>
<td>11</td>
</tr>
<tr>
<td>Being harrassed by someone, threats</td>
<td>14</td>
<td>7.7</td>
</tr>
<tr>
<td>Receiving insults when the person’s pokes and friend requests are turned down</td>
<td>10</td>
<td>5.5</td>
</tr>
<tr>
<td>Sexually explicit ads</td>
<td>7</td>
<td>3.9</td>
</tr>
<tr>
<td>Verbal abuse</td>
<td>6</td>
<td>3.3</td>
</tr>
<tr>
<td>Insults on personal values or people who are important for the user</td>
<td>6</td>
<td>3.3</td>
</tr>
<tr>
<td>Unwanted video ads</td>
<td>5</td>
<td>2.8</td>
</tr>
<tr>
<td>Receiving viruses</td>
<td>5</td>
<td>2.8</td>
</tr>
<tr>
<td>Being ridiculed by way of manipulated photographs, being tagged in inappropriate photographs</td>
<td>3</td>
<td>1.7</td>
</tr>
<tr>
<td>Personal information and photographs being invaded, accounts being hacked</td>
<td>2</td>
<td>1.1</td>
</tr>
<tr>
<td>Being tagged in sexually explicit photographs</td>
<td>2</td>
<td>1.1</td>
</tr>
<tr>
<td>Insults on national and religious values</td>
<td>2</td>
<td>1.1</td>
</tr>
<tr>
<td>Disinformation</td>
<td>2</td>
<td>1.1</td>
</tr>
</tbody>
</table>

Inappropriate behaviours that preservice teachers encountered on social networks are given in Table 5. According to the table, 11% (n=20) of the preservice teachers stated that they did not encounter any unethical behaviours while 26.5% (n=48) of them said they came across abusive comments, 13.8% (n=25) of them said they encountered mockery, 13.3% (n=24) of them stated they faced sexually explicit photograph sharing, 7.7% (F=14) of the teachers said they came across harassment and threats, 5.5% (n=10) of them stated that they encountered insults when another user’s pokes and friend requests were turned down, 3.9% (n=7) of them said they faced sexually explicit ads and the remaining 18.2% of them stated that they came across harassment, insults, video ads, tags in sexually explicit photographs, hacked accounts, unauthorized message sending and misinformation.

According to the preservice teachers, the most important ethical problems on social networks appear to be sharing personal information with the percentage of 20.9 (n=14), sharing inappropriate content 16.4% (n=11) and pestering and mockery with the percentage of 9 (n=6) (Table 6). In addition to the aforementioned behaviours, preservice teachers consider photograph copying, unauthorized use of some information, networks storing all shared items in their database, the spreading of misinformation, fake accounts, profanity, networks being used for child abuse, disturbing ads and insults against national values all to be inappropriate behaviours on social networks.

42.6% (n=49) of the preservice teachers stated that they solved the problems by blocking people, 20.9% (n=4) of them solved it by making a complaint to the website, 15.7% (n=18) of them solved the problem by unfriending the offending user and 7% (n=8) of them solved it by strengthening their privacy settings (Table 7). While 62.2% (n=69) of the preservice teachers stated that it was acceptable for students and teachers to become friends on social networks as long as they maintained boundaries, 34.2% (n=38) of them indicated that it was inappropriate (Table 8).

DISCUSSION AND CONCLUSION

The study was intended for the exploration of preservice teachers’ perceptions about the risks and dangers that
Table 6. The most important unethical behaviours on social networks according to preservice.

<table>
<thead>
<tr>
<th>Most important ethical issues</th>
<th>Frequency (n)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal information sharing</td>
<td>14</td>
<td>20.9</td>
</tr>
<tr>
<td>Inappropriate content sharing</td>
<td>11</td>
<td>16.4</td>
</tr>
<tr>
<td>Pestering, mockery</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>Copiable photographs</td>
<td>4</td>
<td>5.8</td>
</tr>
<tr>
<td>Unauthorized use of certain information</td>
<td>4</td>
<td>5.8</td>
</tr>
<tr>
<td>All shared items stored in network database</td>
<td>3</td>
<td>4.5</td>
</tr>
<tr>
<td>Disinformation sharing</td>
<td>3</td>
<td>4.5</td>
</tr>
<tr>
<td>Fake accounts</td>
<td>3</td>
<td>4.5</td>
</tr>
<tr>
<td>Profanity</td>
<td>3</td>
<td>4.5</td>
</tr>
<tr>
<td>Network as a tool for child abuse</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Inappropriate ads</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Insults on national values</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Small children exposed to inappropriate content</td>
<td>1</td>
<td>1.5</td>
</tr>
<tr>
<td>No privacy conditions</td>
<td>1</td>
<td>1.5</td>
</tr>
<tr>
<td>Addictive networks</td>
<td>1</td>
<td>1.5</td>
</tr>
<tr>
<td>Destroyed human relationships by concepts such as like / not like</td>
<td>1</td>
<td>1.5</td>
</tr>
<tr>
<td>Feelings being hurt</td>
<td>1</td>
<td>1.5</td>
</tr>
<tr>
<td>Virus spread</td>
<td>1</td>
<td>1.5</td>
</tr>
<tr>
<td>Attention seekers</td>
<td>1</td>
<td>1.5</td>
</tr>
<tr>
<td>Personal insults</td>
<td>1</td>
<td>1.5</td>
</tr>
<tr>
<td>Disturbance with the poke option</td>
<td>1</td>
<td>1.5</td>
</tr>
<tr>
<td>The follow option</td>
<td>1</td>
<td>1.5</td>
</tr>
</tbody>
</table>

Table 7. How did you deal with the problem / Do you know how to deal with the problem?

<table>
<thead>
<tr>
<th>Ways to deal with the problem</th>
<th>Frequency (n)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blocking</td>
<td>49</td>
<td>42.6</td>
</tr>
<tr>
<td>Making a complaint to the website</td>
<td>24</td>
<td>20.9</td>
</tr>
<tr>
<td>Unfriending</td>
<td>18</td>
<td>15.7</td>
</tr>
<tr>
<td>Hardening privacy settings</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>Unfollowing the relevant page</td>
<td>3</td>
<td>2.6</td>
</tr>
<tr>
<td>Ignoring</td>
<td>3</td>
<td>2.6</td>
</tr>
<tr>
<td>Not clicking</td>
<td>2</td>
<td>1.7</td>
</tr>
<tr>
<td>Hiding the post</td>
<td>2</td>
<td>1.7</td>
</tr>
<tr>
<td>Not using a social network</td>
<td>2</td>
<td>1.7</td>
</tr>
<tr>
<td>Communicating with reliable people only</td>
<td>2</td>
<td>1.7</td>
</tr>
<tr>
<td>Unliking the page</td>
<td>1</td>
<td>0.9</td>
</tr>
<tr>
<td>Liking unproblematic pages</td>
<td>1</td>
<td>0.9</td>
</tr>
</tbody>
</table>

Table 8. Is it proper for students to become friends with their teachers on social networks?

<table>
<thead>
<tr>
<th>Frequency (n)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is it acceptable for students to become friends with their teachers on social networks?</td>
<td>69</td>
</tr>
<tr>
<td>Unacceptable</td>
<td>38</td>
</tr>
<tr>
<td>Uncertain</td>
<td>4</td>
</tr>
</tbody>
</table>
might be encountered while using social networks and helping raise awareness in them regarding the points worthy of consideration and the precautions that need to be taken in regard to the security policies on these networks. In the study that was carried out, it was seen that when the frequency of preservice teachers' usage of social networks is examined, most of the participants used the networks for 1 hour or more daily.

In the research they conducted, Göker, Demir and Doğan (2010) found that 51.9% of the university students who visited Facebook, which is one of the social networks, spent less than an hour, and 39.3% of them spent 1-2 hours on the website per visit.

It was understood that a great majority of the preservice teachers had social network memberships for 2 to 7 years. According to Akyazı and Ünal (2013), most of the university students had social network memberships for 3 years and over. Balcı and Gölcü (2013) pointed out in the study they conducted that 27.7% of the university students were "problematic" Facebook users and the more time users spent on the site the less time they spent with people in real life and they stopped interacting in society, gradually becoming addicted to social networks.

In the study they carried out with preservice teachers, Çam and İşbulan (2012) concluded that in comparison to females, male preservice teachers were more addicted and also compared to second- or third-year students, fourth-year students were more addicted to social networks. According to Yu et al (2012), an increase in Facebook usage causes users to become psychologically addicted to internet and they also tend to show more social withdrawal.

It was understood that the preservice teachers used social networks mostly to communicate with friends, to listen to music, to follow sports teams and celebrities, and because they imitate the people around them. Göker, Demir and Doğan(2010) with Balcı and Gölcü stated that students use Facebook for the purposes of improving friendships, entertainment, relaxation, receiving information about current events and people. Results consistent with these findings were seen in the literature (Bilen et al., 2014; Kert and Kert, 2010; Mazman, 2009).

While very few of the preservice teachers shared their social network passwords with others, most of them never shared their passwords with anyone and only 12.6% of the preservice teachers stated that their passwords had ever been hacked. Most of the preservice teachers stated that they knew how to deactivate their accounts and 74.8% of them said they knew how to block people from searching for them online. With reference to the emerging results, it can be said that in general preservice teachers are aware of the issue.

Very few of the preservice teachers stated that their passwords had been hacked. Sel (2013) conducted research about passwords and according to the results of this research, 35% of the secondary school students who took part in the study stated that their passwords had been hacked. When compared to secondary school students, it can be determined that preservice teachers behave more conscientiously about privacy settings, in which age difference plays an important role.

The social network privacy settings that preservice teachers are aware of are as follows; timeline and tagging (90.9%), photographs-albums-wall (90.9%), friends list (84.6%), about section (81%), viewing friends list (76.5%), connection settings (63.6%) and ads (48.6%). Most preservice teachers know how to use privacy settings but only half of them know how to block ads. Since social networks use free advertisement platforms, these pages direct users to pornographic or other explicit content (Varol and Aydin, 2010). It has been suggested that publishing videos in the help pages of social networks instead of text would be more useful for users who need information. According to Hew (2011), students tend to share their personal information on Facebook more than any other social network. Also the research has shown that female students use privacy settings more than male students.

27.9% of the preservice teachers have stated that they do not block anyone on social networks whereas 27% of them block friends, 18% of them block relatives, 18% of them block harassers, 17.1% of them block strangers and 9% of them block those who use profane language. In general it is understood that preservice teachers use the blocking option as a security measure. Christofides, Muise and Desmarais (2012) have indicated that adolescents who have bad experiences on social networks tend to take more security measures. They have also stated that informing adolescents in their own peer group about privacy settings and security measures will be a more protective method.

57.6% of the preservice teachers stated that they shared personal information with friends on social networks, 25.2% of them with family members and 17.1% of them shared it with everyone. According to Sel (2013), 4.7% of the secondary school students said they did not want their teachers, 8.3% their relatives, 4.7% their father, 2.3% their sisters and 2.3% their neighbour's children to view the items they shared.

Facebook is the most popular social network among preservice teachers with a percentage of 89.1. Other popular networks are Twitter with a percentage of 10.8, LinkedIn, Instagram and Whatsapp with a percentage of 5.4. The literature also suggests that the most commonly used social network is Facebook (Baran and Ata, 2013; Christofides et al., 2012; Kert and Kert, 2010; Lin and Lu, 2011; Toprak et al., 2009; Vural and Bat, 2010).

11% of the preservice teachers said that they never encountered any unethical behaviours whereas 26.5% of them stated they came across abusive comments, 13.8% of them mockery, 13.3% of them sexually explicit
photographs, 5,5% of them insults when the persons pokes and friend requests were rejected, 3,9% of them sexually explicit ads and the remaining 18,2% of them said that they encountered verbal abuse, insults, video ads, being tagged in sexually explicit photographs, accounts being hacked and unauthorized messaging. These unethical behaviours might also be referred to as cyber bullying.

Dilmaç (2009) defined cyber bullying as “Using electronic data and communication technologies for the purpose of paving the way for threatening and ongoing deliberate abuse of an individual or group by sending vulgar texts and/or visuals with the help of technology.” Dilmaç also observed that 55,3% of the university students partaking in the sample became victims of cyber bullying at least once. Özdemir and Akar (2011) showed that among social networks, high school students were exposed to cyber bullying mostly on Facebook. Also, some preservice teachers considered mockery, viruses, being tagged in inappropriate photographs and insults toward friends and social or religious values a problem. Christofides et al. (2012) concluded that 26,7% of the adolescents who took part in their study had bad experiences on Facebook. 52% of the adolescents experienced harrassment and bullying from their peers, 23% of them received messages or friend requests from strangers, 17% of them shared information and photographs with others which they later regretted, and 7% of them shared items that caused misunderstandings. As a result, the issues that students and preservice teachers have encountered are parallel.

The preservice teachers consider sharing personal information as the most important unethical behaviour on social networks, with a total percentage of 20,9. Sharing explicit content and pestering and mockery follow with the percentages of 16,4, and 9, respectively. They also regard photographs being able to be copied, unauthorized use of some information, all shared items being stored by the website, misinformation, fake accounts, profanity, the potential for child abuse, disturbing ads, and insulting national values as ethical problems.

42,6% of the preservice teachers indicated that they sorted the problem out by blocking people; 20,9% of them solved it by making a complaint to the website; 15,7% of them by unfriending; and 7% of them solved the issue by increasing their privacy settings. According to the research carried out by Sel (2013), 21% of the secondary school students who participated in the study stated that they became uncomfortable with the profanity on social networks and that they blocked people who used abusive language.

While 62,2% of the preservice teachers found it acceptable for students and teachers to become friends on social networks provided that they maintain boundaries, 34,2% of them consider it inappropriate. More than half of the preservice teachers believe that the line between the student and the teacher should not be crossed regardless of the interaction platform. According to Grosseck et al. (2011), 39,7% of the students who took part in the study replied that teachers should accept their students’ friend requests on Facebook whereas 31,3% of them stated that they were uncertain and 29% of them said teachers should not accept friend requests from their students.

Özpınar et al. (2010) concluded that the reasons for displaying unethical behaviours on social networks were caused by the environmental and social circle factors, as well as the sense of anonymity created by users who post under pseudonyms and fake profiles.

According to certain studies, university students did not receive proper education on ethics and without more training in online ethics the idea could not go beyond theory and was therefore ineffective (Genç and Fidan, 2013). However, other studies suggested the education that university students received on ethics was sufficient (Özpınar et al., 2010).

Within education faculties, it is necessary to help preservice teachers develop and improve strategies to deal with ethical problems encountered in social networks; this is important not only for the teachers’ own welfare but on behalf of the students they will one day be educating.

Fake profiles and unethical behaviours that specifically target women and children can cause serious psychological disorders in users. Young children, in particular, can be deceived and physically harmed. After the family, teachers have the greatest responsibility to prevent students from falling victim to misinformation, make them aware of their personal rights, and foster sensitivity to universal moralities. Teachers and preservice teachers ought to be informed about equality, respect to other opinions, human rights, personal privacy, media ethics and universal moralities with regard to online and social media content. Thus, it will be possible for them to inspire their students regarding the above mentioned values and contribute to the solution of the problems. Some suggestions for manifesting this goal include public service announcements on television and online, posters displayed in public areas and in schools, and the introduction of ethics courses at all levels of education.

Ethics

In the study, the participants were informed about the purpose of the research. Then, verbal approval was obtained from the participants who volunteered and were included in the study. They have been reported their views only be used in a scientific investigation.

Students who participated in the study are disclosed with this study on ethical issues in social networks can
increase the awareness of teachers and can provide guidance for measures to be taken.

Demographic characteristics of the participants regarding gender and age are given in Table 1. Their names have not been determined in the study in terms of to focus on cases and the ethical principles of research. However, all records are stored by the researchers.

**Conflict of Interests**

The authors have not declared any conflict of interests.

**REFERENCES**


Büyükener E (2009). The Role of Social Networking in Turkey and Social Media Overview. inet-tr’09 XIV. Proceedings of Internet Conference in Turkey, Biliği University, İstanbul, Turkey.


Activity–based teaching in Social Studies education: An action research

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The aim of this study was to determine pre-service social studies teachers’ skills to plan and apply the activity-based teaching and contribute to their development of these skills. In the study, the action research design of qualitative research was used. The sample of the study consisted of 6 pre-service teachers who were 4th year students at the Department of Social Studies Teaching of Atatürk University Kazım Karabekir Faculty of Education in the fall semester of 2014-2015. The data of the study were gathered using document review, observation, and interviews. Content analysis was used in data analysis. It was revealed in the research that pre-service teachers’ skills for planning and implementing activity-based teaching improved remarkably and they gained some knowledge and skills regarding teaching profession and direction subject.

Key words: Teaching, education, pre-service teacher, activity-based teaching.

INTRODUCTION

The way to catch the era is to raise efficient and productive individuals who can attain knowledge they need, can organize knowledge in different forms, can use and develop it and are well-equipped with higher order skills ad can use them. Teachers, one of the most important components of these educational institutions, are important to bring up qualified individuals. For this purpose, Guskey (1994) argues that schools will not develop without fostering teachers’ skills and abilities. By saying “A school, though, is only as good as its teachers”, Kavcar (1999) stresses the importance of teaching profession. Teachers must go through a quality education process because it is required for their place and importance in education system.

Adopting activity-based teaching approaches and popularizing them can be helpful to train teachers with the qualities as desired. Thus, Padmavathi (2013) states that teachers of the 21st century should adopt innovative teaching techniques in place of traditional teaching methods and perspectives and stresses that activity-based teaching is one of these techniques. Activity-based teaching is a technique which uses before and after behaviour stimuli which have natural and meaningful relations with behaviours and environment, offers learning opportunities to students in natural environment, chooses functional and generalisable skills and activities based on the child’s interests, and teaches individual goals embedded in routines and planned activities (Özen and Ergenekon, 2011 as cited in Petti-Frontczak and Bricker, 2004). In other words, activity-based learning is a teaching approach which includes all in-class and out-of-class activities which will help students to reach desired

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goals, to gain value, attitude, knowledge, and skills, to foster their cognitive, affective, and motor skills, and to actualize learning by doing. The research studies conducted reveal that activity-based teaching is an effective and beneficial approach. Within this context, activity based teaching approach is student-centred and encourages students to learn on their own. Moreover, activity-based teaching allows everyone to learn regarding their own abilities and skills (Shah and Rahat, 2014; Bansal and Kumar, 2012). It enables students to participate in lessons and helps them to learn how to learn. Due to its higher interaction ability, activity-based teaching involves motivating, facilitating and educational skills (Stößlein, 2009). Furthermore, it allows students to work with their peers and experts in their own learning settings. It also provides opportunities for students to discuss and share ideas with each other. Students gain independent and critical thinking skills via activity-based teaching. Activity-based teaching offers students independent and critical thinking opportunities (Serag, 2011 as cited in Choo, 2007). It is innovative, interesting, and also it supports class interaction (Bansal and Kumar, 2012). Activity-based teaching fosters higher order skills such as communication, problem-solving, analytical thinking independent thinking, and creative thinking. It also helps to eliminate misconceptions. Activity-based teaching allows for interesting, interdisciplinary, and collaborative learning (Thinker, 1992; Carlton, 2000; Tilya, 2003). Rillero (1994) says, “a child best learns how to swim in water; similarly, a child best learns science by doing science” and this statement summarizes the benefits of this approach (as cited by Shah and Rahat, 2014).

Although activity-based teaching has a place in contemporary trends and approaches, it is not implemented effectively in our schools and it could not attract attention in scientific research studies. However, as stated by Özen and Ergenekon (2011), activity-based teaching implementations can be embedded in course contents of programs which train teachers and can be taught in academic settings. Moreover, they can be taught in natural settings by integrating them in developmental skills and daily routines. Thus, this research study is based on the idea that it can make contributions to improve teacher education, it can introduce sample activities to be used in teaching and learning environments and provide basis for new research studies.

Purpose of the study

The aim of this study was to determine pre-service social studies teachers’ skills to plan and apply the activity-based teaching and contribute to their development of these skills. To fulfil this aim, the pre-service teachers were, first, asked to plan some activities related to the subject “directions” and present them. The pre-service teachers presented the subjects using the activity-based teaching. This process was recorded by the researcher with observations and video recordings. By analyzing the recordings, pre-service teachers’ mistakes throughout the process of planning and applying the activity-based teaching were identified and they were informed of their mistakes. They were given information about the issues “What is the activity-based teaching?”, “What are the benefits of the activity-based teaching?”, “How is the activity-based teaching planned and applied?”. Action plans were prepared together with the pre-service teachers. Pre-service teachers prepared their own action plans and presented them. In this way, it was aimed to determine the problems encountered in the activity-based teaching process and help to improve the social studies teacher education.

Research Problem

The research study was based on the following problem: What are the pre-service social studies teachers’ levels of planning and implementing activity-based teaching and can these skills be developed by action research? In line with this main problem, the study seeks to answer the research questions below.

1. At what levels do pre-service social studies teachers’ skills for planning and implementation of activity-based teaching change before and after the action?
2. What are the difficulties pre-service social studies teachers encounter during the planning and implementation of activity-based teaching process?
3. Are there any differences between the knowledge and skill levels of pre-service social studies teachers about the directions subject before and after the action?
4. What are the pre-service social studies teachers’ views on the contributions activity-based learning made to their professional development?

METHOD

Research model

Action research, one of the qualitative research methods, was used in the study. When the relevant literature is reviewed, action research is attributed to social psychologist Kurt Lewin. Kurt Lewin used action research concept in his paper “Action Research and Minority Problems” in 1946 and he described action research as a research leading to social action. Although action research in education had its roots in John Dewey’s studies, Stephen Corey was among the first to use action research systematically in the field of education to solve educational problems (Aksoy, 2003).

Action research is described as the process of studying a school or real classroom situation to understand and improve the quality of education (Johnson, 2014 as cited in Hensen, 1996). Ferrance (2000) states that action research is a process in which participants examine and assess their own educational practices carefully and systematically, using research techniques. Action research is a cyclical process of study designed to collect data about the problem, review resources, and take actions to solve the problem. This cyclical process includes the following steps: identifying an area of focus, collecting data, analyzing and...
interpreting the data, and designing a plan of action. (Uzuner, 2005 as cited in Miles, 2003).

There are some characteristics of action research which distinguish it from other social research studies: 1- The main purpose of action research is to improve the practice. Therefore, generating theoretical knowledge is not considered as the priority of a researcher.

2- Action research enables the practitioners to be involved in the research process directly and encourage them to learn through first-hand experiences and thus more willing apply what they have learnt. 3- Because the research is carried out in real world circumstances, it aims at solving real problems. 4- Action research emphasizes direct involvement of individuals and thus increasing awareness about their own strengths and it stresses collaboration and social change. 5- As a result of direct participation in the research, the solutions suggested remove the resistance experienced during the implementation process (Aksoy, 2003).

Action research bridges the gap between the theory and practice. It facilitates teachers' effectiveness and makes contributions to their professional development and in-service training (Johnson, 2014).

Study group

The study sample of the research consisted of total 6 undergraduate pre-service teachers, 3 females and 3 males, studying in the fourth grade of Social Studies Teaching in Kazım Karabekir Faculty of Education in Atatürk University in 2014-2015 fall term.

Research procedure

Pilot study: A pilot study was conducted with 10 pre-service teachers who studied at the Department of Social Studies Teaching of Atatürk University Kazım Karabekir Faculty of Education in the summer semester of 2014-2015 academic year. The problems in the process of conducting the research and in the data collection instruments were identified. The necessary measures were taken to prevent from the same or similar problems during the real study.

Identifying participants and getting the necessary permission: At the beginning of the 2014-2015 academic year, the pre-service teachers were informed about the study. Then, the pre-service teachers who volunteered to participate in the study were determined. Because the research procedure involved recording and interviews for data collection, the participants were asked to sign informed consent forms. They were reminded that the collected information would be used for only scientific purposes. The researchers shared the action research plan with the pre-service teachers.

Identifying pre-service teachers’ current conditions regarding skills for planning and implementing activity-based teaching before the action: The pre-service teachers were asked to prepare an activity-based planning for “directions” subject and then they were asked to present it in the class. Directions is a 4th grade primary school subject and it is included in the content area of “People, Places and Environments” of the unit “The place Where We Live” (Kaya et al., 2014). The pre-service teachers were given two weeks for their preparations. The pre-service teachers submitted their activity-based lesson plans and then presented them in the class. The researcher observed the pre-service teachers’ presentations, took notes, and they were recorded.

Informing pre-service teachers about their current conditions regarding skills for planning and implementing activity-based teaching before the action: The researcher examined the pre-service teachers’ lesson plans which were prepared before the action. The researcher analysed the observation notes and video recordings. As a result of the analyses and examinations, the weaknesses and strengths of pre-service teachers’ skills for planning and implementing activity-based teaching before the action were determined. The results were shared with the participants. Moreover, the pre-service teachers watched their video recordings to consider their own weaknesses and strengths.

Presenting information and samples about the subject which was planned and practised using activity-based teaching by the researcher: The participants were provided with the theoretical knowledge on the following topics for three weeks by the researcher: What is activity-based teaching? What are the practises which the activities are based on? What do you pay attention while preparing and presenting activities? What are the benefits of activity-based teaching? Following this, practises were carried out to plan directions with activity-based teaching and to actualize learning.

Preparing a plan of action with the pre-service teachers: A plan of action was created with the pre-service teachers. Decisions about what types of activities pre-service teachers would prepare and present directions were made. The pre-service teachers were given two weeks for their preparations. The researcher helped the pre-service teachers during the preparing, planning, and implementation process of activities after the action.

Pre-service teachers’ planning and presenting their plans of action: The pre-service teacher submitted their activity-based action plans and performed their presentations in the class. Their presentations were observed, notes were taken, and also they were recorded.

Informing pre-service teachers about the results of action plans: The researcher examined the lesson plans which the participants prepared after the action and the observation notes and video recordings were analyzed. As a result of the analyses and examinations, the weaknesses and strengths of pre-service teachers’ skills for planning and implementing activity-based teaching after the action were identified. The results were shared with the participants. Moreover, the pre-service teachers watched their video recordings to consider their own weaknesses and strengths. The lesson plans and presentations prepared before and after the action were compared.

Evaluating activity-based teaching process: Semi-structured interviews consisting of open-ended questions were administered to pre-service teachers. The data obtained from the interviews were analysed and presented in tables.

Data collection tools

The data were gathered via document analysis, observations and interviews. Document analysis is the systematic examination of written materials which include information for the examination of the phenomena/ phenomenon (Yıldırım and Şek, 2011). Observation is a systematic data collection of the researcher in a research field usually using an instrument via five senses and it is a phenomenological process which is recorded for scientific purposes. (Creswell, 2013 as cited in Angrosino, 2007). Interview is to elicit information by asking questions from a relevant person or people about a subject (Aziz, 2011).

Document analysis was used to determine whether the lesson plans prepared by the pre-service teachers before and after the action included the essential components of an ideal lesson plan and to reveal their weaknesses and strengths. In order to find out whether the lesson plans cover the elements which an ideal lesson should have or not, a sample lesson plan was prepared modelling
the lesson plans by Sönmez (1999). The sample lesson plan was checked by the experts in the field in terms of its language, structure, and content. Then it was revised according to the feedback from them. Finally, the activity-based lesson plans of the pre-service teachers were evaluated according to the sample lesson plan.

Observation was performed to identify the pre-service teachers’ skills to practise activity-based teaching before and after the implementation and notes were taken and they were recorded via video camera. To determine pre-service teachers’ activity-based teaching skills, an observation form was prepared. Experts were asked to evaluate the reliability of this form. After the pilot study, with the necessary revisions, the final version of the form was prepared.

A semi-structured interview, consisting of three open-ended questions, was used to elicit pre-service teachers’ views on activity-based teaching process. The following questions were included in the interview form: What are the difficulties you encountered during the planning and implementation process of activity-based teaching before and after the action?, compare your prior knowledge on directions and your navigational skills before and after the action, and what contributions did activity-based teaching make to your professional development? At first, there were 5 semi-structured questions in the interview form. To learn whether these questions fulfill the purposes of the study, the evaluations of the experts were asked again.

After the pilot study, it was seen that pre-service teachers gave similar answers to some questions. Therefore, these questions were combined and the final draft of the interview form was obtained.

Data analysis

The data in the research was analysed using content analysis. Content analysis is a method for understanding and comparing the publications, speeches, and recordings. The purpose of content analysis is to systematically identify the special characteristics of a message in a written document (Arıkan, 2011). The steps below are followed during the data analysis.

- The lesson plans prepared by the pre-service teachers before and after the action, the observation notes on their presentations, and video recordings were analysed via content analysis. The findings related to each pre-service teacher’s lesson plans and presentations were summarized, their weaknesses and strengths were presented and interpreted.
- The responses of pre-service teachers to open-ended interview questions about activity-based teaching were analysed via content analysis and codes and categories were composed. The findings were presented in tables and interpreted. In addition, some excerpts from the responses of the participants were introduced in the analysis.

FINDINGS

The findings about pre-service teachers’ skills for planning and implementing activity-based teaching before and after the action

PT1’s condition conditions regarding skills for planning and implementing activity-based teaching before and after the action

Before the action

PT1 prepared a lesson plan before the action which included the following titles: subject, introduction to the lesson, procedure, activity, and ending the lesson and made short explanations about them.

PT1 started teaching-learning process with the description of direction concept. He also gave short information on how to find directions with the instruments and methods. He set up a small premise on a carton and the students performed activities on it. For that purpose, he gave a toy car to the students who he called to the board. PT1 asked the students to go to the school, the hospital, and the mosque from a one point in the premise and also asked them to use directions while going to these places. With reference to the lesson plan, PT1 asked the students to fill the gaps in the questions which he wrote on the board such as “the school is _________ the hospital (Where is the school?)” and ended the lesson.

After the action

PT1 identified the basic components in the lesson plan prepared after the action, explained teaching-learning process systematically, summarized the main points of the subjects, and finally included evaluation and assessment questions.

PT1 started teaching-learning process with the definition of directions. He exemplified to clarify the definition. He determined the students’ levels of knowledge and abilities for giving directions. He presented the main points of the subject with explanation and question and answer. Moreover, he supported his presentation with visuals created using power point. Then he shared the products which were formed as a result of the poem, slogan, and short story activities prepared with station technique with his students. He asked students to sing the song “I know” with the keyboard and the students did the exercises in the worksheet. Finally, he administered an assessment tool consisting of gap filling, true-false, and multiple choice questions to the students and ended the lesson.

PT2’s condition regarding skills for planning and implementing activity-based teaching before and after the action

Before the action

PT2 prepared a lesson plan before the action which was structured like lecture notes. She exactly wrote how she was going to teach directions in the class environment.

PT2 informed the students about the subject before the action and started teaching-learning process. She asked the students what direction was and received some answers. Then, using the direction arrow which she drew on a carton, she explained cardinal directions and intermediate directions. She also gave information on the tools and methods to find directions. She put up the political map of Turkey on the board. She asked such
questions as “Where is Bulgaria with respect to the map?” to the students and received answers. Finally, she ended the lesson.

**After the action**

Except for the references, PT2 explained the other main points clearly, correctly, explicitly in her lesson plan prepared after the action and also she included teaching-learning activities, summary and evaluation and assessment in her lesson plan.

PT2 started teaching-learning process after the action by preparing the models which she was going to use on the sand table with the students. She set up a small residential area with the students on the sand table. Afterwards, using the questions and the instructions in the work sheets such as “if you walk along the Milli Egemenlik Street on the sand table to the north, what do you see on the west?, “what objects are there on the southeast of the mill on the sand table?”, “can you draw the sketch of the residential area on the sand table? and she asked students to do the activities. She also assessed and evaluated the students using multiple choice, gap filling, and open-ended questions and finally she ended the lesson.

**PT3’s condition regarding skills for planning and implementing activity-based teaching before and after the action**

**Before the action**

PT3 included such components as name of the course, class grade, subject, time, concepts, methods-techniques and gains in his lesson plan which he prepared before the action. He divided teaching-learning process into three parts: introduction, teaching, and evaluation.

PT3 started teaching-learning process before the action with an anecdote which stressed the importance of navigational knowledge and skills. He drew a direction arrow on the board. Based on the sunrise, he explained cardinal directions and intermediate directions. He asked the students what tools and methods were used to find direction. He gave information on the tools and methods to find direction. He also read the letter written by Christopher Columbus about the discovery of America. Considering this letter, he emphasized the importance of acquiring navigational knowledge and skills. He asked one of the students to go out of the classroom. He hid an object with the students. Then they called the student in and asked him to find the object. During this activity, the student was given directions by his peers to find the hidden object. The student found the hidden object and the lesson finished.

**After the action**

PT3 explained the other main components clearly, correctly, explicitly in his lesson plan prepared after the action except the references and he included teaching-learning activities, summary and evaluation and assessment dimension in his lesson plan.

PT3 started teaching-learning process with a few questions to check the students’ prior knowledge. He presented the subject using instruments such as watch, compass, and pictures. He had the students read the story “I learn to find directions” and then the students did the activities in the worksheet about the story. Following this, he carried out the activity called story cloud with the students. He wrote questions about the subject on the paper which he cut like a cloud and tied them to a carton with a string. He asked some students who went to the blackboard to read the questions on the paper clouds and wrote the answer on the back of the paper cloud. He continued the activity with few students. Then he summarized the subject and ended the lesson with evaluation and assessment.

**PT4’s condition regarding skills for planning and implementing activity-based teaching before and after the action**

**Before the action**

PT4 included elements such as subject time, goals, and method and also mentioned the educational value of the material she was going to use in the lesson.

PT4 began the process asking students the question “what is direction?”. After he got the answer from a student, he went on explaining the subject. After he stressed that there were four cardinal directions and four intermediate directions, he told the methods and tools used for finding directions. He occasionally tried to involve students in the process with question-answer method. He had the students do activities on a residential area which he prepared with models. He performed the activity by asking the following question to the students: using the material, he said, “you leave school and go to the hospital. How can you get to the hospital using directions?” In case of need, PT4 gave students clues; therefore, he helped the students to perform a correct action. After doing the same activity with a few students, he finished the lesson.

**After the action**

PT4 explained the other main components clearly, correctly, explicitly in his lesson plan prepared after the action except for the references and he included teaching-learning activities, summary and evaluation and assessment in his lesson plan.
During the teaching-learning process after the action, firstly PT4 took his students to some locations such as mosque, church, and graveyard. He gave some information about the directions, the importance of navigational knowledge and skills, and the tools and methods used to find directions. He showed the students how to find directions benefiting from the shadow lengths of a mosque, compass, watch, and an object and he explained it via engagement method. He asked questions to the students such as with respect to the position of the mosque, where is X district? Regarding the position of the tombs, where is X district? and the students were engaged in activities. After they went back into the classroom, he asked students what knowledge, skills, and impressions they gained during the trip-observation after receiving their opinions, he summarized the topic. By carrying out evaluation and assessment, he finished the lesson.

PT5’s condition regarding skills for planning and implementing activity-based teaching before and after the action

Before the action

PT5 included class, subject, content area, gains, teaching method, instruments and tools, concepts, and time in the formal section of the lesson plan which she prepared before the action. She designed teaching-learning process with introduction, teaching and evaluation. PT5 explained the directions with sun photos which she put up on the walls of the classroom within the teaching-learning process before the action. She also gave some information on some methods for finding directions. She had the students do activities on the sketch she put up on the board. She asked the student who went to the board to go from one place to another on the sketch using the directions and finished the lesson.

After the action

PT5 included all the main elements in the lesson plan which was prepared before the action and she explained teaching-learning process clearly and explicitly. Moreover, she summarized the subject and included evaluation and assessment questions. PT5 took the students to the track where she was going to perform the activity. She gave short theoretical information about the topic. She explained the purpose of the orienteering activity and told them how to perform it. PT5 also said that she prepared targets between the control points and added that they should proceed from the course start to finish by visiting a number of control points with the help of the instructions and would complete the course using their navigational skills. She divided the students into groups and performed orienteering activity. She rewarded the group which came in first. After going back into the classroom, PT5 had the students fill the worksheet on orienteering which was prepared before. She finished the lesson with evaluation and assessment.

PT6’s condition regarding skills for planning and implementing activity-based teaching before and after the action

Before the action

PT6 included elements such as name of the course, class grade, subject, time, concepts, method-technique and gains in the lesson plan which she prepared before the action. She organized the teaching and learning process under the titles of introduction to course, teaching, and evaluation.

PT6 started the teaching-learning process with the definition of navigation and route. Then, she asked a question to the class. She wanted one of the students to answer it. PT6 gave short information on cardinal and intermediation directions with reference to direction arrows which she put up on the class walls regarding the sunrise and sunset. She mentioned methods of navigation. She occasionally asked the students to repeat what she told. She put up the mute Turkey map on the board. PT6 attached the picture of fairy chimneys on the relevant place on the map by regarding Nevşehir as the centre. Then, she asked the students to go to the board and choose picture. She asked them in which city these landmarks were located. The students described the picture and told the city in which it existed. PT6 asked the students to stick the picture on the relevant place on the map. Then she asked the students where this city was located with respect to Nevşehir. After all the pictures were attached on the map, she summarized the subject and finished the lesson.

After the action

PT6 explained the other main components clearly, correctly, explicitly in her lesson plan prepared after the action except for the references and she included teaching-learning activities, summary and evaluation and assessment in her lesson plan.

After PT6 explained the gains during the teaching-learning process, she presented the subject via explanation and question and answer method. After that, she had the students read the poem “What do directions tell us?” and the students did the activity in the worksheet about the poem. PT6 had the students do activities on Turkey map where envelopes and information tags were attached.
They designed activities appropriate to the students' guiding principles and thus could attain the goal. They did not include revision, summary, reinforcer, feedback, correction, and evaluation and assessment activities at an acceptable level. Some pre-service teachers could not summarize the subject. They were usually able to evaluate and assess the questions only at knowledge level.

Results before the action

Lesson plans prepared by the pre-service teachers were usually inadequate in terms of structure, content, language and basic components. They expressed the main component incorrectly in some plans. They did not inform the students about the goals in teaching-learning process. They did not include studies which aimed at determining students' prior knowledge or they remained incapable. They did not include concept teaching or they remained incapable. They transferred inadequate, incomplete and sometimes wrong information. They did not include clear and explicit instructions about the activities. They were not able to increase student participation at a satisfactory level. They did not include revision, summary, reinforcer, feedback, correction, and evaluation and assessment activities or they remained incapable. While using question and answer, they ignored some guiding principles and thus could attain the goal. They left some questions unresolved. They designed activities appropriate to the students' needs, interests, and levels. However, these activities were inadequate to achieve the goals and gain the skills.

Findings indicated that pre-service teachers' skills for planning and implementing activity-based teaching were very weak and inadequate before the action. What draws attention is that pre-service teachers usually prepared activities which were appropriate to student-centred teaching and students' interests, needs and levels; however, they could not prepare an effective plan. They made important pedagogic mistakes during the teaching-learning process, and they could not carry out effective teaching. When pre-service teachers' skills for planning and implementing activity-based teaching were considered, in spite of weaknesses, they prepared better and more systematic lesson plans. They particularly designed activities which were appropriate to gains and skills, were open to develop students in many ways, and were more functional and practical and they completed teaching-learning process more efficiently. Therefore, it is suggested that pre-service teachers' skills for planning and implementing activity-based teaching has considerably improved.

Results after the action

Lesson plans prepared by the pre-service teachers were usually good (despite some weaknesses) regarding structure, content, language and basic components. They did not inform the students about the goals in teaching-learning processes adequately although they included them in the plan. They tried to determine the students' prior knowledge at an acceptable level. They involved clear and explicit instructions about the activities. They included concept teaching although it was not effective. They made necessary explanations about the activities and administered them at the right time. They designed activities appropriate to the subject's pattern, goals, skills, and the students' needs, interests, and levels, and the student-centred approach and they practised effective teaching. They were able to get students' active participation. They benefited from different visuals, instruments and tools, and locations in teaching. They included revision, summary, reinforcer, feedback, correction, and evaluation and assessment activities at an acceptable level.

Findings on pre-service teachers' views about activity-based teaching

When Table 1 is examined, the pre-service teachers encountered some difficulties before the action such as generating ideas for activities, not being able to carry out effective teaching due to lack of experience, preparing activity-based lesson plan, supplying equipment and tools, increasing student participation and having suitable physical conditions. Moreover, one pre-service teacher stated that he had difficulty in designing activities appropriate to the students' levels and another pre-service teacher said that she could not connect the topic...
Table 1. Pre-service teachers’ views about the difficulties they encountered during the process of planning and implementation of activity-based teaching before and after the action.

<table>
<thead>
<tr>
<th>Difficulties encountered by pre-service teachers</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generating ideas for activities</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td>Not being able to actualize effective teaching due to lack of experience</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Preparing activity-based lesson plan</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>Supplying equipment and tool to use in the activities</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>Inappropriate physical conditions of classroom</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>Providing student participation</td>
<td>2</td>
<td>10</td>
</tr>
</tbody>
</table>

Before Action
Total

<table>
<thead>
<tr>
<th>Difficulties encountered by pre-service teachers</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supplying equipment and tools to use in the activities</td>
<td>4</td>
<td>40</td>
</tr>
<tr>
<td>Unsuitable weather conditions for out-of-class activities</td>
<td>3</td>
<td>30</td>
</tr>
<tr>
<td>Unsuitable physical conditions of the classroom</td>
<td>2</td>
<td>20</td>
</tr>
<tr>
<td>Students’ not being prepared for the course</td>
<td>1</td>
<td>10</td>
</tr>
</tbody>
</table>

After Action
Total

with the activities. Still another pre-service teacher had difficulties in selecting a suitable method for the activity.

The most important problem pre-service teachers encountered after the action is that they were not supplied with the equipment and tools they needed. Furthermore, the pre-service teachers stated that they could not carry out effective teaching due to unsuitable weather conditions, students’ lack of readiness for the lesson and unsuitable physical conditions of the classroom.

When findings are examined, they reveal that the pre-service teachers experienced factors which caused difficulties for them to carry out effective teaching in both processes. However, what draws attention is that pre-service teachers did not have any difficulties in generating ideas for activities, preparing a lesson plan, and increasing student participation. Therefore, it can be suggested that pre-service teachers managed some problems after the action which they encountered before the action. The following quotes were chosen from the pre-service teachers’ views about the subject.

PT1 said, “First of all, what I would like to state is that I had difficulty generating ideas for the activities because I did not have an idea about activity-based teaching. What is activity-based teaching? How a subject is planned and taught using activities? I did research and prepared my plan”.

PT2 said, “I did not know what to do and how to behave while preparing a lesson plan. I just put in order what I was going to tell and do in the class. Lack of tools such as map, compass and costumes restricted us”.

PT3 said, “Because I did not have enough teaching experience, I got excited during the presentation and forgot some things. I could not do my presentation as I wanted”.

PT4 said, “Because I could not find a transportation vehicle, I thought of giving up the out-of-class activities for a moment. However, after I talked to the instructor of the course, we were able to manage this problem with our individual efforts. I think that the institution should allocate a vehicle for out-of-school practises”.

PT5 said, “I prepared orienteering activity for the students. But, it became difficult for us to carry out the activity both in the planning and implementation stages due to the cold weather, and the track covered with snow and mud”.

When Table 2 is examined, it is revealed that all of the pre-service teachers did not have enough navigational skills and knowledge and also some of them stated that they had difficulty in finding and giving directions.

Pre-service teachers stated that they learned new tools and methods which can be used for finding directions, they could find their direction easily in a place which they have been to for the first time, they started to feel themselves competent about the directions and also they started to look at different places and objects carefully after the action. Considering these findings, it can be stated that pre-service teachers’ navigational skills and knowledge developed and improved at an acceptable level after the action. The following quotes were chosen from the pre-service teachers’ views about the subject.

PT2 said, “I had some theoretical knowledge about the subject before the process. I can say that I won’t get lost in the places where I am going to go from now on. Moreover, I am happy that I will teach directions better”.

PT5 said, “I had primary level knowledge about directions before the action. After the action, I believe that I have gained the knowledge and skills which a pre-service teacher should have”.

PT6 said, “I think that I became more conscious about directions after the lesson. I started to look at places like graveyard and mosque and clock and the North Star more carefully after the lesson”.

When Table 3 is examined, all of the pre-service
Table 2. Pre-service teachers’ views on their navigational skills and knowledge which they gained before and after the action.

<table>
<thead>
<tr>
<th>Pre-service teachers’ direction knowledge and skills</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of knowledge and skills about directions</td>
<td>6</td>
<td>60</td>
</tr>
<tr>
<td>Before Action</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Having difficulty in finding directions</td>
<td>4</td>
<td>40</td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td>100</td>
</tr>
<tr>
<td>Learning new tools and methods for finding directions</td>
<td>6</td>
<td>38</td>
</tr>
<tr>
<td>Finding direction in the place where he has been for the first time</td>
<td>5</td>
<td>31</td>
</tr>
<tr>
<td>Feeling competent about directions</td>
<td>4</td>
<td>25</td>
</tr>
<tr>
<td>After Action</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Looking at different places and objects carefully</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>16</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 3. Pre-service teachers’ views on the contributions activity-based teaching make to their professional development.

<table>
<thead>
<tr>
<th>Contributions of activity-based teaching to professional development</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gaining knowledge and skills to prepare an activity-based lesson plan</td>
<td>6</td>
<td>20</td>
</tr>
<tr>
<td>Gaining knowledge and skills to teach a subject using different methods, materials, and activities</td>
<td>5</td>
<td>17</td>
</tr>
<tr>
<td>Gaining new knowledge and skills about directions</td>
<td>5</td>
<td>17</td>
</tr>
<tr>
<td>Acquiring ideas about how to realize permanent learning</td>
<td>4</td>
<td>13</td>
</tr>
<tr>
<td>Realizing that learning with fun is easier</td>
<td>4</td>
<td>13</td>
</tr>
<tr>
<td>Realizing that learning by doing is more effective</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>Learning some ways to increase student participation</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Experiencing that environment can be used in teaching</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
<td>100</td>
</tr>
</tbody>
</table>

teachers stated that the process of activity-based teaching made positive contributions to their professional development. These contributions were listed as follows by the pre-service teachers: preparing an activity-based lesson plan, gaining knowledge and skills to teach a subject using different methods, materials, and activities via learning by doing, permanently, effectively and with fun, benefiting from the environment in teaching-learning process and learning how to increase student participation. Regarding these findings, it can be suggested that activity-based teaching makes considerable contributions to pre-service teachers’ professional development. The following quotes were chosen from the pre-service teachers’ views about the subject.

PT2 stated, “This lesson both contributed to my professional development and also I competed against nature, I enjoyed and gained new vital information”.

PT3 said, “I experienced that out-of-school-activities were more effective in teaching Environment must be used in teaching –learning process within the realms of possibility because I realized that lessons which were performed in the environment are more enjoyable”.

PT4 said, “Thanks to this course, I learned how to carry out more effective, more efficient, more enjoyable and more permanent teaching. I actualized that teaching became more permanent with practise and implementation”.

PT6 said, “I observed that learning by doing and making learning fun could be implemented using more than one method”.

RESULTS AND DISCUSSION

In this study conducted to find out the social studies pre-service teachers’ skills to plan and use the activity-based teaching and to contribute to their advancing these skills, the following results were obtained.

- Pre-service teachers’ skills for planning and implementing activity-based teaching were weak and inadequate before the action; despite some weaknesses, their conditions developed and improved considerably after the action.
- They encountered some problems before and after the implementation but they managed these problems after the action.
- They gained some navigational skills and knowledge.
- They acquired some important skills and knowledge about teaching profession.
When the research studies in literature are examined, it is found that activity-based teaching usually yielded positive results and these results show parallelism with the results presented above.

For instance, Stößlein (2009) summarizes the benefits of the activity-based teaching as integrating learning within students’ knowledge, exposing them to different activities, and helping them learn how to learn. Pointing the high level of interaction in the activity-based learning, Stößlein states that the instructor should have the skills to facilitate, motivate, enable and coach instead of just presenting facts and figures didactically.

Similarly, Fallon et al. (2013), in their study on construction students, found that that active-learning provided successful learning outcomes. As an another important finding of their study, they reported a direct link between specific teaching practice and student learning.

In addition, Shah and Rahat (2014) mentions the following the advantages of activity-based teaching methods as learners are involved actively in hands-on minds on experiences and acquire an opportunity to relate intangible concepts and theories with actual observations. Activity based teaching method helps learners to understand the scientific concepts. Students’ actively involved in teaching learning process and activities help them in application of scientific knowledge in various real life situations.

In this context, Fallon et al. (2013) also argued in their study that students who were not exposed to intensive teaching experience or materials did not actively participate in the lesson, but students understood better, experienced more enjoyable learning, and they participated more frequently in the lesson. Similarly, Venkata and Lakshmi (2005) reveal that students learned faster via building their new knowledge on their prior knowledge in more participatory teaching-learning environments, they shared knowledge with their peers, and they improved knowledge accumulation. Kösterelioğlu et al. (2014) conducted a study to determine pre-service teachers’ views on activity-based teaching. They found that activity-based teaching took students beyond the role of passive, developed their communication skills, and the learned knowledge had positive effects on retention due to learning by doing and having fun while learning. Khan et al. (2012) argued that activity-based teaching method was more effective than traditional teaching methods when developing high order skills. Moreover, the results obtained from the other studies reveal that activity-based teaching increased students’ end of year achievement scores considerably (Schoolscape, 2009), the performances of students who were actively engaged in the learning process were better than the students’ performances who learned via traditional teaching methods (Tilya, 2003 as cited in Hake, 1998; Redish et al., 1997), activity-based teaching was effective in solving ration problems (Küpcü, 2012), activity based teaching increased students’ academic achievements (Savaş et al., 2014), and it provided retention of the learned information (Ari et al. 2010). All these results reveal that activity-based teaching is an effective method and it will make important contributions to practitioners and teachers if it is used in teaching-learning process.

**RECOMMENDATIONS**

The following suggestions can be made regarding the findings obtained from the research:

- The physical conditions of education faculties should be improved so that activity-based teaching implementations in teacher education can popularize. Materials, equipment and tools needed must be provided and classrooms and workshops should be designed in such a way that activity-based teaching is practised.
- Pre-service teachers must be offered more opportunities for practice to experience activity-based teaching.
- Activity examples regarding social studies learning domain must be designed to develop pre-service teachers in many ways.
- Experimental studies must be carried out to determine the effect of activity-based teaching on pre-service teachers’ cognitive, affective, and motor skills.

**Conflict of Interests**

The authors have not declared any conflict of interests.

**REFERENCES**


The teachers’ research self-efficacy and attitudes towards scientific research based on different parameters: A case study of Agri Province

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The purpose of this study is to develop competencies of teachers, the coordination of the education, learning activities; in having access to innovations, developments and scientific studies in the literature. In addition, the purpose is to determine how teachers’ scientific research self-efficacy and attitude towards the scientific research change based on the parameters such as gender, age and branch. Three different data collection tools were used in the study. The study group consists of 44 teachers working in Agri in different disciplines. The study was carried out by using mixed (including qualitative and quantitative methods) method. Teachers were provided a 12-week training for two hours a week with the purpose of improving their scientific research skills and their continuous attendance was ensured. Significant differences were observed in the research attitude scores of the teachers included in the study. During quantitative analysis of the study, majority of the teachers stated that they do not have any knowledge on scientific codes of conduct, how to conduct scientific research and how to review the literature and they showed no interest towards scientific research before the recent study.

Key words: Scientific research, self-efficacy, teacher.

INTRODUCTION

It is important to understand fully the scientific content of our life today. Teachers assume the responsibility of educating students starting from young ages to comprehend scientific developments and make the necessary evaluations. The students raised to have such competencies will gain self-confidence and they will have the knowledge on how to utilize scientific research in fulfilling their social responsibilities.

Scientific research is an enlightening process of using scientific methodology steps, finding solutions to problems with the purpose of understanding the unknown. Research is the vital point of individuals and the society in modern societies (Karasar, 2007). Research gains importance only when it is in compliance with the scientific methodology steps. Gulbahar et al. (2004) describe scientific research as "converting a subject that is required to be understood into a problem and attempting to find an answer and publishing the conclusion with the purpose of announcing to others", while Balci (2009) describes it as "collecting data with..."
Specific purposes and through systematic processes and analysis of the collected data". Ekiz describes it as "a study conducted in a planned and sometimes controlled manner with the purpose of obtaining scientific information on social and physical phenomenon". In brief, it would not be wrong to say that a research is the rediscovery of new information through certain processes (Tasdemir and Tasdemir, 2011).

Academic studies can be described as determining a problem, making observations, collecting data, developing a hypothesis and finding the ways of solving the problem in question. If we are to describe it in a different way, it is about the discovery, identification of a problem, hypothetical estimations, development of research methodology, collecting and analysing the data, making a decision and interpreting the results (Tasdemir and Tasdemir, 2011).

Scientific research skills can be attained through education and learning (Buyukozturk, 1994). This is because skills of accessing the information, organizing the information and establishing communication via information are considered as fundamental skills that may be instilled to individuals through education (Koseoglu et al., 2007).

According to Karasar (2007), it makes it compulsory to have a research policy in the country with high level of validity, providing a consistent "research education" and meeting other requirements, thus creating a "research-oriented society". This does not only encumber educational institutions with important duties but also requires researcher scientists to assume important responsibilities (cited from Tasdemir and Tasdemir, 2011). Research education is an education aimed at providing various scale of research information and culture required by almost everyone, from an ordinary citizen to managers and enforcers from various levels, academicians and to the highest-level scientists. Research education is aimed at adapting the scientific methodology into life. Accordingly, objective of research education is to raise individuals that possess the attitude and behaviours required by a researcher and capable of reflecting all of them into the daily life.

In the literature, research education, individual characteristics and socio-cognitive factors are shown as factors affecting the scientific research activities (Linden et al., 2015). Studies conducted in Turkey showed that teachers working as a part of the education system do not have sufficiently developed scientific research culture and requirement, and methods of access to scientific information used by teachers are usually limited with the media (Kurt, 2014). On the other hand, there are studies indicating that confidence of teacher candidates with respect to research self-efficacy is at medium-levels (cited from Ipek et al., 2010). In this case, it has been thought that the present study is very important with respect to contributing to the literature. Scientific research skills attained by teachers and their competences on critical thinking and independent research constitute a very important dimension that may have affected the social development as a direct consequence of their occupational development and the influence they create on their students.

**Objective of the study**

The objective of the present study is to determine how teachers’ scientific research self-efficacy and attitude towards the scientific research change based on the parameters such as gender, age and branch.

**RESEARCH METHODOLOGY**

The study was conducted using a Mixed (Qualitative-Quantitative) method. A single-item data collection tool was applied to teachers who participated in the study before and after the application aimed at determining the scientific research self-efficacy and attitudes of teachers towards scientific research as well as their relevant opinions. The aforementioned item says "Please evaluate your concerns and opinions in connection with conducting a scientific research as well as your attitude towards scientific research". The resultant data were analysed and presented in the form of a frequency table. Teachers were provided a 12-week training for two hours a week and their continuous attendance was ensured. The study was completed in 14 weeks including the 2-week scale application and interviews.

Topics of the training provided to teachers in the implementation stage of the study are as follows:

1. Nature of Science, History and Philosophy of Science,
2. Scientific knowledge and research-Access to Scientific Knowledge,
3. Scientific Codes of Conduct and Research Ethics,
4. Basic Concepts in Research and Scientific Research Methods, patterns and Data Collection Tools,
5. Introduction to Research and Research Plan,
6. Modelling in Research,
8. Data Analysis, Validity-Reliability,
9. Application procedure for national- international congress, National-International project development,
11. How to use SPSS software package, application procedure for Postgraduate Study Programs,
12. Academic Writing- Reporting trainings were provided by academicians who are experts in the relevant disciplines.

**Data collection tools**

Three different data collection tools were used in the research. One of the scales was that of Bieschke et al. (1993) Research Self-Efficacy Scale translated into Turkish by Ipek et al. (2010) who also obtained the licenses for use. In our study reliability factor of the self-efficacy scale was selected as Cronbach’s Alpha 0.0954. Cronbach’s alpha reliability factor indicates the reliability of the scale (Buyukozturk, 2002; Gorsuch, 1983). The second data collection tool is "Attitude Scale for Scientific Research" developed...
by Korkmaz et al. (2011). Cronbach’s alpha reliability factors vary between 0.765 and 0.851. Accordingly, high value of internal consistency factors and Cronbach alpha reliability factor of 0.70 and above are considered as indicators of the reliability of the scale (Buyukozturk, 2002; Gorsuch, 1983). Reliability factor of the attitude scale for research was calculated as Cronbach’s Alpha 0.943. The third data collection tool is a single-item tool developed by us, used in a pilot study and validated for the purpose of the scope by three branch experts. Teachers were asked to express their opinions in writing so they can express their opinions comfortably (Yildirim and Simsek, 2000; Balcı, 2009). The Quantitative Analysis of the study was made by using software package IBM SPSS-22. Wilcoxon Signed Ranks Test, MANN-Whitney U test and Kruskal Wallis Test were used in the analysis. Qualitative data were analysed by using content analysis.

**Study group**

Data provided in Table 1 show that, among the teachers who participated in the study, 28 are males and 16 are females. The study group consists of 15 teachers in the age of 20-24, 18 teachers in the age of 25-29, 8 teachers in the age of 30-34 and 2 teachers in the age of 35 and above. However, recode feature was utilized in SPSS data analysis and the group was considered as group above the age of 30.

Table 2 shows that 23 teachers are Science and Technology teachers, 11 teachers are Mathematics teachers, 6 teachers are Chemistry teachers; the remaining branches were coded as other branches using the recode feature of IBM SPSS-22 software. This method was used considering that it would not be possible to carry out a reliable analysis with branches having one teacher only.

**FINDINGS**

Wilcoxon Signed Ranks Test, one of the non-parametric tests, was used since the analysis of frequency distribution tests conducted on Preliminary Test and Final Test data from the Attitude Scale for Scientific Research and research self-efficacy test did not reveal normal distribution (Kalaycı, 2006).

Analysis of the data presented in Table 3 shows that attitude scores of all teachers towards the scientific research reveal significant differences in many items before and after the application. A positive increase was observed in the attitude scores of the teachers participated in the study towards research after the completion of the study.

Analysis of the data presented in Tables 4 and 6 shows a significant difference only in item 11 of the scale with respect to the preliminary attitude scores when attitudes of the teachers participated in the study towards scientific research are taken into consideration based on the gender parameter. The aforementioned item is in the favour of females and encompasses the wording “A scientist is a honest, knowledgeable, productive, straightforward person who also shows respect to other scientists”. As there are two groups for the gender parameter, MANN-Whitney U test was used for the analysis (Buyukozturk, 2007). No differences were found in final test scores of attitudes towards scientific research with respect to gender parameter.

Analysis of the data presented in Tables 5 and 6 shows that research self-efficacy scale preliminary test scores of teachers reveal higher scores for females under item 38 and 47 when compared with males. Research Self-Efficacy Scale Item 38 is “Ability to develop a computer program for data analysis” and item 47 is “Ability to present research outcomes orally before a group”. No differences were found in the research self-efficacy final test scores based on the genders.

Analysis of the data presented in Table 7 revealed differences under item 18 and 24 in consideration of the preliminary test attitude scores based on the age parameter. Kruskal Wallis test was used for analysis purpose as there were more than two age parameters. These items provide the wording “Finding research results unreliable and boredom felt about conducting a research”. Teachers get bored about scientific research and they fund research results unreliable as they get older.

Analysis of the attitude scores of the final test conducted after the application showed that there is a significant difference in item 18 of the attitude test in both preliminary test and final test scores (Table 8). This item
### Table 3. Attitude scale ranks before and after the application (Wilcoxon Signed Ranks Test).

<table>
<thead>
<tr>
<th></th>
<th>finT1-preT1</th>
<th>finT2-preT2</th>
<th>finT3-preT3</th>
<th>finT4-preT4</th>
<th>finT8-preT8</th>
<th>finT9-preT9</th>
<th>finT10-preT10</th>
<th>finT13-preT13</th>
<th>finT16-preT16</th>
<th>finT18-preT18</th>
<th>finT19-preT19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z</td>
<td>-4.976&lt;sup&gt;b&lt;/sup&gt;</td>
<td>-5.133&lt;sup&gt;c&lt;/sup&gt;</td>
<td>-5.321&lt;sup&gt;b&lt;/sup&gt;</td>
<td>-5.441&lt;sup&gt;c&lt;/sup&gt;</td>
<td>-5.061&lt;sup&gt;b&lt;/sup&gt;</td>
<td>-4.755&lt;sup&gt;c&lt;/sup&gt;</td>
<td>-4.828&lt;sup&gt;b&lt;/sup&gt;</td>
<td>-5.237&lt;sup&gt;c&lt;/sup&gt;</td>
<td>-5.135&lt;sup&gt;b&lt;/sup&gt;</td>
<td>-3.219&lt;sup&gt;c&lt;/sup&gt;</td>
<td>-5.061&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.000*</td>
<td>.000*</td>
<td>.000*</td>
<td>.000*</td>
<td>.000*</td>
<td>.000*</td>
<td>.000*</td>
<td>.000*</td>
<td>.001*</td>
<td>.000*</td>
<td></td>
</tr>
</tbody>
</table>

*<sup>a</sup> Wilcoxon Signed Ranks Test, b. Based on negative ranks, c. Based on positive ranks. finT: Post-Application Attitude Test Score, preT: Pre-Application Attitude Test Score.

### Table 4. Preliminary test attitude scores of teachers based on genders (Mann Whitney Test).

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>Mean Rank</th>
<th>Sum of Ranks</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Pre Attitude Test 11</td>
<td>Male</td>
<td>28</td>
<td>19.41</td>
</tr>
<tr>
<td>Female</td>
<td>15</td>
<td>26.83</td>
<td>402.5</td>
</tr>
</tbody>
</table>

*Pre-application attitude test score.

### Table 5. Research self-efficacy scores of teachers based on genders (Mann-Whitney Test).

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>Mean rank</th>
<th>Sum of ranks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>26</td>
<td>24.38</td>
<td>634</td>
</tr>
<tr>
<td>Female</td>
<td>16</td>
<td>16.81</td>
<td>269</td>
</tr>
<tr>
<td>Total</td>
<td>42</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>17</td>
<td>12.26</td>
<td>208.5</td>
</tr>
<tr>
<td>Female</td>
<td>12</td>
<td>18.88</td>
<td>226.5</td>
</tr>
<tr>
<td>Total</td>
<td>29</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

shows that teachers do not rely on scientific research. Training activities organized by us did not prove effective outcomes in changing such attitudes of teachers. Results of the study based on the age parameter showed that teachers do not rely on
Table 6. Self-efficacy scores and attitude preliminary test scores of teachers based on genders.

<table>
<thead>
<tr>
<th></th>
<th>Pre Attitude</th>
<th>**Pre Self Efficacy</th>
<th>**Pre Self Efficacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mann-Whitney U</td>
<td>137.500</td>
<td>133.000</td>
<td>55.500</td>
</tr>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
<td>.028*</td>
<td>.041*</td>
<td>.033*</td>
</tr>
</tbody>
</table>

*p<0.005. **Research Self-Efficacy Preliminary Test.

Table 7. Preliminary test attitude scores of teachers based on Age (Kruskal-Wallis Test).

<table>
<thead>
<tr>
<th>New age</th>
<th>Age of 20-24</th>
<th>Age of 25-29</th>
<th>Age of 30 and Above</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>**preT14</td>
<td>15</td>
<td>18</td>
<td>11</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>27.01</td>
<td>23.19</td>
<td>15.18</td>
<td></td>
</tr>
</tbody>
</table>

Chi-Square

<table>
<thead>
<tr>
<th>**preT18</th>
<th>**preT24</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chi-Square</td>
<td>6.182</td>
</tr>
<tr>
<td>Asymp. Sig.</td>
<td>0.045</td>
</tr>
</tbody>
</table>

*p<0.005. **Pre-application attitude test score.

Table 8. Self-efficacy and attitude final test scores of teachers based on age (Kruskal-Wallis Test).

<table>
<thead>
<tr>
<th>Age</th>
<th>N</th>
<th>Mean rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>*finT22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age of 20-24</td>
<td>15</td>
<td>23.73</td>
</tr>
<tr>
<td>Age of 25-29</td>
<td>14</td>
<td>22.25</td>
</tr>
<tr>
<td>Age of 30 and Above</td>
<td>10</td>
<td>11.25</td>
</tr>
<tr>
<td>Total</td>
<td>39</td>
<td></td>
</tr>
</tbody>
</table>

*finT18

<table>
<thead>
<tr>
<th>Age</th>
<th>N</th>
<th>Mean rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age of 20-24</td>
<td>15</td>
<td>23.93</td>
</tr>
<tr>
<td>Age of 25-29</td>
<td>14</td>
<td>21.71</td>
</tr>
<tr>
<td>Age of 30 and Above</td>
<td>10</td>
<td>11.70</td>
</tr>
<tr>
<td>Total</td>
<td>39</td>
<td></td>
</tr>
</tbody>
</table>

*finT23

<table>
<thead>
<tr>
<th>Age</th>
<th>N</th>
<th>Mean rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age of 20-24</td>
<td>15</td>
<td>22.77</td>
</tr>
<tr>
<td>Age of 25-29</td>
<td>14</td>
<td>22.89</td>
</tr>
<tr>
<td>Age of 30 and Above</td>
<td>10</td>
<td>11.80</td>
</tr>
<tr>
<td>Total</td>
<td>39</td>
<td></td>
</tr>
</tbody>
</table>

**finO22

<table>
<thead>
<tr>
<th>Age</th>
<th>N</th>
<th>Mean rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age of 20-24</td>
<td>15</td>
<td>20.03</td>
</tr>
<tr>
<td>Age of 25-29</td>
<td>14</td>
<td>24.75</td>
</tr>
<tr>
<td>Age of 30 and Above</td>
<td>10</td>
<td>13.30</td>
</tr>
<tr>
<td>Total</td>
<td>39</td>
<td></td>
</tr>
</tbody>
</table>

*Final test attitude scores. ** Research self-efficacy final test scores.
Table 9. Self-efficacy and attitude preliminary test scores of teachers based on branches (Kruskal-Wallis Test).

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science</td>
<td>22</td>
<td>23.14</td>
</tr>
<tr>
<td>Mathematics</td>
<td>11</td>
<td>16.09</td>
</tr>
<tr>
<td>Chemistry</td>
<td>6</td>
<td>26</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>26</td>
</tr>
<tr>
<td>Total</td>
<td>43</td>
<td>24.33</td>
</tr>
</tbody>
</table>

Chi-Square: 7.951, Asymp. Sig.: 0.047*

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science</td>
<td>23</td>
<td>24.33</td>
</tr>
<tr>
<td>Mathematics</td>
<td>11</td>
<td>18.64</td>
</tr>
<tr>
<td>Chemistry</td>
<td>6</td>
<td>14.58</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>34.5</td>
</tr>
<tr>
<td>Total</td>
<td>44</td>
<td>26.64</td>
</tr>
</tbody>
</table>

Chi-Square: 8.118, Asymp. Sig.: 0.044*

*p<0.005, **(preT) Preliminary test attitude scores, *** (preO) Research self-efficacy preliminary test scores.

Analysis of the data presented in Table 9 revealed significant differences among teachers based on the branches with respect to "continuous self-development as a scientist (preliminary attitude item 14)." We determined that Science and Technology teachers have the highest level of desire towards continuous self-development. No significant differences were observed in the test scores after the application.

Analysis of the data presented in Table 10 revealed significant difference with respect to research self-efficacy test scores of teachers under item 14 (Synthesizing the Literature) and 22 (Being open to criticism in scientific researches) based on the branches upon completion of the study.

Table 10. Research self-efficacy final test scores of teachers based on branches (Kruskal-Wallis Test).

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science</td>
<td>21</td>
<td>22.29</td>
</tr>
<tr>
<td>Mathematics</td>
<td>10</td>
<td>12.15</td>
</tr>
<tr>
<td>Chemistry</td>
<td>5</td>
<td>24.8</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>22.17</td>
</tr>
<tr>
<td>Total</td>
<td>39</td>
<td>24.95</td>
</tr>
</tbody>
</table>

Chi-Square: 7.885, Asymp. Sig.: 0.048*

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science</td>
<td>21</td>
<td>24.95</td>
</tr>
<tr>
<td>Mathematics</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>Chemistry</td>
<td>5</td>
<td>17.6</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>16</td>
</tr>
<tr>
<td>Total</td>
<td>39</td>
<td>17.6</td>
</tr>
</tbody>
</table>

Chi-Square: 10.225, Asymp. Sig.: 0.017*

*p<0.005, **Research self-efficacy final test scores.

Findings obtained from qualitative data analysis

Teachers who participated in the study were applied a single-question data collection tool before the study. The aforementioned item says "Please evaluate your concerns and opinions in connection with conducting a scientific research as well as your attitude towards scientific research". The obtained data were analysed and shown in the form of a frequency table (Table 11).

The majority of the teachers stated that they do not have any knowledge on scientific codes of conduct (f=9), how to conduct a scientific research (f=20) and how to review the literature (f=9) and they showed no interest towards scientific research (f=9) prior to the present study.

Teachers who participated in the study were applied a single-question data collection tool following the completion of the study. The aforementioned item says "Please evaluate your concerns and opinions in connection with conducting a scientific research as well as your attitude towards scientific research". Obtained data were analysed and shown in the form of a frequency table (Table 12).

Majority of the teachers stated that they started to attach value to scientific research (f=16), learnt how to conduct scientific research (f=13), had their horizons broadened about being scientific individuals (f=11) and learnt about the importance of codes of conduct in connection with the scientific research (f=7) and how to review the literature upon completion of the study.

Conclusion

Differences were found in the attitudes of teachers towards scientific research before and after the study. There have been significant increases in the attitude scores of teachers who participated in the study towards research following the completion of the study. Analysis of the attitude scores of the teachers who participated in
Table 11. Preliminary interview results of teacher candidates participated in the survey.

<table>
<thead>
<tr>
<th>Theme</th>
<th>f</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Lack of knowledge on how to conduct a scientific research</td>
<td>20</td>
</tr>
<tr>
<td>2 I do not know how to review the literature</td>
<td>9</td>
</tr>
<tr>
<td>3 Lack of knowledge on scientific codes of conduct</td>
<td>9</td>
</tr>
<tr>
<td>4 Lack of interest in scientific research</td>
<td>5</td>
</tr>
<tr>
<td>5 Considering scientific research as unnecessary (finding it simple)</td>
<td>5</td>
</tr>
<tr>
<td>6 The fear of failing with the scientific research</td>
<td>5</td>
</tr>
<tr>
<td>7 Lack of knowledge on how to report on the research</td>
<td>4</td>
</tr>
<tr>
<td>8 Struggling in determining the subject of the research</td>
<td>3</td>
</tr>
</tbody>
</table>

Table 12. Final interview results of teacher candidates participated in the survey.

<table>
<thead>
<tr>
<th>Theme</th>
<th>f</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 I started attaching value to scientific research</td>
<td>16</td>
</tr>
<tr>
<td>2 I learnt how to conduct a scientific research</td>
<td>13</td>
</tr>
<tr>
<td>3 My horizon about being a scientific person has been broadened</td>
<td>11</td>
</tr>
<tr>
<td>4 I understood the importance of codes of conduct on scientific research</td>
<td>9</td>
</tr>
<tr>
<td>5 My interest in scientific research increased</td>
<td>7</td>
</tr>
<tr>
<td>6 I learnt how to review the literature</td>
<td>7</td>
</tr>
<tr>
<td>7 I realized the difficulties and my concerns increased as I learnt about scientific research</td>
<td>6</td>
</tr>
<tr>
<td>8 I improved my self-confidence about scientific research</td>
<td>7</td>
</tr>
<tr>
<td>9 My concerns about scientific research have been solved</td>
<td>3</td>
</tr>
<tr>
<td>10 I found the education beneficial</td>
<td>1</td>
</tr>
<tr>
<td>11 I learnt how to present scientific research results</td>
<td>1</td>
</tr>
</tbody>
</table>

the study towards scientific research based on the gender parameter revealed significant difference in preliminary attitude scores only under one item of the scale and this item saying "$A$ scientist is an honest, knowledgeable, productive, straightforward person who also shows respect to other scientists" is in the favour of females. No differences were observed in the attitude scores with respect to the gender parameter following the completion of the study.

Differences were observed under two items in preliminary test attitude scores of teachers who participated in the study based on the age parameter. These items are finding research results unreliable and boredom felt about conducting a research. Teachers get bored about scientific research and they fund research results unreliable as they get older.

Analysis of the attitude scores of the final test conducted after the study showed that there is a significant difference only in item 18 of the attitude test in both preliminary test and final test scores. Results of the study based on the age parameter showed that teachers do not rely on the research results as the information is collected in a restricted sphere. The present study leads to positive effects particularly on teachers in the age of 30 and above with respect to finding research outcomes unreliable. Furthermore, teachers displayed involuntary attitude about providing assistance to the scientific research.

In consideration of the gender parameter, research self-efficacy scale preliminary test scores of teachers revealed higher scores for females under item 38 and 47 when compared with males. Research Self-Efficacy Scale Item 38 is "Ability to develop a computer program for data analysis" and item 47 is "Ability to present research outcomes orally before a group". No differences were found in the research self-efficacy final test scores based on the genders. Although self-efficacy level of the male teacher candidates was higher than the female students, this difference was not considered significant in a study of Chaplain (2000). This result is in conflict with our study.

Significant difference was found based on the branches with respect to the continuous self-development of teachers as scientists (preliminary attitude item 14). We
determined that Science and Technology teachers have the highest level of desire towards continuous self-development. No significant differences were observed in the test scores after the application based on the branches.

Before the application, the self-efficacy results revealed that teachers show unwillingness about preparing reports as they get older. There are studies in the literature supporting our study and the findings obtained (Karagül, 1996; Karasar, 1984).

The majority of the teachers stated that they do not have any knowledge on scientific codes of conduct (f=9), how to conduct a scientific research (f=20) and how to review the literature (f=9) and they showed no interest towards scientific research (f=9) prior to the present study.

The majority of teachers stated that they started to attach value to scientific research (f=16), learnt how to conduct scientific research (f=13), had their horizons broadened about being scientific individuals (f=11) and learnt about the importance of codes of conduct in connection with the scientific research (f=7) and how to review the literature upon completion of the study.

Following the completion of the study, research self-efficacy test scores of teachers showed that significant differences were found under items being open to criticism in scientific research and synthesizing the literature. Different literature data support the data of this study (Karagül, 1996).

Conflict of Interests
The author(s) have not declared any conflict of interests.

ACKNOWLEDGEMENT
This study has been supported within the scope of the project no. EF.12.002 of Ağrı Ibrahim Çeçen University Scientific Studies Project Coordinatorship. The author is the coordinator of the Project.

REFERENCES
Math teachers’ attitudes towards photo math application in solving mathematical problem using mobile camera

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This study aimed at finding out mathematics teachers’ attitudes towards photo math application in solving mathematical problems using mobile camera; it also aim to identify significant differences in their attitudes according to their stage of teaching, educational qualifications, and teaching experience. The study used judgmental/purposive sampling method involving 127 male and female teachers from Directorate of Education District of BaniKinana in Irbid- Jordan, during the academic year 2014/2015. They filled in a 27-item survey instrument that was used to collect primary data. Secondary data were collected by using both printed and online literature. The study used both qualitative and quantitative techniques such as Statistical Package for Social Sciences (SPSS) and ANOVA for data analysis. The findings revealed high positive mathematics teachers’ attitudes towards photo math application in solving mathematical problems using mobile camera. The results also revealed no statistically significant differences in teachers’ attitudes towards photo math due to their stage of teaching, and teaching experience, while these differences were observed due to teacher educational qualifications, in favor of those holding diploma degrees. Finally, the study recommends that those in charge of planning mathematical curriculum to do photo math application teaching from basic to secondary stages.

Key words: Attitudes, photo math application, mathematical problem solving.

INTRODUCTION

The importance of problem solving stems from the link between mathematics as abstract science and the reality of its application. Problem solving is one of the skills that must be mastered by an individual. Van De Wall (1994) defined problem as difficult question, debate, and thought; while Andrews (1992) viewed problem as a mind training question through simplifying puzzles and difficult situations. However, Mathematical problem refers to a new situation faced by a person, who has no ready solution to it; he tries to find suitable solution to it inside him (Vanloggerenberg, 2002). On the other hand, Clement and Sarama (2000) defined mathematical problem as a process of thinking and searching for patterns and relations.

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National Council of Teachers of Mathematics (NCTM, 2000) has emphasized on problem solving standard through building new knowledge, using, adapting several strategies for problem solving and emphasizing on meditation in its solving procedures. International Contests of Mathematics and Science also emphasized on problem solving through their presented questions (Trends in International Mathematics and Science Study; TIMSS, 2003). This led to the adoption of this technique in Jordanian Ministry of Education. The directions within the knowledge based economy as well as the adoption of realistic appraisal emphasized a number of skills such as; critical thinking, reflective thinking and self-review. The most important of the skills was mathematical problem solving, as suggested in Annual Report on National Test for Controlling Teaching Quality (2005).

Several studies have also addressed mathematical problem topic, which investigated the construction of attitudes scales towards it, on one hand (Alzoubi, 2014; Ibrahim, 2001), and the methods and strategies that promote the ability to solve mathematical problem, while linking them to other variables such as achievement, thinking, and attitudes, on the other hand (Shdoooh, 2006; Hamshari, 2005). Therefore, problem solving is one of the basic skills that can be measured and enhanced by several methods and techniques as well as the basic core in mathematics teaching and learning.

The result of rapid changes in information technologies and technological revolution in mathematics teaching and methods are represented by modern teaching methods beginning with the scientific calculator, through video teaching topes, and some other electronic equipment to the computer, and multimedia and programs. A development was observed in this domain leading to better achievement in teaching of mathematics compared to classical methods that rely on the blackboard and other explanatory instruments. However, what is important here is not the comparison between modern and classical methods, but in using the most suitable modern methods for the subject, place and educational environment (Bashiti, 2007; Yushau and Wessels, 2003).

It is also important to note that, mathematics plays crucial role among teaching approaches in educational process and practice, as it is the language of science. Many countries worked on developing mathematical education as well as the introduction of adaptations or making some reforms in making it easy for other countries; meanwhile, some researchers and teachers have conducted some researches and experiments on using technology in improving math teaching, and showing positive attitudes among teachers (International Conference in Mathematics Education, 2000).

According to Breckler and Wiggins (1992), attitude is a state of mental and neural preparation and alertness organized by experience, and directed by individuals responses to various stimuli, while Osgood (1991) defined attitude as a general tendency to respond towards certain subject, situation, or general acquired tendency that directs behavior. Furthermore, Eagly and Chaiken (1995) define attitudes as a harmonic organization of concepts, habits, beliefs and motives for a specific thing which leads the holder to respond favorably. Reasons for these different definitions of attitude are the formative nature of the attitude and its lettuce nature, but can be inferred through people’s behavior or from connectedness and consistency types among people’s responses to stimuli resulting from the attitudinal subject (English and English, 1985; Woo, 2005).

An individual acquires his values, ideals and attitudes from his society, through the interaction between him and his society, and it is important that society reinforces positive attitude among individuals given that attitudes are learned but not innate (Gibson, 2003). Meanwhile attitudes can be changed but under certain conditions, but the change process is not as simple as we expect, for it is difficult to change attitudes learned by childhood as well as attitudes related to beliefs, basic needs and motives (Hsiao, 2003; Tantekin, 2002).

It was also found that attitudes nature might enable us to predict the degree to which technology is accepted. Anderson (1997) pointed out that teaching via technology can be increased when teachers’ attitudes towards it became positive, in the same time. Selwyn (1997) emphasized that the success of technological media in any educational area depends on the attitudes of both teachers and students. Therefore, mathematics teaching and learning is centered on a new application that will help students in their scientific achievement, solve mathematical problems after having its photographed via the mobile phone depending on intelligent phones characteristics (Mustafa, 2014).

According to Owano (2014), Photo Math, from the software development company Micro Blink, will make the student’s phone do math homework. Just point the camera towards the mathematical expression, and Photo Math displays a result. The Photo Math solves equations using the camera on an iOS or Windows phone and will be available for Android early next year. More important, Photo Math is not just a camera-based calculator. Its value is not just in giving the phone user the answer but in being able to display the solution in steps taken to solve the problem. The user can understand the process that was used to solve the problem (Figure 1).

This application is capable of solving algorithms, fractions, exponential roots and linear equations, but it does not solve derivation or integration problems; though they are expected in the future. This application provides a step by step solution to mathematical problem, and is expected students will like it because it might help them to cheat during exams. On the other hand teachers are afraid that this application will minimize students’ ability to think and solve mathematical problems This might lead the student to abandon mathematical teachers’ role in teaching and directing mathematical problems solving...
methods (Electronic Alfajer, 2014). Robinson and David (1996) also pointed out that mathematical teaching methods should respond favorably to development requirements and take off its classical thought. The authors added that, students are in need of modern techniques for mathematical learning that brings beneficial way of learning in the face of future challenges and emphasized the necessity of motivating teachers to adopt, and introduce technology in their classrooms.

Howe et al. (1991) emphasized that changes that occurred in the last quarter of the 20th century led to modifying its learning approaches in accordance with the nature of this age challenges. This has led several researchers to increase their concern in investigating math magical teaching methods to find the most efficient way in gaining a more meaningful and long lasting one.

Due to lack of local studies on math teacher’s attitudes towards photo math in solving math problems using mobile camera, the researchers review studies related to attitudes towards math teaching and learning using modern technology such as computers and internet, in general, and those related to mathematical problem solving in particular; to benefit from their procedures and instruments building and arranged from oldest to newest.

Khatib (1994)’s study on teachers attitudes towards teaching technology and its relationship with some variables in Irbid governorate revealed that, teachers have positive attitudes towards teaching technology; and there are no statistically significant differences in teachers’ attitudes due to their sex, majors, years of teaching, exposure to teaching technology courses, or the stage they teach.

Teeter (1997)’s study about internet experience in teaching a course of education at Arkansas Little Rock University showed that this experience had negative attitudes of teachers towards the teaching profession, but there are some positive benefits including increased students’ motivation and enthusiasm to participate in discussions and looking for sources via the internet and the possibility to access unlimited sources related to the subject.

Charp (2000) did UNESCO studies from different countries, regarding internet role in education; the findings showed that technology had positive effects on students’ motivation towards teaching and increased their self-learning, improving their communication and writing skills. It also has a positive effect on teachers’ attitudes towards teaching where it helped them on diversification of their teaching approaches, increased their professional development and knowledge of their specialization, helped them in finding managerial solutions in their classes and enhance belonging and connectedness between teachers and students and finally it helped teachers in identifying various individual skills and characteristics of their students.

Similarly, Muhaïsen (2000) conducted a study on education colleges’ faculty members in Saudi Universities. The results showed a shortage in computerized services for faculty members and a poor use of computer accompanied with high negative attitudes among faculty members towards computer use. It was also found that lack of training of these faulty members and the absence of computer’s technicians are among the most serious obstacles in their use of computers.

Finally, Haqh (2003) studies the extent of multi-media effectiveness on community colleges students towards computerized instruction. Results indicate that students have positive attitudes towards computerized instruction. In support, Isaac (2012) asserts that there is a high positive attitude of teachers towards using computers in teaching mathematics.

Despite the benefit drawn by the researchers from previous studies regarding current study procedures, on attitudes towards mathematics teaching and learning in general, which was almost negative, but the researchers could not find any study addressing math teachers’
attitudes towards photo math application. The study therefore sought to find out factors influencing mathematics teachers’ attitudes towards photo math in solving mathematical problem using the mobile camera in Directorate of Education District of BaniKinana in Irbid-Jordan.

Research questions

The study sought to answer the following research questions:

i. What are the factors influencing mathematics teachers' attitudes towards photo math application in solving mathematical problems using mobile camera?

ii. What is the effect of the stage a teacher teaches on photo math attitude?

iii. Do these attitudes differ due to teachers' educational qualification?

iv. Do these attitudes differ due to teachers' teaching experience?

Significance of the research

The significance of the study includes: The appearance of photo math related to mathematical problem solving is one of the debatable subjects in the Jordanian area, under Apple Company direction towards producing photo math application in solving mathematical problem using mobile camera with all its positive or negative effects on mathematics. The findings of the study will form a basis on which academic researchers can do further studies on photo math in the country. The results of this study might provide decision makers and those interested in mathematical teaching methods with empirical findings which will enable them make policy recommendations towards photo math in the country. The study will also bridge the gap and variance between those who supported or opposed using photo math application.

Limitations of the research

The study was confined to a sample of male and female math teachers at Directorate of Education District of BaniKinana in Irbid- Jordan for the school year 2014/2015. Also, the study instrument was limited to attitudes towards photo math application scale; therefore the generalization of its results will be dependent on its validity and reliability indications.

METHODOLOGY

Participants

The study population consisted of all (129) male and female mathematics teachers at Directorate of Education District of BaniKinana in Irbid-Jordan, distributors on 106 schools (38 schools for males, 32 schools for females, and 36 schools for both males and females). The study used judgmental/purposive sampling method which enabled the researchers to choose (127) male and female teachers from Directorate of Education District of BaniKinana in Irbid-Jordan, during the first semester for the school year 2014/2015. Only two males were exempted from the sample; because of their absence from work (Unpublished statistical issued from Directorate of Education District of Banikinanah).

Instrument

Depending on previous literature and studies related to attitudes in general, a questionnaire was used to measure math teachers’ attitudes toward photo math in solving mathematical problems using mobile camera, in general and attitudes towards mathematical problem in particular. The researchers benefited from previous literature and modern studies on this subject. The researchers reviewed published articles on different electronic sites related to photo math application, and in light of the above, attitudes scale (questionnaire) of 32 items to measure attitude towards photo math was formulated. Face validity of the instrument was assured by reviewing it by a group of experienced and efficient referees in various specialties (Measurement and Evaluation, Educational Psychology, Teaching Methods) and were asked to give their opinions in its items in terms of items clarity and language correctness, and items suitability in measuring the study purpose; and after this process (5) items were deleted.

The questionnaire consisted of 27 items in the final form, according to Likert scale (I agree, I agree to some extent, I do not agree). Some items were positive for each given number (3, 2,1), respectively, and other negative items gave the same numbers; but in reverse, the formulation of all items for future language was also taken into account.

The instrument was administered on a sample of (15) teachers from outside the study sample. It was applied twice within an interval of 10 days. Reliability was estimated by using Test- retest method. Total reliability coefficient of the instrument was (0.86) which is considered acceptable for the purpose of the study.

Procedures

Mathematics teachers at Directorate of Education District of BaniKinana in Irbid in the first semester for the school year 2014/2015 were determined, and a meeting was held with them to explain the idea of photo math application in solving mathematics problems. The researchers gave them the instrument of the study to get their response on each of the 27 items listed in the questionnaires, according to Likert scale (I agree, I agree to some extent, I do not agree).

Statistical Analysis

Data were analyzed using Statistical Package for Social Sciences (SPSS), where means and standard deviations of respondents were computed; t-test was used in answering both second and third research questions, while 1-way ANOVA was performed in answering the fourth question.

RESULTS AND DISCUSSION

Factors influence mathematics teachers' attitudes towards
Table 1. Means and standard deviations of teachers’ responses on each item and the instrument as a whole.

<table>
<thead>
<tr>
<th>No</th>
<th>Items</th>
<th>Mean</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Photo math application will decrease the student’s attention towards my various approaches in solving mathematical problems.</td>
<td>2.36</td>
<td>0.71</td>
</tr>
<tr>
<td>2.</td>
<td>I believe there is a logical accepted explanation to photo math application.</td>
<td>2.65</td>
<td>0.52</td>
</tr>
<tr>
<td>3.</td>
<td>I like participating in discussion and debates about technology related to mathematical problem solving.</td>
<td>2.68</td>
<td>0.53</td>
</tr>
<tr>
<td>4.</td>
<td>I like intelligent things</td>
<td>2.80</td>
<td>0.41</td>
</tr>
<tr>
<td>5.</td>
<td>I think that photo math will help students overcome difficulties facing them in math problem solving.</td>
<td>2.56</td>
<td>0.62</td>
</tr>
<tr>
<td>6.</td>
<td>I’ll enjoy following a new system in teaching mathematical problem solving.</td>
<td>2.54</td>
<td>0.61</td>
</tr>
<tr>
<td>7.</td>
<td>When I have trust in photo math results, I’ll give it most of my interest.</td>
<td>2.31</td>
<td>0.71</td>
</tr>
<tr>
<td>8.</td>
<td>Photo math will help me in doing mathematical tasks successfully</td>
<td>2.54</td>
<td>0.61</td>
</tr>
<tr>
<td>9.</td>
<td>The presence of photo math in my room will make me better performer.</td>
<td>2.79</td>
<td>0.42</td>
</tr>
<tr>
<td>10.</td>
<td>I am going to learn everything about photo math.</td>
<td>2.64</td>
<td>0.53</td>
</tr>
<tr>
<td>11.</td>
<td>I like using various technological applications in my teaching style.</td>
<td>2.62</td>
<td>0.54</td>
</tr>
<tr>
<td>12.</td>
<td>I’ll try participating with ideas that might advance photo math application.</td>
<td>2.02</td>
<td>0.76</td>
</tr>
<tr>
<td>13.</td>
<td>I think that the traditional style in math problem solving is the best.</td>
<td>2.52</td>
<td>0.64</td>
</tr>
<tr>
<td>14.</td>
<td>I think that teaching math problem solving using photo math will improve students’ achievement levels.</td>
<td>2.86</td>
<td>0.38</td>
</tr>
<tr>
<td>15.</td>
<td>I focus on whatever new in mathematics teaching and learning.</td>
<td>2.68</td>
<td>0.51</td>
</tr>
<tr>
<td>16.</td>
<td>I’ll exchange my views, with colleagues, about photo math application</td>
<td>2.43</td>
<td>0.68</td>
</tr>
<tr>
<td>17.</td>
<td>I expect photo math to perform an alternative role of math teachers</td>
<td>2.69</td>
<td>0.55</td>
</tr>
<tr>
<td>18.</td>
<td>I enjoy my role as students guide towards math problem solving.</td>
<td>2.65</td>
<td>0.55</td>
</tr>
<tr>
<td>19.</td>
<td>I’m looking for joining a training course on using photo math in solving mathematical problems.</td>
<td>2.24</td>
<td>0.74</td>
</tr>
<tr>
<td>20.</td>
<td>My attitudes have an influence on executing this application from not starting its execution.</td>
<td>2.63</td>
<td>0.56</td>
</tr>
<tr>
<td>21.</td>
<td>I can imagine many technological applications to solve mathematical problem.</td>
<td>2.69</td>
<td>0.52</td>
</tr>
<tr>
<td>22.</td>
<td>I believe technology will replace teacher’s role.</td>
<td>2.45</td>
<td>0.66</td>
</tr>
<tr>
<td>23.</td>
<td>For me, giving an opinion and participation on photo math, is important.</td>
<td>2.23</td>
<td>0.72</td>
</tr>
<tr>
<td>24.</td>
<td>I believe that individual differences among students are going to disappear when photo math application takes place in the classroom.</td>
<td>2.48</td>
<td>0.61</td>
</tr>
<tr>
<td>25.</td>
<td>I take care of technological applications because they are public rights</td>
<td>2.62</td>
<td>0.58</td>
</tr>
<tr>
<td>26.</td>
<td>I’ll enjoy seeing mathematical problem solving steps through the mobile camera.</td>
<td>2.58</td>
<td>0.64</td>
</tr>
<tr>
<td>27.</td>
<td>I feel that photo math application will cause my students to be less respectful in the class.</td>
<td>1.91</td>
<td>0.79</td>
</tr>
<tr>
<td>Total Scale</td>
<td></td>
<td>2.52</td>
<td>0.32</td>
</tr>
</tbody>
</table>

Photo math application in solving mathematical problem using mobile camera. Means and standard deviations of teachers’ responses are calculated in Table 1. Table 1 shows that total means score of teachers’ attitudes was (2.52); Standard Deviation, 0.32, which is equal to 81.48% of the instrument as a whole. This suggests that factors influencing mathematics teachers’ attitude toward photo math were high and positive. To identify the degree of appreciation, the researchers used the following appreciation: (1-1.66: Low; 1.67-2.33: Mid.; 2.34-3: high and positive). Item No. 14 was first in the highest mean account (2.86); whereas item No. 27 was last in mean account (1.91). This might be due to the fact that teachers are feeling the need for such application to facilitate their role in problem solving, and becoming a guide to the solution, seeking and encouraging new technological development in order to teach mathematics better than classical methods that depend on chalkboard. This finding is inconsistent with Electronic AlFajer (2014).

The author reported that teachers are afraid of using this application. On the other hand, this study is in agreement with the results obtained by Robinson and David (1998); Howe et al. (1991). This authors emphasized the motivation of teachers to adopt the technology and introduce it in their classroom.

Do Mathematics teachers’ attitudes toward photo math application in solving math problem using the mobile camera differ according to the stage a teacher teaches?

In answering this question, t-test was used, and results are displayed in Table 2. Table 2 shows no statistically significant differences due to the stage a teacher teaches and this might be due to mathematical teachers’ perceptions that photo math application is necessary for all students either in the basic or in the secondary stage,
Table 2. Results of t-test on the effect of the stage a teacher teaches on his attitudes toward photo math.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>df</th>
<th>T</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic</td>
<td>2.51</td>
<td>0.34</td>
<td>125</td>
<td>0.31</td>
<td>0.334</td>
</tr>
<tr>
<td>Secondary</td>
<td>2.53</td>
<td>0.30</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3. Results of t-test of the effect of educational qualification on teacher's attitudes toward photo Math.

<table>
<thead>
<tr>
<th>Qualification</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>df</th>
<th>T</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor</td>
<td>2.47</td>
<td>0.36</td>
<td>125</td>
<td>1.96</td>
<td>0.024</td>
</tr>
<tr>
<td>Diploma and higher</td>
<td>2.59</td>
<td>0.24</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4. Means, and standard deviations according to teaching experience.

<table>
<thead>
<tr>
<th>Years of experience</th>
<th>N</th>
<th>Mean</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-5 yrs</td>
<td>21</td>
<td>2.50</td>
<td>0.32</td>
</tr>
<tr>
<td>6-10 yrs</td>
<td>36</td>
<td>2.44</td>
<td>0.35</td>
</tr>
<tr>
<td>More than 10 yrs</td>
<td>70</td>
<td>2.58</td>
<td>0.32</td>
</tr>
</tbody>
</table>

Table 5. One-Way ANOVA according to teaching experience.

<table>
<thead>
<tr>
<th>Source of variance</th>
<th>SS</th>
<th>Df</th>
<th>MSS</th>
<th>F</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>0.496</td>
<td>2</td>
<td>0.248</td>
<td>2.32</td>
<td>0.102</td>
</tr>
<tr>
<td>Within groups</td>
<td>13.22</td>
<td>124</td>
<td>0.107</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

depending on students’ mental and age level. This is because what secondary school student need is not the same as what basic school students need and this finding is consistent with results of Isaac (2012).

Do Mathematics teachers’ attitudes toward photo math application in solving math problems using the mobile camera differ according to teachers’ educational qualification?

In answering this question, t-test was used. Table 3 shows its results. Table 3 shows statistically significant differences in teacher’s attitudes towards photo math due to the educational qualification. These differences are in favor of those holding diploma and higher degrees. This might be due to the fact that higher degrees holders have more vision and culture regarding technology, so they perceive the importance of motivating teachers a caption of technology and its introduction to their classroom. This finding rhythms well with Robinson and David (1998) who state that higher degrees holders have more vision and culture regarding technology. They also pointed out those mathematical teaching methods should respond favorably to development requirements and take off its classical thought.

Do Mathematics teachers’ attitude towards photo math application in solving mathematical problem using mobile camera differ according to their teaching experience?

To answer this question, means, standard deviation were computed as shown in Table 4. The table shows apparent differences between means. To find out difference significance, 1-way ANOVA was performed and results are shown in Table 5.

Table 5 shows no statistically significant differences in teachers’ attitudes due to their years of experience. This might be due to the importance attached on students’ need for technological application in the teaching process by all teachers. Therefore no significant differences were observed between the variables. This finding is consistent with Charp (2000)’s results which showed that technology had positive effect on teachers’ attitudes towards teaching; it helped them to diversify their teaching approaches, increase their professional development and knowledge of their specialization, helped them in finding managerial solutions in their classes.

Conclusion

What can be deduced from the results of the current study, in general, is as follows:

1. Factors influencing mathematics teachers toward photo math were high and positive.
2. There are statistically significant differences in teachers’ attitudes towards photo math due to teachers’
educational qualifications; the differences were in favor of those holding diploma degree and higher.

3. There are no statistically significant differences in teachers’ attitudes towards photo math due to their years of teaching, and teaching experience.

RECOMMENDATIONS

Based on the findings of the current study, the researchers recommend the following:

1. The need to notify those in charge of planning mathematical curriculum about the importance of employing photo math in teaching mathematical problem solving starting from basic to secondary stage.

2. It is important that Ministry of Education in Jordan makes photo math application available besides other technological applications with attractive nature in accordance with students’ levels.

3. More similar studies be conducted on the effect of using photo math on students’ achievement level in mathematics, while including other demographic variables that might have an effect on their achievement, as well as expanding the study scope to include other areas.

Conflict of Interests

The authors have not declared any conflict of interests.

REFERENCES


Arab Regional Office for TIMSS Project., (2003). Results of Arab countries participation in the international study of trends achievement levels in math and science. Amman, Jordan.


International Conference in Mathematics Education., (2000). Lecturer of international conference in mathematics education, the round table, the role of mathematics in public education in the 21 century.Tokyo, Makuham, Japan, July 31-August 8 from year.


Students’ acceptance of using smartphone in a mobile learning context

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Development of mobile phones provides the students a different learning choice compared to studying in a traditional classroom. This study investigated undergraduate students’ experiences with using their smartphones to receive learning contents for the improvement of their computer literacy. Through a survey and a pretest and posttest, the findings showed mobile learners expressed positive perceptions after their experience with the m-learning and the scores on the posttest were significantly higher than the scores on the pretest.

Key words: M-learning, SMS message, computer literacy, undergraduate students.

INTRODUCTION

Computing and Internet technology skills and knowledge are important or essential requirements for the workforce in the information age. Enterprises expect new employees to possess literacy skills in information and communication technology, which include using technology efficiently (Ali and Katz, 2010). Therefore, undergraduate students need a certification to prove their abilities for enhancement of their chances of finding jobs after graduation. In Taiwan, students in higher education were encouraged to gain various nationwide occupational certifications, skill tests, professional licenses, and worldwide professional certificates to make preparations for their future careers (Lee et al., 2010). An institute in a county of central Taiwan provided a face-to-face classroom training course to assist the students prepare for the certification exam. However, most students spent their time preparing for and reviewing their regular courses and had less time for the training course. The problems of a time limitation and a space restriction causing students’ insufficient learning toward the preparation for the certification exams needed to be solved. This study aimed to examine undergraduate students’ acceptance on using their smartphone to receive their learning materials in order to supplement the learning in the training course.

LITERATURE REVIEW

Use of technologies and devices on mobile learning

Many researchers have utilized diverse technologies and various mobile devices in education and reported the significant and positive results (Brett, 2011; Chang et al., 2011; Chen and Huang, 2010; Mathur, 2011). Investigating students’ perceptions of mobile applications
for the college course management system, Blackboard Mobile Learn, Mathur (2011) found that the students intended to use the system via their iPhone or smartphone for several specific functions that included seeing the course announcements, finding information such as the syllabus, professor’s e-mails, or office hours, and checking their grades. Further, Brett (2011) collected information to understand students’ experiences and engagement with Short Message Services (SMS), a service using a text message to communicate via mobile phone, for learning in higher education and found positive responses on administrative communications and learning support. Evaluating the acceptance of a novel mobile knowledge management leaning system through various mobile devices, Chen and Huang (2010) found that the learners who utilized the system achieved more than those who accepted classroom learning only.

Use of SMS on language learning

In the field of language learning, the literature presented positive evaluation on the use of SMS in m-learning (Kennedy and Levy, 2008; Zhang et al., 2011). By researching vocabulary learning via mobile phones, Kennedy and Levy found that students appreciated the useful message content pushed by the teachers and enjoyed the experience. Through an experiment to reexamine the effectiveness of vocabulary learning via mobile phones, Zhang et al. found that successful learning with mobile phones might involve multiple learning strategies, and the students tended to use mobile phones as a supplementary tool for vocabulary learning. However, due to the limitation of 160 characters per SMS text message (Brett, 2011; Carrier and Benitez, 2010; Chang, 2008; Kennedy and Levy, 2008; Zhang et al., 2011), the materials of vocabulary learning such as words themselves, translation, and definitions must be compressed to be as succinct as possible (Chang, 2008).

The Internet and Computing Core Certification (IC³)

Worldwide computer certificates such as Microsoft Office Specialist Official Certification and the IC³ Certification provide opportunities for students to prove their abilities of completing related tasks. Students who intend to confirm their computing knowledge and skill have to pass the exams and earn the certification. The test for the IC³ Certification comprises three exams including Computing Fundamentals, Key Applications, and Living Online (Certiport, 2012). The Computing Fundamentals exam assists users obtain the most value from computer technology by testing a foundational understanding of computer operating systems, software, hardware, peripherals, and troubleshooting. The Key Applications examination helps users to work smarter by testing skills in familiar word processing, spreadsheet, and presentation applications and the general features of all applications. The knowledge confirmed by the Living Online examination includes communication networks, electronic communication and collaboration, web browsers, and the Internet.

Aims of the study

This study was aimed to investigate undergraduate students’ acceptance on using mobile devices for learning to enhance their computer literacy. It examined students’ experiences of receiving learning materials and review questions via their own smartphones to supplement their inadequate learning in the classroom course. The study also evaluated the effectiveness of the instructional materials and review questions that are delivered via learners’ mobile devices when compared to face-to-face learning.

METHODOLOGY

Research design

An experimental research method (Gay et al., 2009) was utilized to conduct this study. The instruction delivery format was the independent variable that was tested out with the experimental design. The variable had two levels: instruction delivered via learners’ mobile devices and instruction delivered via face-to-face classes. The students in the experimental group will receive a treatment, which is to deliver instructional materials and review questions to the students via their smartphone. The dependent variable was the effectiveness of the different instructional delivery formats, as measured by the posttests results of the students in the control and experimental groups after the treatment was delivered to the experimental group.

Participants and context

Participants in this study were recruited from the student population of a university of technology in a county of central Taiwan. Undergraduate students from each academic year in the College of Management who were intent on pursuing an Internet and Computing Core Certification (IC³) exam attended a training course. The students of the course were randomly selected by counting off by twos after all of the participants were separated to males and females and lined up (Gay et al., 2009). One team was assigned as the experimental group and the other served as the control group. Before the course, all the students had no learning experiences via mobile device. Among the thirty-two students of the experimental group who participated in the blended training course, eighteen were male and fourteen were female; 37.5% of the students were freshmen or sophomores and 62.5% juniors or seniors. In the control group, thirty-two students, who attended the face-to-face training course only, included eighteen males and fourteen females; approximately 19% of the students were juniors, 44% seniors, 28% sophomores, and 9% freshmen. As the college is located in the suburbs, most of the students in the college have to travel a long distance between the school and their homes every morning and evening. Mobile phones are the common devices for the students to carry and communicate with each other. Mobile learning for the students is an option to utilize their time on the way to school or their homes.
Procedure

The implementation of the eight-week experiment contained three phases. In the first phase (the first week), all the participants who attended a traditional training course took a pretest at the beginning of the experiment and students in the experimental group learned about the treatment. Afterward SMS messages were sent to the students as checks to ensure that each of them was able to receive the SMS from the instructor via his or her own smartphone. In the second phase (from the second week to the seventh week), the participants in the experimental group received the treatment that included daily instructional materials from Monday through Thursday and weekly review questions on Friday. In the traditional classroom, instructor prepared the same instructional materials for both the experimental group and the control group. Further, the experimental group received the m-learning instruction in addition to the traditional training course, but the control group received only the face-to-face course. In the third phase (the eighth week), all the students attended a posttest after the experimental group received the treatment and only the participants in the experimental group filled in a questionnaire.

Both the pretest and posttest in the study as a measuring instrument were designed to estimate the average computer literacy of both the control group and the experimental group. The test questions for the pretest were generated randomly from the IC³ question bank as well as the posttest. The pretest was taken by the students of both groups at the beginning of the course. All the students took the posttest after the treatment at the end of the course.

The learning task, the treatment for the students in the experimental group, was to learn from instructional materials and review questions that were delivered via the learners’ smartphones. Through short message services, the instructional materials regarding computing knowledge and skills could be delivered to learners’ mobile devices. The limitation on the number of characters in a text message is 160 ASCII characters (Brett, 2011; Chang, 2008). Each English character uses 7 bits, so a message can carry 140 bytes. Because each Chinese word occupies two full bytes, a SMS message in Chinese can send out only 70 words. Therefore, the instructional materials and review questions that were delivered to the students for the treatment were modified into text messages in consideration of the limitation on the length.

Data collection and data analysis

A multi-method approach of quantitative and qualitative data collection and analysis (Gay et al., 2009) was utilized in the study to investigate undergraduate students’ acceptance of the learning experience for the improvement of their computer literacy via smartphones and to evaluate the effectiveness of the learning. Data for the study were collected through a survey, pretest, posttest, and interviews. The data gathered via the survey were analyzed to reflect the perceptions of the students in higher education after using mobile devices for the improvement of their computer skills and knowledge. A questionnaire which collected information including students’ satisfaction of m-learning and their feedback was designed by the investigator. The interviews which were conducted after completion of the questionnaire played a supporting role to gather information to complement the data that was collected from the survey. The data gathered via pretest and posttest were analyzed to assess the effectiveness of using mobile devices to deliver instructional materials and review questions. The exam questions for both the pretest and the posttest were generated randomly from the IC³ question bank. The range of the scores is from 0 to 100, and the data was tested by using SPSS statistical analysis software.

RESULTS

Findings from the survey and interviews

A survey was utilized to collect the undergraduate students’ perceptions on using smartphones to receive learning contents and review questions for the improvement of their computer literacy. Data gathered from the questionnaire contained information regarding frequency, time, and location that students learned via their own mobile devices, quality of instructional materials and the review questions they received, influence of other students within the group, and effectiveness of using SMS for learning.

Experience of the use of mobile devices to receive learning materials and review questions

Through the survey, thirty-two students in the experimental group perceived their learning experience in a blended context that combines m-learning and classroom learning. Regarding the weekly frequency to read the instructional materials via their mobile device, some of the students (34.4%) in the experimental group read the materials approximately 13-18 times, some others students (31.3%) around 7-12 times, 15.6% more than 18 times, and 18.8% of the students 1-6 times. As the researcher sent four short-material messages to the students every week, each SMS was read two to four times on average.

The frequency with which the students used the review questions provided via their smartphones was around two to five times for 50% of the students, one time for 25% of the students, and more than five times for 21.9% of the students. During the interview, the students with the higher scores expressed that more than one time per week to deliver the review questions would be welcome.

Regarding the location in which students read the instructional materials, the most popular places were on the way to another classroom (37.7%) and during the time that they waited for friends or meals (29.0%), and some of the students used the time that they waited for a bus or public transportation (23.2%) and during free time, such as TV commercial breaks (8.7%). In the question regarding the time that the students usually read the instructional materials, 46.9% of the students read the SMS soon after it arrived; 28.1% of them read the message every day when time was available; 6.3% of the students read messages approximately twice per week; 12.5% read them after receiving the review questions; and the rest of the students (6.3%) read the SMS on weekends.

Most of the students (40.6%) used the review questions they received via their mobile devices soon after the SMS arrived, 31.3% used them any day when time was available, 6.3% after reviewing all the instructional materials
received during the week, 18.8% every weekend, and 3.1% before the posttest. The information presented that over half of the experimental students learned the instructional materials and the review questions soon after the SMS arrived or when their time was available. No matter where the learners located, most of them utilized their time to study between classes, in a restaurant, or at a bus stop.

**Quality of the instructional materials and the review questions learners received**

Students' experiences on the quality of receiving the learning contents and the review questions such as size of font and speed were analyzed. Through services the students purchased from different telecommunication service or mobile phone service providers, most of students (59.4%) were highly satisfied with the speed of the SMS messages they received, 34.4% satisfied, and only 3.1% dissatisfied. As the students possess their own smartphones with various brands and models, a majority of the students (90.6%) expressed that the font of the SMS messages had proper size or that it did not matter; only 9.4% thought it needed to be enlarged or reduced. Though mobile learners were expected to study in any location, smartphones may not receive a Wi-Fi signal in some areas such as wireless dead zones. Concerning the response to question regarding difficulties to receive the learning materials, 59.4% of the students never experienced any, 31.3% encountered difficulties one to three times, and only 9.3% over three times. In addition, an interviewee mentioned that students often received many advertising SMS messages that occupied the memory space of their mobile devices. Based on individual requirements, students expressed their satisfaction of quality of the materials they received. However, the size of the font is controlled by the phone manufacturer. The students can get new phones if they do not like the one in hand.

**Interaction with other students within the group**

The collected qualitative data reflected the positive experiences to the communication between the students. Regarding the influence of other students’ interaction within the group, results showed that 40.6% of the students often read the instructional materials and used the review questions on their own, but 12.5% of the students needed reminders, and 9.4% reminded other students to read the messages. The results also revealed that the other 37.5% of the students did all three actions. Over half of the students strongly agreed (65.6%) or agreed (12.5%) that using the M-Learning SMS improved their ability to communicate with the other students in the class due to the various topics the daily messages created. Only a few of the students disagreed (9.4%) that this learning style could help them to interact with others. The interviewees expressed that m-learning created many topics of discussion among students. The topics of discussion included whether they had read today’s message, they understood the materials, or they could answer the review questions. Compared with a face-to-face training course, m-learning in the blended training course increased opportunities for the students to communicate with classmates in the class.

**Effectiveness of using SMS on learning**

In the questionnaire, the feedback to the use of smartphone to learn was positive. The information collected regarding the effectiveness of using SMS on learning contained ease, convenience, speed to accomplish learning, improvement of performance, and helpfulness of the review questions provided via mobile devices. Students strongly agreed (75%) or agreed (12.5%) that using the M-Learning SMS to learn was easy for them. When compared to other methods, a majority of the students (87.5%) strongly agreed and 6.3% agreed that the M-Learning SMS was more convenient for learning. Regarding the question whether the SMS enabled the students to accomplish learning more quickly, 87.5% of the students strongly agreed and 3.1% agreed. Most of the students strongly agreed (87.5%) or agreed (9.4%) that learning through the mobile device improved their performance in the training course. Regarding whether the review questions via mobile devices were useful to review the learned materials, 84.4% of students strongly agreed and 12.5% agreed.

Students' experience with using mobile devices was that twelve students had one to three years of experience using mobile devices, fifteen students had four to six years or more, and only five students had less than one year of experience. Prior to the experiment, none of the students have learning experiences via mobile device. The gathered data revealed many students strongly agreed that using the SMS message to learn was easy and convenient and could accomplish learning more quickly and improve their performance.

**Recommendations of using the SMS to learn**

When the students were asked if other courses offered the M-Learning SMS, 81.3% of them strongly agreed and 15.6% agreed to attend. Students during the interviews recommended using the SMS messages to learn language, because they can memorize the new words at anytime in any location. Most of the students strongly agreed (87.5%) or agreed (9.4%) that they will recommend that other students attend a course that provides m-learning.
Findings from the pretest and protest

Data collected through the pretest and posttest were utilized to examine the effectiveness of delivering the instructional materials and review questions via learners’ mobile devices. Pretest scores of the sixty-four participants in the control group and experimental group were gathered in the first week of the experiment before the treatment, and posttest scores of all the students were collected in the eighth week of the experiment after the treatment. The results that compared posttest scores with pretest scores were presented by the mean scores were analyzed and discussed.

Pre-test

Data collected from pretest were tested to determine whether the mean was the same for the experimental and control groups. An independent samples t-test was utilized to compare the means of a distributed interval dependent variable for two independent groups (the experimental group and control group). In the results displayed in Table 1, the mean and the standard deviations of the pretest for the experimental group were 69.06 and 5.502. The mean and the standard deviations of the pretest for the control group were 69.01 and 5.268. After we used the “equal variances assumed” test, the independent samples t-test analysis indicated that the effectiveness of the pretest was p = .969. The observed probability value of the Levene’s test (p = .969) is greater than 0.05. The finding showed no statistically significant difference between the mean pretest scores for the experimental and control groups. In other words, the control group does not have a statistically significantly different mean pretest score (69.01) than the experimental group (69.06) before the treatment.

Post-test

After the experimental group received the complete treatment, the posttest scores were collected and analyzed to determine whether a difference occurred between the experimental and the control groups. Table 2 showed that the mean of the posttest for the experimental group was 86.41 and that for the control group was 70.73. The Independent Samples Test analysis indicated that the p value is 0.000. Because the p value (0.000) is smaller than 0.05, the result showed that there was a statistically significantly higher mean score of posttest of experimental group than the average score of posttest of control group.

The scores on the posttest after the treatment were significantly higher than the scores on the pretest prior to the treatment. The improvement of the students in the experimental group demonstrated the effectiveness of the instructional materials and review questions that were delivered via learners’ smartphones.

DISCUSSION

More learning opportunities via smartphones

The result of the study revealed students’ positive reflection on using SMS in their learning. Most of the students agreed that learning via their own mobile device was easy and convenient, and over 80% of them expressed that the delivered SMS messages improved their performance and enabled them to accomplish learning more quickly. The ubiquity of smartphones provided students more options to learn though learners stated several situations that prevented them from learning via their mobile devices included insufficient memory space, no charged battery, and overdue bill. Most of the students preferred to read the instructional materials between classes and a majority of them used the time spent waiting for friends, meals, and bus or public transportation. Compared with the face-to-face training course, the blended context that combined to deliver the SMS messages and classroom learning provided the students more learning opportunities.

Improvement of interaction with classmates

Approximately 60% of students in the experimental group expressed that they had communication with their classmates including reminding other learners and being reminded by others when they answered to the question of whether students learned via mobile device on their own or not. The m-learning provided more topics and contents of talking and improved the interaction between the students.
Experiment for various training courses

The current study is an experiment on pushing SMS messages to the receivers, but the researcher of the study received many responses to the review questions from the students. Therefore, the recommendation to researchers for future research includes using a different type of method to communicate with the students. In addition, the result of the study revealed that the difficulty of using the SMS message for the training course was finding how to use limited words to accomplish the detailed description of a manipulation. A multimedia messaging service, which is a service that sends messages comprising texts, photos, audios, and videos to MMS-capable handsets, may be an opportunity to address this issue for future research. Various training courses have various requirements, so development of future research will have to aim at the needs of learners.

Conclusion

This study investigated undergraduate students’ experiences of using smartphones to improve their computer literacy and examined the effectiveness of the delivery of learning contents and review questions in a blended learning environment that combines m-learning and classroom learning. As the literature presented positive evaluation on the use of SMS in the field of language learning via mobile phones, the experiment in the study utilized smartphones to deliver the SMS messages to the students in the training course.

The study used survey and the pretest and posttest to evaluate the experiment. The result of survey revealed a positive reflection on the students in higher education using their own smartphones to learn computing and Internet technology skills and knowledge. The study also found that the scores on the posttest after the treatment presented significantly higher than the scores on the pretest prior to the treatment. Compared to learning on campus, the ubiquity of mobile devices provides the students a different learning option.

For future researches, more experiments will be conducted as the technology of the devices is upgraded and novel mobile devices can be utilized to examine the effectiveness of m-learning. In addition, different types of methods such as pulling system can be used on various training courses.

Conflict of Interests

The author has not declared any conflict of interest.
Development of a learning model for enhancing social skills on elementary students

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The goals of this study were: 1) to study the situation, problems and needs for a learning model to enhance the social skills of sixth grade students; 2) to develop a learning model that would address those needs; 3) to study the effectiveness of that learning model; 4) to compare performance on pretests and posttests of social skills; and 5) to inquire of the opinions of students and teachers on the resulting learning model. The samples were 146 teachers in the development phase, and 18 teachers and 364 students in 18 different sixth grade classrooms in the implementation phase. Schools represented three different sizes. Data analysis was done with mean, percentage, standard deviation and dependent sample t-test. The research findings showed that teachers teaching in grade sixth need the proposed learning model, consisting of six components and six learning stages, to enhance social skills ranking. Its significance includes: the development of interpersonal relationship and communications skills, decision making and problem solving skills, and coping with emotional and stress skills. Its effectiveness was higher than the specified criterion. The experimental students’ post-test scores were significantly higher than the pretest by .05. The pretest/posttest mean scores were 54.86/70.94 for small schools, 58.54/70.82 for medium schools, and 54.17/67.90 for large schools. The students and teachers’ opinion on learning model, in overall, was in “High” level.

Key words: Interpersonal relationship and communication skills, decision making and problem solving skills, coping with emotion and stress skills.

INTRODUCTION

Social skills are the skills we use to communicate and interact with each other, both verbally and non-verbally, through gestures, body language and our personal appearance. Human beings are sociable creatures and have developed many ways to communicate messages, thoughts and feelings with others (Skills You Need, 2013). In this study, the social skills as components of life skills in general were studied. The World Health Organization (1997) defined the importance of social skills for adjusting and maintaining good conduct which would help people to cope appropriately with their expected needs as well as different challenges that occur in daily life. This was relevant to the creation of Thailand’s Core Curriculum of Basic Education 2008, in which life skills were determined as one of the major competencies for students, covering knowledge, feeling

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of a problematic social structure, of which the above widespread, and Thai children are vulnerable to dangers bringing risks that can result in more violence that is more are shown in Table 1.

<table>
<thead>
<tr>
<th>Order</th>
<th>Children and youths’ situation</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Usually accessed Face book, Twitter, or other online social networks</td>
<td>48.0</td>
</tr>
<tr>
<td>2</td>
<td>Usually played online or computer games</td>
<td>43.7</td>
</tr>
<tr>
<td>3</td>
<td>Did not live with their parents</td>
<td>35.3</td>
</tr>
<tr>
<td>4</td>
<td>Occasionally and usually watched pornography</td>
<td>31.6</td>
</tr>
<tr>
<td>5</td>
<td>Occasionally and usually drank whisky, beer, and wine</td>
<td>31.1</td>
</tr>
<tr>
<td>6</td>
<td>Occasionally and usually smoked cigarettes</td>
<td>19.6</td>
</tr>
</tbody>
</table>

Due to the above social problems, all sectors of the society have to collaborate in preventing and solving the problems. The easiest way in doing this is to train the children and youths in appropriate “social skills,” so that they would be able to adjust themselves and behave in appropriate ways to face the different challenges in daily life effectively. Specifically, sixth grade students are at the early stages of adolescence, an age when they face physical, emotional, and social changes. Children who are confused in early adolescence would encounter emotional stress, which leads to undesirable and problematic behaviors. (Department of Curriculum and Instruction Development, 2000)

Various research studies have been conducted on the teaching of social skills. Arslan (2011) found that the mean scores of positive social skills based on perfectionism levels did not significantly vary. In addition, it was found that the mean scores of negative social behaviors of children with high perfectionism levels varied significantly. Furthermore, the mean scores of social behavior of children with higher rather than lower levels of perfectionism were themselves higher. Deniz (2013) found that there was a significant correlation between emotional intelligence and problem solving. Poomkaew (2012) developed a life skills curriculum, and found that the posttest scores were significantly higher than the pretest. Kantajon (2010) found that there were significant differences in social skills scores between children attending training sessions of different duration and who experienced different child rearing practices. Additionally, their posttest scores were significantly higher than the pretest. This study was to develop a learning model for enhancing six aspects of social skills in grade sixth students in order to prevent six kinds of problem including the substance addiction, alcohol drinking, quarrelling, internet danger, smoking, and inappropriate sexual behavior by using three pairs of social skills: interpersonal relationships and communications, decision-making skills and problem-solving skills, and coping with emotional skills and coping with stress skills. The goal was to provide them with immunity when they graduated from school and entered into their daily life.
Research aims

1) To study the social situations that may be a problem and define the needs for a learning model that could enhance grade sixth students’ social skills in dealing with the consequences of these social behaviors.
2) To develop a learning model that would address the needs as defined above to enhance grade sixth students’ social skills.
3) To study the effectiveness of the above learning model.
4) To assess the impact of the learning model by comparing pretest and posttest scores on a pre-designed assessment of social skills.
5) To inquire of the opinions of students and teachers on the resulting learning model.

METHODOLOGY

The development of the learning model in this research proceeded according to four phases.

Phase 1: preliminary survey

A preliminary survey of problems and needs for a learning model to enhance social skills of sixth grade students, was conducted by asking the teachers’ opinion through a questionnaire.

Phase 2: construction of a tentative model

A learning model was constructed based on responses to the questionnaire during this phase. The researcher synthesized questionnaire results with a literature survey that included related literature, documents, concepts and theories from the field, and interviews with specialists. These interviews from the specialists were used to refine the tentative model. Lesson plans were constructed and the model was tried out.

Phase 3: implementation of the model

The developed model was used with a sample of 18 teachers teaching 364 students. The researcher trained each teacher how to use the learning model, and they taught from the model for 20 weeks.

Phase 4: evaluation of the model

The model was evaluated by investigating the students and teachers’ opinion on the learning model by using the questionnaire.

Samples

Two samples were selected for two parts of the research. First, a sample of 146 teachers of the Buriram Elementary Educational Service Area Office Four was sent the questionnaire chosen by simple random sampling. From these teachers, a smaller sample of 18 teachers selected by multi-stage sampling was assigned to be part of the experimental group. These 18 teachers taught sixth grade students from 18 classrooms, making a total of 364 students. They were in the second semester of the academic year 2012 in various schools in the Buriram Elementary Educational Service Area Office Four in Buriram province, Thailand.

Research instruments

Phase 1: Preliminary Survey

A questionnaire was designed by the researcher, and evaluated by five experts. The IOC values ranged from 0.60-1.00. It was used to ask the teachers about problem situations they thought might be issues with their sixth grade students. The questionnaire included 13 items from a checklist (more than one alternative could be selected), and the choices were then ranked. Additionally, they were asked for their ideas about designing the content and learning activities, and determine the duration for instructional management in each aspect based on their relative significance by the teachers.

Phase 2: Construction of a tentative model

Structured interviews were held with experts in order to develop the model and lesson plans based on learning model. They were asked about performance in the social skills, components of a working learning model, and techniques for developing the lesson plan and learning activities for enhancing each aspect of social skills. They identified three pairs of social skills to be taught together. These included the development of interpersonal skills and communication skills, decision-making skills and problem-solving skills, and emotional management skills and syntax. They were then asked to evaluate the learning model. The evaluative findings were overall at a “High” level of propriety, the mean value = 4.2.

The learning model for enhancing the sixth grade students’ social skills consisted of six components: 1) foundation approach and theory; 2) objectives; 3) learning steps (syntax); 4) social system; 5) principle of reaction; and 6) support system. The third component, syntax, consisted of six steps as follows:

a) Building awareness (B). This is the process in providing activities for students’ awareness and their view of the significance of problems facing adolescents at hand which may have affected them and others. In this way, students would view the importance of activities to be performed further by using the social modeling to encourage them to see the significance of themselves and others.

b) Enhancing the experience (E). This is the process of reviewing the students’ former experience in those situations, and increasing their skills with new experiences in order to stimulate the students’ behavior for problem solving based on specified situations.

c) Exchange (E). In this process students learn negotiation, sharing, and presenting various techniques in order to expand the range of solutions of their group. Then, they can practice their social skills in those issues through the conclusions that their small group arrives at using various methods.

d) Presentation (P). Groups gave presentations about their performances, from brainstorming, sharing, and analytical thinking, and in many forms such as role playing, exhibition, report, or visual displays such as bulletin boards.

e) Concept conclusion (C). This was the collaboration by the teacher and students in concluding their work, based on the group presentation, worksheets and knowledge they gained in thinking and concluding for more understanding.

f) Application (A). Here, the students applied their approach from learning in order to adjust to the changed situations by repeated
The learning model was structured into a series of learning units teaching social skills which had been ranked into 20 plans by the teachers as shown in Table 2.

The pretest and posttest of social skills consisted of three situational alternatives inventory of 40 items. Each item was weighted, with the score measured in three levels (2, 1, and 0). The item discrimination values of each item were higher than the critical value. Using the correlation coefficient between each item and total score called item total correlation, the reliability of item total was 0.865.

**Table 2. Learning activities and teaching schedule.**

<table>
<thead>
<tr>
<th>Expected behavior</th>
<th>Activity No/Title</th>
<th>Duration (20 h)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit 1: Speaking sweetly and being charming.</td>
<td>1. When good thinking happens, good speech follows.</td>
<td>8 h</td>
</tr>
<tr>
<td></td>
<td>2. Be friendly by friendship.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Speak to express one’s feelings and thoughts.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Do not violate the other person’s rights.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Criticize one’s friend.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7. Know how to refuse.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8. Determine another’s refusal.</td>
<td></td>
</tr>
<tr>
<td>1. Be able to behave acceptably, and greet by using polite speech or nonverbal language.</td>
<td>2. Be able to use speech and nonverbal language to express ones’ feeling and thoughts appropriately in different situations as well as perceive the feelings and thoughts of others.</td>
<td>4 h</td>
</tr>
<tr>
<td>2. Be able to use speech and nonverbal language to express ones’ feeling and thoughts appropriately in different situations as well as perceive the feelings and thoughts of others.</td>
<td>3. Be able to refuse, negotiate, and ask for help in risky situation.</td>
<td>2 h</td>
</tr>
<tr>
<td>3. Be able to refuse, negotiate, and ask for help in risky situation.</td>
<td>4. Be able to refuse.</td>
<td></td>
</tr>
<tr>
<td>Unit 2: Decision making and problem solving.</td>
<td>5. Determine another’s refusal.</td>
<td></td>
</tr>
<tr>
<td>1. Be able to analyze the advantages and disadvantages of each alternative, and make decisions in selecting the better alternative given the situation.</td>
<td>6. How to judge risky situations.</td>
<td>2 h</td>
</tr>
<tr>
<td>2. Be able to solve a problem systematically from perception, finding the cause, planning for problem solving, and solving the problem appropriately.</td>
<td>7. Know how to refuse.</td>
<td></td>
</tr>
<tr>
<td>3. Be able to select a problem solving method that is worthwhile, flexible, and which would lead to usefulness for every situation.</td>
<td>8. Determine another’s refusal.</td>
<td></td>
</tr>
<tr>
<td>4. Understand the causes and techniques for alleviating one’s stress and inappropriate behavior in an appropriate way.</td>
<td>9. When one has to make decisions.</td>
<td>2 h</td>
</tr>
<tr>
<td>Unit 3: Good emotions, being happy.</td>
<td>5. What emotion are you feeling today?</td>
<td>2 h</td>
</tr>
<tr>
<td>1. Be able to evaluate and know the emotions of oneself and others.</td>
<td>6. What emotion are you feeling today?</td>
<td></td>
</tr>
<tr>
<td>2. Be able to control emotions and select how to manage them effectively and appropriately.</td>
<td>7. Know how to manage one’s emotion.</td>
<td></td>
</tr>
<tr>
<td>3. Be able to know the cause and technique for alleviating one’s stress and inappropriate behavior in an appropriate way.</td>
<td>8. Practice how to control one’s emotion.</td>
<td></td>
</tr>
<tr>
<td>4. Understand the causes and techniques for alleviating one’s stress and inappropriate behavior in an appropriate way.</td>
<td>9. To know about stress.</td>
<td></td>
</tr>
<tr>
<td>5. Know how to reduce one’s stress.</td>
<td>10. To know about stress.</td>
<td>2 h</td>
</tr>
<tr>
<td>practice as well as applying their learning in similar situations.</td>
<td>11. Narcotic drug problem.</td>
<td></td>
</tr>
<tr>
<td>Phase 4: Evaluation of the model</td>
<td>12. Problems from online Internet.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>13. Liquor and tobacco</td>
<td></td>
</tr>
<tr>
<td></td>
<td>16. What emotion are you feeling today?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>17. Know how to manage one’s emotion.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>18. Practice how to control one’s emotion.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>19. To know about stress.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>20. To know how to reduce one’s stress.</td>
<td></td>
</tr>
</tbody>
</table>

Students were given a questionnaire on their opinions of the instruction they received. Their responses were classified into two parts. Part 1 included 15 items scored according to a 4-point Likert scale, with ratings of highest, high, low, and lowest. Part 2 consisted of open-ended written critiques and recommendations. The prompts were questions about the propriety of the learning management process, the supplementary documents they received, and the general atmosphere they felt for being selected.

The questionnaire was constructed by the researcher and validated by seven experts, who rated its content validity. The mean value of propriety was = 4.26 which was in “High” level.

Another questionnaire was administered to participating teachers asking for their opinions. This too was classified into two parts. Part 1 consisted of twelve questions scored according to a 4-point Likert scale, with ratings of highest, high, low, and lowest. Questions covered all six aspects of the model, including overall propriety.

Part 2 consisted of open-ended responses to requests for critiques and other recommendations. It too was constructed by the researcher and validated by 7 experts to investigate its content.

Phase 3: Implementation of the model

The final version of the lesson plans was presented to a sample of 18 teachers to implement this model in their classrooms in order to find the effectiveness of the learning model. Implementation began with a pretest of social skills, 20 hours of instruction, and the posttest.
Table 3. Problems and needs based on teachers’ opinion on the learning model for enhancing social skills.

<table>
<thead>
<tr>
<th>Children’s and youths’ problems that should be added for learning activity management</th>
<th>No of informants</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Narcotic taking</td>
<td>115</td>
<td>78.77</td>
</tr>
<tr>
<td>2 Alcohol drinking</td>
<td>111</td>
<td>76.03</td>
</tr>
<tr>
<td>3 Quarrelling (violence, aggression, offence)</td>
<td>110</td>
<td>75.34</td>
</tr>
<tr>
<td>4 Cyber dangers (chatting and playing games)</td>
<td>105</td>
<td>71.92</td>
</tr>
<tr>
<td>5 Smoking</td>
<td>100</td>
<td>68.49</td>
</tr>
<tr>
<td>6 Pornographic materials (video clips, comics, VCDs)</td>
<td>92</td>
<td>63.01</td>
</tr>
<tr>
<td>7 Sexual misconduct</td>
<td>89</td>
<td>60.96</td>
</tr>
<tr>
<td>8 Hanging out with friends (assembling for unlawful purposes, racing motorcycles)</td>
<td>86</td>
<td>58.90</td>
</tr>
<tr>
<td>9 Imitation</td>
<td>77</td>
<td>52.74</td>
</tr>
<tr>
<td>10 Gambling</td>
<td>68</td>
<td>46.58</td>
</tr>
<tr>
<td>11 Materialism (extravagant lifestyle)</td>
<td>61</td>
<td>41.78</td>
</tr>
<tr>
<td>12 Nightlife</td>
<td>37</td>
<td>25.34</td>
</tr>
<tr>
<td>13 Stress (sadness, suicidal attempt)</td>
<td>20</td>
<td>13.70</td>
</tr>
</tbody>
</table>

Social skills to be enhanced

<table>
<thead>
<tr>
<th>Priority (Percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Interpersonal relationship and communication skills</td>
</tr>
<tr>
<td>2. Decision making and problem solving skills</td>
</tr>
<tr>
<td>3. Coping with emotion and stress skills</td>
</tr>
</tbody>
</table>

validity. The mean value of propriety was $= 4.25$ which was in “High” level.

Data analysis

Results from the questionnaires were analyzed for frequency, mean, percent, and standard deviation. In-depth interviews were analyzed by transcribing the audio recordings and coming to interpretations and conclusions. Finally, pretest and posttest scores were analyzed using a dependent t-test in order to compare the pretest and posttest. Mean values of the questionnaire results were calculated from responses from the teachers and students.

RESULTS

An analysis of the findings is shown in Table 3. Problems which were reported by more than 60% of the teachers as being needed to insert into learning activities ranged by priority were narcotic taking (78.77%), alcohol drinking (76.03%), quarrelling (violence, aggression, offence) (75.34%), cyber dangers (chatting and playing games) (71.92%), smoking (68.49%), pornographic materials (video clips, comics, VCDs) (63.01%), and sexual misconduct (60.96%). Furthermore, the social skills that the teachers reported as being needed to enhance via learning activities ranged by priority were interpersonal relationship and communication skills (41.10%), decision making and problem solving skills (36.30%), and coping with emotion and stress skills (22.60%).

The development of the learning model consisted of six components: 1) foundation approach and theory; 2) objectives; 3) learning steps (syntax); 4) social system, 5) principle of reaction; and 6) support system. The third component, syntax, consisted of 6 steps as follows: Building awareness, Enhancing experience, Exchange, Presentation, Concept conclusion, and Application of the concept. Every component was evaluated by the experts at a “High” level of propriety. ($\bar{X} = 4.28$ The details are shown in Figure 1.

The effectiveness of the developed model was tested with its actual implementation at the selected schools. They were chosen so that there were an equal number of small-sized, medium-sized, and large-sized schools. The effectiveness was measured as 85.41/88.68, 84.21/88.52, and 84.45 /84.87 respectively. All were higher than the pre-set effectiveness (80/80). The details of the efficiency/effectiveness are shown in Tables 4-6.

The comparative findings of pretest and posttest scores found that the experimental group had significantly higher posttest score than the pretest at .05 level. The details are shown in Table 7.

The results of the questionnaires given to teachers and students found that the overall mean value was at the “High” level for both groups. The highest level of mean value was the responses of students that the lessons were related to their daily life ($\bar{X} = 3.49$). The next highest mean values were the two questions, that the activity was similar to
1. Foundation of theoretical approach
Erickson’s psycho-social developmental theory
Constructivism theory
  cognitive constructivism based on Piaget’s approach.
social constructivism based on Vygotsky’s approach
Albert Bandura’s social cognitive learning theory.
Skinner’s operant conditioning theory.
Carl Rogers’s humanist theory or personality theory.
Participatory Learning.
Cooperative Learning.

2. Objective
To promote sixth grade students’ social skills in 3 pairs as:
1. Interpersonal relationships and communication skills.
2. Decision making and problem solving skills.
3. Coping with emotion and stress skills

3. Syntax

4. Social System
The teachers’ roles include that of the planner, clarifier stimulator, coordinator, and evaluator. The students’ roles include that of the problem solver, knowledge searcher, and knowledge and experience sharer with friends in order to practice different aspects of the social skills taught.

5. Principle of Reaction
To stimulate and provide freedom until the students were able to construct knowledge by themselves, be happy to learn, be able to modify their behavior by reinforcement and observation, and to become sincere, friendly and warm.

6. Support System
The students practiced activities that were similar to real situations. They were free and relaxed. Various equipments and learning sources were suggested.

Figure 1. The details of learning model.

| Table 4. The efficiency/effectiveness of the model at small-sized schools (n=84). |
|-----------------------------------------------|-----------|-----------|
| Result of learning                           | Full marks| Percentage of means |
| Efficiency (E₁)                             | 1,040     | 88.822    |
| Effectiveness (E₂)                          | 80        | 70.94     |
| Efficiency/effectiveness (E₁/E₂)            | 85.41/88.68 |          |


real situations, and that it provided opportunities for students to think and work independently without stress. (\(\bar{X} = 3.47\)). For teachers, the highest level of mean value was in response to the question that the learning model could enhance the students’ development of interpersonal relationships and communication (\(\bar{X} = 3.72\)). Competency in enhancing the students’ decision making and problem solving skills was second (\(\bar{X} = 3.61\)), and the students’ activity management could enhance the emotional and stress management skills was third (\(\bar{X} = 3.56\)).

**DISCUSSION**

The objectives of this study were: 1) to study the situation, problems, and need for a learning model, 2) to develop the learning model, 3) to study the effectiveness of the learning model, 4) to compare the social skills between pretest and posttest, and 5) to inquire of the opinions of students and teachers on the resulting learning model. Four issues arose to be discussed as follows:

1. The problems that the teachers thought would occur among the sixth grade students included narcotic taking, alcohol drinking, quarrelling, cyber dangers, cigarette smoking, pornography, and inappropriate sexual behavior, in that order. This speculation was supported by reports of risky situations faced by Thai children conducted by various research teams in many provinces. Various sources of data were collected from many years. The common problems of concern were found to include: 1) alcohol drinking; 2) cruelty and violence had increased; 3) gambling, especially online, 4) various issues around sex, including free sex and unsafe sexual relations (Nakontap, 2011). The study indicated that those problems obviously affected Thai children and youth in their daily lives, and these issues were likely to become increasingly serious. Consequently, in order to alleviate those problems, there should be a
The effectiveness of the learning model was higher than that:

1. The developed learning model for enhancing the sixth grade students’ social skills, consisted of six components: 1) foundation approach and theory; 2) objective; 3) learning steps (syntax; 4) social system; 5) principle of reaction, and 6) support system. Syntax consisted of six steps: Build awareness, Enhance the experience, Exchange, Presentation, Concept conclusion, Application of the concept. The evalutative findings were scored at a “high” level of propriety. The developed learning model was based systematically on the approach of Joyce, Weil and Calhoun (2004) whose own model included stating the goal of learning, the principle or basic approach of the model, the details of all the teaching steps, and an evaluation based on the model. Arends (2001) too concluded that the essential components of a learning model need to include the goal of the learning activity, which should be based on a proper theoretical approach in developing the learning model. Additionally, the expected learner outcomes, the learning management techniques for accomplishing the model’s objectives, and the learning environment which would lead to the expected outcomes need to be fully articulated. Furthermore, the researcher interviewed the panel of experts who had related experiences with social skills development in these sorts of social issues. These gave the researcher valuable insights related to what the components of the learning model should be in order to effectively develop the students’ social skills in concrete form. Furthermore, the six steps of learning depended on the application of the design of the lessons for developing every issue of the targeted social skills. In each step, the basic theoretical approach of the learning model was ranked in order from easy to difficult. This approach was supported by Kammanee (2010)’s conclusion that the development of a learning model had to be systematically organized by considering the related theories and principles, and they be related with each other in order to lead the students to accomplish their goals. Moreover, Sirithadakunlaphat (2008) developed a learning model for enhancing the social skills and emotional quotient for second class level students with special ability. Her model used six steps of the learning process: 1) thinking inspiration; 2) thinking expansion; 3) real practice; 4) group presentation; 5) conclusions and evaluation; and 6) application and knowledge use. She found significant differences in posttest scores of social skills and emotional quotient between the experimental group and those of the control group.

2. The findings in implementing the learning model were that:

1 The effectiveness of the learning model was higher than the specified criterion (80/80).

2. The comparison of pretest and posttest scores found that the posttest mean score was significantly higher than the pretest at .05 level.

The literature that informed the developed learning model included such important theories as Piaget’s Constructivism (Woolfolk, 1995) focusing on the stimulation by questioning in order to cause new knowledge. Use was made of Vygotsky’s approach emphasizing the students’ ability to construct knowledge through the social interactions with other people, who can support the students who were in lower level of Zone of Proximal Development by scaffolding from teachers and friends through the emphasis on group activity (Slavin,1994). Importance was also placed on the application of the social cognitive learning theory of Bandura (Bandura, 1986) in observational learning from the model. Since the teachers and friends were major sources of cooperative learning, the student-centered approach to learning involved small groups helping each other, communication, teamwork, collaborative thinking and problem solving, and mutual encouragement. These forms of enhancing each other’s learning competency to accomplish the learning goal by emphasizing on the group success affected each other’s success (Kagan, 1994). Participatory learning was combined with group process based on components of cycle in experience learning (Kolb, 1991). As a result, the students were in a context to share their knowledge with each other, and collaborate in working in order to accomplish their goals. Many previous research studies have supported these approaches in successful learning. Queen (2009) found that the cooperative learning package could enhance the students’ higher order thinking as well as problem solving skills. This method was able to develop the students to achieve better learning and resulting in positive social changes. The students could learn by themselves and cooperate in learning. Johnson (2009) found that the cooperative learning techniques had positive effects on students’ learning in lower secondary school through the interaction with others, including children and adults, their parents, teachers, and friends. Docksai (2011) devised a model affecting the students who had adjustment mental problems which would affect their study in other subjects. The model was called SEL (Social and Emotion Learning), focusing on their livelihood in society, caring for others, the development of friendship and communication, and decision making and problem solving. It was found that SEL (Social and Emotion Learning) could increase the students’ social skills. McClatchy (2011) studied how to practice in order to cause the students to obtain their social skills as well as good manners in society by using a learning package focusing on the parents’ participation in practice, serving as role models,
and the students’ learning. Consequently, the students improved their social skills as well as acquiring the habits of sustainable learning.

4. The results of the questionnaires of student opinions found that the overall mean value was at the “high” level. The highest score was the students’ opinion on the connection of the learning activity to their daily life. The second was that participation in the activity was similar to their real lives, and that it provided opportunities for students to think and work independently without stress. Likewise, it was discovered that the teachers’ overall opinion was also at the “high” level. The highest scores were ranked in three categories: interpersonal relationships and communication skills, decision making and problem solving skills, and coping with emotion and stress skills. The stories used were described as being age-appropriate. As a result, teachers reported that the students were able to comprehend easily. In addition, the learning activities were not complex and were flexible. The students could present their performances in many forms, especially the role playing, which motivated the students and provided enjoyment participating in activities. This result was supported by Brunson-Upshaw (2009), in which four students between 8-10 years old with moderate autism were studied. During the experiment, the researchers read stories for students, repeated the same stories, then each of the experimental groups played roles according to the stories that had been read by the researcher. Four weeks later, it was found that the students had better social interaction development in some skills. Moreover, the learning model used forms of authentic assessment from observation of the group process. This served to make the students less anxious. In Thailand, the guidelines of the Office of Basic Education Commission (2011) found that the students’ competencies for coping with different situations should be evaluated by observation, problem solving in specified situation, and analysis of changes in students’ thoughts, beliefs, level of thoughtfulness, and intellectual immunity through reflection. Consequently, the teachers could view clearly while they were participating in the activities.

Conclusion

This study was the development of a learning model for enhancing the social skills of sixth grade students by developing a learning model and instructional activities based on input from a broad sample of teachers. It was found that the developed learning model was effective as specified by the criteria. In addition, the students taught by the learning model had higher posttest social skills than the pretest. Both of teacher and student answered the questionnaire positively, reporting that the activities could truly develop their social skills. Specifically, the model sought the development of social skills for preventing future potential social problem when the students would be adolescents. This learning model could be applied in developing both social skills and life skills. Furthermore, the model could be applied in learning activity management for developing the social skills or life skills in other classes by designing the content to be appropriate with those classes. For teachers who would use it with students in classrooms of different sizes, the lessons are flexible in duration and varied in activity according to the propriety. Moreover, other techniques for data collection should be considered, such as focus group discussions for teachers or student-parent meetings to express their opinions on the current social problems they face and the needs their children have for developing their social lives in order to obtain broader and more varied information.

Conflict of Interests

The author(s) have not declared any conflict of interests.

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REFERENCES


Skills you need (2013). What are Social Skills?. Available at http://www.skillsyouneed.com/ips/social-skills.html#ixzz3EmL7xAbY.


Full Length Research Paper

A research on the problems that female school administrators face at schools in Turkey: Case of Tokat and Samsun Provinces

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The expectation of society from male individuals is to keep presence in public spheres and consistently sustain rationality. Expectation from female individuals is, however, to be emotional-weak, and to build their lives on their house, spouse and children. In such a context, women continue their lives with a work-or-home dilemma. Although it seems that women make progress in moving towards management in many professional fields, there is no evidence of such progress in the field of education. This research presents the problems that female administrators working in the field of education in Tokat and Samsun provinces stemming from their being female. Of the qualitative research methods, semi-structured interview technique was used in the study – in which ten female administrators participated. As a result of the study, it was concluded that women cannot be represented in management positions sufficiently enough due to the social perception, the roles ascribed to them by society, and their responsibilities and duties within the family. Further, women were found not be very eager to become administrators because of obstacles they put themselves. Female administrators participating in the study reported that they encountered some problems in management of educational institutions because of the reasons stated above.

Key words: Women, female administrators, school administrators in Tokat and Samsun.

INTRODUCTION

As a result of an individual’s being female or male, the society that individual lives in shapes him or her according to the patterns believed to be appropriate for genders. Object and events that an individual have encountered since birth are full of images that the society believes appropriate for genders. These images characterise individuals as weak and passive women and strong active men. Society structures female and male identities in a way that they undertake the roles assigned to them. As a result of this construction, man takes the role of being active in public spheres, and woman takes that of being active in the house and family (Gümüşoğlu, 2008: 40). The notion ‘working life’ brings serving in income-generating jobs to mind in the first place; however, women remain largely outside of those jobs (Tutar and Yetişen, 2009: 124).
The development level of societies is directly correlated with the value attached on women (Eroğlu, 2004: 24). Similarly, women’s benefiting from social and economic developments differs depending on the development level of societies (Gönülül and İşli, 2001: 82). When findings from professional areas like education and healthcare in developing countries are evaluated, it is seen that women take the backseat of men (Tutar and Yetişen, 2009: 117). Women own multi-directional and multi-dimensional roles, hence their job opportunities must be enhanced and reorganised; additionally, their roles and relationships within the family must be reviewed and redefined (Lynch, 2008: 590).

It is obvious that there are fewer women in working life. Nevertheless, women have started to take hold of working life and the number of women working has been increasing in the last years (Sherman, 2000). Almost in every country, men possess management positions. Women may have the chance to get job experiences, yet they cannot have the chance of working in management positions (Omar and Davidson, 2001). Society expects men to keep presence in public spheres and consistently sustain rationality. The expectation from women is, however, to be emotional-weak, and to build their lives on their house, spouse and children.

Education given to women and jobs chosen should have the nature of not being harmful for the sphere consisting of their house, spouse and children. Home and work life dilemma is seen to be a continuous burden on working women’s backs (Eyüboğlu et al., 2004: 4). Additionally, some traditional attitudes suggesting women are more worthless and weaker than men even prevent young girls from making use of their educational rights. Also in historical process, woman was thought to be inferior despite her outstanding feature of being “mother” and “fertile” and women employment was obstructed due to the consideration of “a woman’s place is her home” (Tuskan, 2012: 445-446).

LITERATURE REVIEW

Status of women in society has been the most crucial criteria determining gender equality and level of civilization in societies. As well as being a fundamental principle of democracy, gender equality serves as an important element in empowering and supporting women by pioneering the formation of a strong society. In this respect, women’s benefiting from political, economical rights and those ensuring them participate in cultural life in the same way as men do is an issue that takes place, and needs to take place, in the upper row of our country’s agenda. In order to ensure equality, important studies were carried out for the women to have legal rights and for the implementation of those rights (tbmm.gov.tr/women commission).

Women employment in Turkey has always attracted attention as an issue that the government always regards and tries to better. Women in Turkey gained the right to work in public administration in March 3, 1924 by the acceptance of Unification of Education Act. It was attempted to equalize the legal status of women by the Dress Code Reform in 1925, Turkish Civil Code in 1926 and right to vote and stand for the local elections in 1930 and national elections in 1934 (Tutar and Yetişen, 2009: 124). Mustafa Kemal Atatürk was the one that enabled women in Turkey to have a serious say in management (Ergin and Çınkır, 2005). However, in terms of participation in employment, women have a disadvantageous position compared to men. In the republican period, women’s participation in the workforce accelerated being parallel to the rise in their level of education. Despite this, there has still been inequality against women in various levels of education and employment (KSSGM, 2000:5). Although women have been equalized to men in employment areas by legal regulations, women’s role in working life, and also their contribution to working life, is not at the desired level because of public gender roles, social, cultural and economic reasons. All these issues make us face the concept of “Glass Ceiling” which can be defined as “an invisible layer that blocks women’s way up to management in working life” (Wirth, 2001:4-5). This concept was cogitated in the USA in 1970s and was defined as invisible barriers resulting from some kind of prejudice and cultural factors which prevent women from arriving at administratorial positions (Wirth, 2001:1; Morrison and von Glinow, 1990:200-208). Glass ceiling is the invisible barriers resulting from the society’s social, cultural and economic structure and forming the prejudice which suggests that women cannot labour in working life with the desired productivity and continuity (Morrison and von Glinow, 1990:200-208). Some of the reasons why women cannot build their way up to management positions in spite of the fact that they can take place in working life more easily and quicker compared to the past are as the following:

Public role: Society assigns women the role to stay at home and manage the household issues. This role is determined by social prejudices (Gökalp, 2008: 29).

Learned helplessness: Women fail to reach administratorial positions because of social prejudices, inequality of opportunities, and the obstacles they face in in working life. This situation forms a general judgement in women’s mind, hence creates learned helplessness (Binen, 2013: 28).

Social prejudice: Prejudices suggesting women would not be successful in working life due to their personal characteristics are major obstacles preventing women to become administrators.

Institution climate: Women encounter barriers such as not being able to find suitable role models, prejudices, and not being able to get accepted by other employers in the institutions they work for (Atay, 1998: 249).
Inequality of opportunity: When women and men are in equal terms for a administratorial position, often men are preferred (Palmer and Hyman, 1993).

Interior obstacles: Women interiorise exterior obstacles and roles determined by the society. As a result of this, they prevent themselves by believing that they would not succeed in a administratorial position (Güldal, 2006: 70).

Since 1970s, it is observed that there has been a dramatic increase in the number of women who begin to work, and what is more, aimed at administratorial positions. In the light of this, studies show that women start working in equal terms with men, but later on their work experiences and career paths depart (Morrison and von Glinow, 1990:200-208). Although it is known that most of the primary school teachers are women in almost every part of the world, it is observed that such a participation gradually subsides on the way to administratorial positions. According to data in 2013-2014 academic year (http://kadininstatusu.gov.tr/uygulamalar/turkiyede-kadin), the numbers and percentages of women working in educational institutes are as follows:

1. 94,6 % of 63.327 teachers serving in preschool education (59.940),
2. 58,16 % of 288.444 teachers serving in primary school education (167.783),
3. 53,16 % of 280.804 teachers serving in secondary school education (149.241),
4. 45,58 % of 278.641 teachers serving in high school education (127.028) are female.

The situation for working women in our country is almost the same. For example, although women could start to serve in school management in 1871-1872, the first District Director of National Education was appointed in 1968, and the first Provincial Director of National Education was appointed in 1990 (Aydin, 2009). According to data of Strategy Development Department in Ministry of Education (MOE) dated February 2014, 15,51 % of 103.304 Administrators (15.970) working in MOE’s central or rural schools are female. The situation in terms of the number of administrators serving in provincial organizations is as follows:

1. 2 of 81 Provincial Administrators of National Education (2.5%),
2. 5 of 859 District Administrators of National Education (0.6%) are females.
3. 5.436 of 37.369 school Administrators (14.6%),
4. 7.749 of 50.641 deputy school Administrators (15.3%) are females.

Head of Ministry of Education, in his statement on February 13, 2015, explained that the Ministry should give more positions to women in management and said:

“As the Minister of Education, I have to confess one our our shortcomings, our weaknesses. As the Ministry of Education, we have not reached our targeted number of female administrators yet. We only have 8 Provincial Administrators of National Education and unfortunately, just one Director of National Education. This has a reason: the reflection of barriers that were previously put in front of our women. Unfortunately, women, women working in educational institutions, could start the journey quite behind. Now we are trying to accelerate it. Hopefully, in the following years, we will carry the share of women in the administratorial positions in the Ministry of Education to the level they deserve. This is necessary for the Ministry of Education because a vast majority of those in our teaching staff, more than half, are women” (http://www.hurriyet.com.tr/index/kadin_yonetici).

As it can be clearly seen, women cannot be represented adequately enough in administratorial positions in education. Although studies show that the number of working women has risen, the number of women administrators has not risen in a parallel direction. The rate of women to serve in top-level management in all occupations is considered to be 0.8% (Ataklı et al., 2004; Duman, 2008). Institutional culture and management experiences which prevent women from taking part in management are taken into consideration. This prevention can also be observed in the field of educational administration (Figure 1).

The major factors that prevent women from building their way up to management are social and cultural prejudices. There is a sense in community suggesting that women should perform in occupations suitable for their roles assigned to them by society. Here, we can talk about obstacles that women put themselves as well as exterior factors. Furthermore, women pull away from the responsibilities of management because of the responsibilities and duties they interiorise within the family, especially as mothers.

According to Ertürk (1997), education is a process of intentional and planned behavioral change in the desired way. The ‘desired way’ here can be defined as changing behavior in the way that is accepted and desired by society. In the light of this, although education focuses on a behavioral change in the individual, it is an inevitable fact that it also affects the whole structure of a society. In today’s developing world, education is the major factor for societies to adapt to contemporary changes. Education takes its indispensable place as a right in all agreements with the basis of human rights. In the Constitution of our country Article 42, “right of education” is mentioned as an unavoidable right. Education is every individual’s right without any race or gender discrimination. In the last years, gender equality poses as the most important issue on the agenda. In developing and underdeveloped countries, the terms are against women. A lot of studies and legal regulations have been carried out for years in
order to get rid of this problem. By the help of these, the number of women continuing to have education from primary school to university has increased. This situation has positively affected women to stand out in professional occupations requiring expertise, rather than being unqualified and unpaid individuals. Women now come to the forefront of working life in management levels.

Education is provided formally in school organizations. Compared to men, women are represented more as teachers in educational institutions both in the world and in our country. However, this situation is vice versa in administratorial positions of educational institutions. Women are not at the desired level yet as being administrators in educational institutions.

The contribution of this study is very important for the researchers, educators, and readers in educational science. Since, the results of this study are informative because of coming from different country, Turkey. Especially, as a sense of modernism, this study has focused on women leaders in schooling.

The aim of this study is to detect the problems female school administrators face. In the light of this, answers to following questions were sought:
What are the problems that female school administrators face
1- about the staff at the school they work in?
2- about the students and their parents?
3- in the process of being appointed to management?
4- in their family context?

Figure 1. Conditions that obstruct women in the field of educational administration (Marvin and Bryans, 1999).
METHOD

In this study, qualitative research methods were used for an in-depth analysis of the issue. Qualitative research can be defined as a way of research in which the researchers examine the issues in their natural environment, and deal with them in an interpretive way and with multiple methods (Denzin and Lincoln, 1998; cited from: Ekiz, 2003: 27). Because the study aims at an in-depth investigation of the problems that female administrators working in the field of education in Tokat and Samsun provinces, phenomenological pattern was used as it fits the nature of the issue. In studies where phenomenological pattern is used, the intention is to analyze a situation or an event deeply as it is and comment on it. Additionally, it is intended to reveal an individual’s life, perception, view and thoughts (Yıldırım and Şimşek, 2011). Purposive sampling methods became evident during the qualitative research process. In this research, participants were chosen by criterion sampling method among the purposive sampling methods. Purposive sampling makes the in-depth analysis and research of situations predicted to possess rich information possible (Yıldırım and Şimşek, 2011). As can be understood from the above literature, the researcher used a qualitative research design in order to get in-depth information about study.

Research group

Ten female school administrators working in Tokat and Samsun provinces, who were chosen by criterion sampling method among the purposive sampling methods, voluntarily participated in this research.

Data collection tool

In the study, semi-structured interview form was used as the data collection tool in order to identify the problems that female school administrators face. Interview is a data collection tool used to gather information about individuals’ experiences, thoughts and attitudes. Interviews present what people think and why; what their emotions, attitudes and feelings are; and what factors direct their behaviors (Ekiz, 2012: 62).

Semi-structured interview form was used in the study to gather in depth information about the related issue and to make the interviewee express herself comfortably. In the process of forming semi-structured interview form, literature was reviewed first and in the light of the information collected, research questions were designed. Research questions were presented to field experts, edited after the feedbacks and interviews were initiated later on.

Data resources

Ten female school administrators working in Tokat and Samsun provinces constitute data resources in this study. Sampling was determined by stratified sampling. Stratified sampling is the determination of participants by taking their specific features into account in a way to represent the universe. For this reason, school administrators working in preschools, primary schools, secondary schools and high schools were included in the study. Research data were collected by face to face interviews with female school administrators through the semi-structured form designed.

FINDINGS AND COMMENTS

Problems that female in the field of education face were investigated in various themes in the light of data gathered by the analysis of the interviews with participants. In this respect, as a result of the analysis of interviews, problems were categorized under 4 themes: problems related to the staff, parents, students and the process of appointment to the management. Data explain the problems that administrators face as below.

It was seen that all female school administrators have had problems with the staff for once or more. Two of the administrators stated that it was difficult to work with female staff. We can present this situation as follows:

“There are problems about wording when I'm working with female staff. As our friendship bond is stronger, I sometimes experience worthlessness. They trust me so much that they expect me to accept their excuses whenever they ask for time off work. If I don't, they may be offended.”

“Female staff is more whimsical. And I do not believe that they want to be directed by a female because jealousy is common among women…”

Çelikten (2004), in his study “Women on the administrator chairs of schools: Case of Kayseri”, stated that female school administrators get negative attitudes from not only male staff but also female staff, which is a parallel argument to this study. He supported this statement with these example expressions of a participant; “Female teachers behave more emotionally and whimsically, they do not share and they are selfish; males are more sharing and helpful”. The very same participant also stated that “women prefer to see a man in the management and not a woman”.

A survey by Ranstad, a human resources consulting firm, revealed that women do not like working with other women, or seeing them as their administrators. According to the data of this survey, throughout the world, 54% of women would like to work with men while 29% would like to work with women. 17% chooses to keep impartial. Additionally, 45% of women prefer male administrators while 25% prefer female administrators. According to the same survey, the situation is not different in Turkey. Of the women in Turkey, 60% prefer male administrators while 22% prefer female administrators (http://www.kigem.com/kadin-calisan-erkek-yonetciler-tercih-ediyor.html).

In our study, female school administrators explained their problems with male staff as follows:

“A highly conservative teacher even talks by avoiding eye contact.”

“If there are no women in National Education meetings, you are left alone because starting a dialogue with men is seen as social discrimination.”

“Male staff does not take me seriously as I am a female. They believe that I cannot be a administrator. In such situations I am obliged to apply official sanctions and this sometimes results in resentment.”
The administrators also stated that they have some problems with the staff working in auxiliary services at school. Their statements are as follows:

“They do not take me seriously, I hear things like ‘you are a woman, you would not understand’.”

“Workers do not take us seriously as we are women and I believe this situation is directly related to the fact that women are of secondary importance.”

“I can read the belief that ‘women cannot make good administrators’ in the eyes of people we temporarily hire. I sometimes even encounter the exaggerated form of it: contempt.”

“It is really hard to be a founding administrator. I had to give my private telephone number to the workers and unfortunately I was harassed several times by phone.”

“I really have difficulty especially in making the staff in auxiliary services work. Their perception of woman is much more different.”

In his study, Çelikten (2004) states that when a female school director appointed to his school, a cleaner asked to be appointed to another school because “it was humiliating for him to get orders from a woman”. These findings show that standard of judgement of society towards female school administrators is not actually positive. Two examples of problems with staff were stated above. Findings are obtained from female school administrators’ statements and social standards of judgement towards female school administrators. Female school administrators explain the problems they experience with parents as follows:

“A parent came to me and told she cannot pay for the revenues due to financial problems. She wanted to help with the stuff at school instead, and I agreed. However, she just came and worked just for one day. Later on, I found out that she did not have financial problems, and I asked her to come to school for a talk. However, it was her husband who showed up! He was so rude and I was seriously affronted. And there is no CCTV at school to prove all these.”

“Society seeks male administrators. Sometimes we face bullying.”

“Some fathers hesitate to tell me problems about their children just because I am a female.” “I feel some fathers do not take me seriously because I am a woman. They believe I cannot make a good administrator as I am female.”

Some female school administrators, however, say especially mothers of students trust them so much that they share even the smallest unimportant details, and they sometimes ask more for their children, but such problem can be handled by talking beforehand without becoming a problem.

As for the relationship with the students, female school administrators did not state many problems. A few female school administrators indicated they had trouble:

“I have difficulty in imposing discipline and authority on male students.”

“Sometimes students mock at my voice, or clothes… because I am a woman.”

Female school administrators do not have many problems with the students. The reasons for this may be their ‘motherly’ compassion towards children and their great communication skills. Also, Çelikten (2004) believes the most outstanding features of female school administrators are “communication” and “human relations”. In this respect, it is normal that they do not have many problems with students. When studies in this field were analyzed, it was seen that there are some behavioral differences between male and female administrators but female administrators give much more importance to interpersonal relationships and to the aims of their institution (Turan and Ebiçlioğlu, 2002: 448). As a result, it can be said that female administrators, focusing on communication and interpersonal relations, have a positive communication process with their students.

Problems that female school administrators experience during the process of appointment to management can be explained as follows:

“I believe women are disadvantageous in the appointment process.”

“I believe male administrators are favored in oral interviews.”

“They say they wanted to see women at higher levels but they do not put this in practice. There exists a problem of ‘favorism’ rather than gender discrimination.”

“Unqualified males are appointed to management.”

“Usually they cannot accept women. However, it is a big step that one of the Vice Administrators of National Education is a woman.” “Women rights are not defended in educational unions.”

“There is more conservative staff because of political changes and men even hesitate to shake hands. The presence of women creates unease among men.”

Female school administrators participating in this study indicated that they face discrimination especially during the appointment process. Similarly, Atay (2001), in his study on primary school administrators’ behaviors, concluded it is commonly agreed in the society that women are different from men so they cannot not successfully fulfill management roles. The same study sorts prejudices against women as “they do not want to work; they cannot be devoted to their careers like men; they are not through and durable enough; they do not work overtime; they do not have the capacity to decide; they are way too emotional”. In this respect, one of the most important obstacles in front of women in educational
management is the notion “Glass Ceiling”. Glass Ceiling is a barrier that women who desire and struggle to build their way up to high positions in public or educational institutions, businesses, or non-profit organizations and face (Örücü et al., 2007: 118). Although these barriers are not set forth, there are many studies on this issue. The obstacles mentioned here do not reveal themselves explicitly but they are formed by social values and prejudices.

Female school administrators explained the problems about their responsibilities and duties within the family as the following:

“I remember the times I had to work because of my responsibilities as a director although I was in maternity leave. I feel like I neglected my family because of this.”
“I started to work as a administrator when my son was 2 years old. I could not take care of him enough. Since I became a administrator, I have not been able to spend enough time with my family.”
“As a mother, you are responsible for lots of things within the family, and it is difficult to set loose of management sometimes. It is seen like you do not care your business.”
“I spread negative vibes to my child because I carry problems at school to my house.”
“I cannot put up with my own child’s noise because of my exhaustion and I expect too much from him presuming he is like the children at school.”

Koray (1992: 119) states that one of the biggest obstacle in women’s becoming administrators and pursuing this duty is that although they are working, they still have to deal with everything at home by themselves as wives and mothers. Because they see being wives and mothers as their primary jobs, neglecting this causes unrest in their inner worlds. Additionally, Negiz and Yemen (2011: 204) indicate that women believe the most important barrier for them to become administrators is the familial responsibilities assigned to them.

**DISCUSSION AND CONCLUSION**

According to the data, female school administrators have problems in managing because of their duties and responsibilities within the family. The greatest obstacle in this regard is their numerous responsibilities at home. Additionally, “woman of the house” and “motherhood” roles, which are assigned by the society, are crucial factors. In parallel with the data, Sağlam and Bostancı (2011: 148), in their research, indicated that 16 of 32 female school administrators who participated in the study confessed that they did not take place in management positions due to their duties and responsibilities within the family. The public role of women is mostly determined by traditional values, which suggest that men need to work and bring home money while women stay at home and take care of the house and children. It is always stressed that, even a woman works professionally, her priority should still be her family (Gökalp, 2008: 29). This situation obstructs women from becoming administrators not only in our country but also in many other countries. To give an example, a study in Japanese companies revealed that women had a negative attitude towards a career as administrators since they put their roles within the family ahead of everything (Appold et al., 1998: 555). In a study in India, however, it was concluded that women were successful in professional life despite the cultural traditions and behind this success there was the support from the family and the company and their personal efforts (Nath, 2000). Another study mentions that “womanhood” was seen as inferior to “manhood” even if the culture does not suggest so, and it was indicated that working women empowered the control of men and class distinction just changed shape (Liddle, 1989).

When the data are analyzed, it can be seen that school administrators working in preschools, primary schools, secondary schools and high schools had mainly problems with the staff, students, parents and in the process of appointment. Those whom the female administrators had the least problems with were the students. Women tried to solve these problem initially by having a talk. Later on, they tried dealing with the problems by official sanctions. However, the presence of situations when both ways were useless is a very important obstacle for female school administrators to do their jobs. In parallel with earlier studies, it was seen that women were kept in the background in the appointment process. The roles that men stick on women and social gender roles can be presented as the reasons for this. On the contrary, decisions were taken to increase the number of female Administrators in the National Education Council. For example, in Article no. 34 of the 18th National Education Council, the proposal suggesting “Incentives to increase the number of female administrators in the appointment of school administrators should be provided”. Additionally, in Article no. 5 of the last 19th National Education Council, the proposal suggesting “Social gender equality should be taught as a unit inside an existing subject at schools starting from the 3rd grades” was adopted.

When the data collected in this study and findings from other studies are taken into consideration, it can be strongly suggested that there are stereotyped values against women within the society. Apart from the limitations stemming from the society, there are also obstacles that women themselves create. Additionally, it can be said that women face prejudices not only from men but also from women. Both national and international studies confirm the finding that female administrators fulfill their work without any delay. In this respect, it would be a right approach if women are subjected to positive discrimination in decision-making
process in business and also in reaching management positions. For this, the greatest responsibility falls on legislators and civil society organizations.

Conflict of Interests

The author has not declared any conflict of interest.

REFERENCES


Binen B (2013). Factors that Affect Female Teachers in Becoming Administrators: Research on Adana Province. Çağ University, Institute of Social Sciences, Department of Business Administration.


Gökcalı İ (2008). Female Entrepreneurs and Female Administrators in Turkey, Kirikkale University, Institute of Social Sciences, Department of Business MBA Thesis, Kirikkale.


WEBSITES


http://www.memurlar.net/haber/492505/ Retrieved on 05.02.2015.
The relation between pre-service music teachers' psychological resilience and academic achievement levels

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This study aims to examine the relation between pre-service music teachers' psychological resilience and academic achievement levels and to determine what variables influence their psychological resilience levels. The study sample consisted of students enrolled in a music education program in the 2013-2014 academic year (N=333). In respect with the study objective; the psychological resilience levels of students were evaluated using the Psychological Resilience Scale for Adults created by Fribog et al. (2005) and translated into Turkish by Basım and Çetin (2010). Students' demographic characteristics and academic achievement levels were assessed using the Personal Information Form developed by the author. The author conducted the data analysis with the Pearson product-moment correlation coefficient, one-way ANOVA and independent sample t test. The study results indicated that the psychological resilience levels of pre-service music teachers were high. Additionally, a significant positive relationship was found between their psychological resilience and academic achievement levels. In terms of the gender variable and total scores on psychological resilience, a statistically significant difference was found between the men and women, where more favorable responses were given by the latter in their perception of self, perception of the future and social resources sub-dimensions. No statistically significant difference was found according to graduation type and class level variables.

Key words: Pre-service music teachers, psychological resilience, academic achievement.

INTRODUCTION

Individuals respond differently to the difficult conditions they experience throughout their lives. Some may develop negative attitudes toward negative living conditions while others may develop positive attitudes and have a successful adjustment process. In this respect, psychological resilience has become a topic of interest for positive psychology in recent years. Many studies on psychological resilience have been conducted in Turkey; however, different names have been variously applied to the concept. For instance, Gizir and Aydın (2006) preferred to use the term “psychological durance”, Terzi (2008b) used “the power to pull oneself together” and
Gürgan (2014) used “struggle.” For the present study, the author chose to use the term “resilience”. Resilience is generally defined as success despite changing or threatening conditions and the process of adapting oneself to the changing environment (Cicchetti and Cohen, 1995; Hunter, 2001; Masten et al., 1990). Numerous studies, however, suggest that resilience is an influential factor in coping with psychiatric illnesses, such as stress, trauma and depression (Connor and Davidson, 2003; Hjemdal et al., 2007; Kobasa et al., 1982; Kosaka, 1996; Terzi, 2008a; Urgan, 2008; Wallace et al., 2001;). Weak resilience increases stress, anxiety and depression and thereby reduces performance (Palmer, 2013).

Alternatively viewed, resilience is the capability of dealing with problems during a crisis or the development of specific responses to complicated social problems and changing conditions (Hutter and Kuhlicke, 2013). In this way, a person’s experiences result in adaptational and developmental outcomes (Schaffer, 2006). According to Basım and Çetin (2010), protective factors, mechanisms and processes that have positive influences on desirable outcomes are accepted as resilience. The outcomes of resilience include good state of mental health, functional capability and social competence (Olsson et al., 2003). Connor and Davidson (2003) developed the following various descriptions of resilience: 1) being capable of adapting oneself to changes, 2) building close and trusting relationships, 3) seeing the humorous side of circumstances or conditions, 4) struggling for the best regardless of what happens, 5) working to reach the goals, 6) being proud of achievements, 7) knowing when and where to ask for help, 8) focusing and thinking clearly under pressure, 9) considering oneself as a strong personality.

From the developmental approach, resilience includes the competence to use protective factors to perform developmental tasks appropriate to the person’s age (Kaplan, 1999). In the relevant literature, the protective factors are described as optimism, empathy, and self-respect, direction or mission, decisiveness and determination (Ungar, 2004). Protective factors are the positive factors in individuals’ lives, as well as factors that predict positive results for their families and communities (Masten and Reed, 2002). On the other hand, Werner (1995) asserts that preschoolers who have psychological resilience develop a coping model by combining their autonomy and the ability to ask for help when they need it. These characteristics are the anticipations of the psychological resilience they will depend on for the rest of their lives. Bernard (2004) describes resilience as the durability and competences that are related with a person’s success in life. In this respect, resilience can be described as the process by which a person uses protective factors to adapt themselves to the risk factors involved in different living conditions or events (negative conditions) that they experience during their developmental processes.

In education, the key indicators of psychological resilience are being able to cope with learning difficulties, having a relatively high tolerance for disappointment and avoiding problems and disappointments in the learning process (Carr and Claxton, 2002). Alternatively, Hammond (2004) conducted a study on the influence of learning on psychological and mental health and durability, where he suggested that lifelong learning was influential in coping with potential stress and that learning affected psychological qualities such as self-respect, self-efficacy and the sense of goal and hope. In terms of educational environment, resilience is discovering and determining the protective factors that exist in the school environment and in the society (Boorn, Dunn, and Page, 2010). The concept of resilience was first included in educational activities in the 1990s, when programs and strategic activities focusing on the improvement of psychological durability of students became more important (Price et al., 2012). For instance, Arastaman and Balci (2013) found that problem solving skills functioned as a factor that developed psychological durability and that it was an important component of resilience. Moreover, this study found that grade point average (GPA) and truancy were important demographical data that helped predict students’ resilience. Robinson (2000) developed a description of resilience factors capable of being adjusted to educational environments, namely 1) Sense of belonging or loyalty to school/institution, 2) Positive assessments and achievement at school/in the educational environment, 3) Having somebody that believes in you, 4) Being in a positive relationship with an adult other than a family member, 5) Having a special skill or talent. The factors that increase resilience are important for educators, as these factors have an impact on effective teaching and learning (Thornton et al., 2006).

A review of the relevant literature shows that many researchers agree on the three factors comprising resilience, namely, 1) Personal predispositions, 2) Family cohesion, 3) Social resources outside the family (Ex: Garmezy, 1993; Werner, 1989, 1993: cited by Hjemdal et al., 2011; Wallace et al., 2001). The sources of personal disposition include structural flexibility, sociability or showing initiative, intelligence, communicative skills and personal characteristics; the sources of family cohesion include supportive familial traits that require certain behavioral characteristics, such as warmth, courage and assistance; and the sources of the social resources outside the family include socio-economic status, school experiences and supporting communities (Olsson et al., 2003). Furthermore, in the study conducted by Huang and Lin (2013) that assessed university students’ resilience, they found it to be a personal trait, involving an individuals’ capability of dealing with the difficulties they faced. They described it as a four-factor structure that included 1) empathy and the interaction between persons, 2) cognitive maturity, 3) problem solving and 4) hope and optimism. The resilience factors included in this
study’s context feature a six factor structure that comprises all dimensions of resilience within the framework of the scale created by Friborg et al. (2005) and Basım and Çetin (2010), which aimed at evaluating adults’ resilience by taking environmental conditions into consideration. These factors include 1) Perceived of the self, 2) Perception of future, 3) Structural style, 4) Social competence, 5) Family cohesion and 6) Social resources.

It is clear that resilience includes many factors and has a multi-dimensional structure. Although numerous recent studies have aimed to reveal, assess and examine resiliency’s correlations with different factors (Ex: Gürgan, 2014; Huang and Lin, 2013; Olsson et al., 2003; Terzi, 2008a; Terzi 2008b), there are few studies within the national or international literature that research the resilience of pre-service music teachers. In Turkey, music education falls under the branch of art education within the framework of the music teaching undergraduate program, and pre-service music teachers who are trained in music education, are expected to acquire an understanding of the full musical spectrum (e.g. instruments, vocals and music repertoire, to name a few). In this process, pre-service music teachers may develop various attitudes and adjustment processes against different risk factors they might encounter in their educational environment; those that are capable of coping with these risk factors and are able to subsequently develop different protective factors are then empowered to demonstrate a higher rate of development and better achievement. In other words, resilience is an important factor in the matriculation of pre-service music teachers insofar as it will enable them to positively respond to the negative conditions they might face during their undergraduate education and thereby stand a stronger chance of academic achievement.

For these reasons, this study aims to identify the correlations between pre-service music teachers’ psychological resilience and their academic achievement levels and analyze their psychological resilience levels using different variables. In this respect, the following research questions were formulated:

1. What is the resilience level of pre service music teachers?
2. Does the resilience level of pre service music teachers vary according to gender, type of school they graduated from and class level?
3. Is there a statistically significant correlation between the resilience level of pre service music teachers and academic achievement levels?

**METHODOLOGY**

**Research model**

The study was designed as a descriptive study and a survey. A survey includes describing the characteristics of a specific group using different tools, such as questionnaires and tests. This is a descriptive and correlational study. Descriptive studies describe a given situation as precisely and carefully as possible. Correlational studies analyze the correlation between two or more variables without interfering with these variables (Büyükoztürk et al., 2009).

**Study sample**

The sample of this study included freshmen (n=93), sophomores (n=108), juniors (n=56) and seniors (n=76) (N=333) enrolled in Balıkesir University Necatibey Faculty of Education Fine Arts Education Department (FAED) Music Education Program (MEP) (N=95), Cumhuriyet University Faculty of Education FAED MEP (N=31), Gaziosmanpasa University Faculty of Education FAED MEP (n=76) and Karadeniz Technical University Faith Faculty of Education FAED MEP (N=66) in the 2013-2014 academic year. The students participated in the study on a voluntary basis. Of the participant pre service music teachers, 196 (58.9%) were female and 137 (41.1%) were male, and 226 participants (67.9%) graduated from Fine Arts and Sports High Schools while 107 participants (32.1%) graduated from other types of high schools.

**Data collection tools**

The data were collected using the Resilience Scale for Adults (RSA) created by Friborg et al., (2005) and translated into Turkish by Basım and Çetin (2010) and a personal information form. The personal information form was created by the author in order to collect information about the demographic characteristics of the participants. This form consisted of questions about the university the students were enrolled in, their gender, the type of the high school they had graduated from, and current class and academic achievement levels.

The RSA, used to determine adult resilience levels, includes 33 items within six sub-dimensions - the first sub-dimension, Perception of Self: (items 1, 7, 13, 19, 28 and 31); the second sub-dimension, Perception of Future: (items 2, 8, 14 and 20); the third sub-dimension, Structured Style: (items 3, 9, 15 and 21); the fourth sub-dimension, Social Competence: (items 4, 10, 16, 22, 25 and 29); the fifth sub-dimension, Family Cohesion: (items 5, 11, 17, 23, 26 and 32); the sixth sub-dimension, Social Resources: (items 6, 12, 18, 24, 27, 30 and 33). The coefficient of internal consistency for all items was 0.86. This study found the internal consistency coefficient of RSA to be 0.90. The internal consistency coefficients of RSA’s sub-dimensions vary between 0.68 and 0.81. The Kaiser-Meyer-Olkin value of this study was 0.90 and the Bartlett’s Test result was statistically significant.

The author placed negative and positive statements on different sides to mitigate the possibility of the participants making pre-judgements when selecting choices among items; the author also used five separate boxes placed in a diagram for the answers. In this respect, the answer boxes were placed from the left to the right in 1-2-3-4-5 Likert type. In this respect, the scores obtained from this scale increased in direct proportion with the resilience levels of the pre service music teachers. The minimum possible score on the scale is 33 while the maximum possible score is 165.

**Data analysis**

The data were analyzed using the SPSS (Version 15.0) program. The demographic data of the pre service teachers were evaluated with frequencies and percentages; an independent samples t-test was conducted to determine any statistical significance according to gender and the type of the high school the pre service teachers graduated from, in terms of the sub-dimensions of RSA and the total score; a one-way ANOVA was conducted to determine any...
significant differences in terms of class variable and the total score; and lastly, the Pearson product-moment correlation coefficient was used to find the correlation between resilience and academic achievement levels.

The arithmetic means and standard deviations were calculated for each sub-dimension in the scale and the total in order to ensure a more reliable and accurate interpretation of the data. Based on these arithmetic means, the score limits of each level in this 5-point Likert type scale were identified. Assuming that the intervals in the scale are equal to each other, the range of scores were formed in the following manner: between 1-1.80 is "very low", between 1.81-2.60 is "low", between 2.61-3.40 is "intermediate", between 3.41-4.20 is "high", between 4.21-5 is "very high".

**RESULTS AND DISCUSSION**

During the course of university education, many students experience psychological problems as they are trying to develop new skills and are receiving an advanced level of training. The university environment is usually stressful and students encounter various risk factors. Compared to high school, there is a minimum level of academic support at university, academic members and counselors are more distant from students than they are at high school and moreover, entering into a new environment can potentially lead to the students becoming isolated and alienated (Kadison and DiGeronimo, 2004). Hartley (2010) expanded on these risk factors adding the experience of: 1) temporary cognitive disorders 2) low academic confidence and 3) conflicts with peers. Relevant studies have shown that resilience is an important element that helps in the students' struggle against these risk factors.

In the relevant literature, there are many studies of university students' psychological resilience (PR) and the correlations between PR and a variety of factors. A study by Terzi (2008a) found that there was a significant relationship between PR and perceived social support. Terzi (2008b) also did a study on the correlation between university students' ability to pull themselves together and their internal protective factors. This study found that there were positively significant correlations between students' ability to put themselves together and their optimism, self-efficacy, problem-solving and coping strategy scores. There is a study in the international literature by Sills et al. (2006), who found a negative correlation between PR and neuroticism and a positive

<table>
<thead>
<tr>
<th>Sub-factors</th>
<th>X</th>
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<tbody>
<tr>
<td>Perception of self</td>
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<tr>
<td>Perception of future</td>
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<td>Social resources</td>
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<td>Total resilience</td>
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<td>21.31445</td>
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Table 2. Independent samples t test results by gender.

<table>
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<th>Sub-dimensions</th>
<th>Gender</th>
<th>N</th>
<th>$\bar{X}$</th>
<th>S</th>
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<th>p</th>
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</thead>
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<tr>
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<td>3.91665</td>
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<td>Perception of future</td>
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<td>15.4694</td>
<td>3.21121</td>
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<td>.000**</td>
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<td>21.45709</td>
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<tr>
<td></td>
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</table>

*p<.05
**p<.01

Table 3. Independent samples t test results for resilience levels by graduation.

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<th>Sub-dimensions</th>
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<th>N</th>
<th>$\bar{X}$</th>
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<th>p</th>
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<td>.334</td>
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<tr>
<td></td>
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</tr>
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<td>Fine Arts and Sports</td>
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<td>331</td>
<td>-.184</td>
<td>.225</td>
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<tr>
<td></td>
<td>Other</td>
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<td>23.1121</td>
<td>4.35744</td>
<td>331</td>
<td>.090</td>
<td></td>
</tr>
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<td>4.44419</td>
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<td>23.2804</td>
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</table>

A correlation between PR and being extroverted and hardworking. In another study, Galatzer-Levy et al. (2012) found a strong correlation between college students' coping flexibility and their PRs. In addition to these studies, Klibert et al. (2014) conducted a study with undergraduate students and found that low PR was...
The results of this study revealed that pre-service music teachers studying in music pedagogy programs had high levels of PR (\( \bar{x} = 124.7 \)). This shows that pre-service music teachers are successful at coping with potential stressors during their undergraduate education or they have the ability to adapt rapidly to stressful experiences. Additionally, the study results showed that there was a significant correlation between pre-service music teachers' PR and their academic achievement (\( p<0.01 \)), which is in accordance with the studies mentioned above.

A majority of social and psychological studies claim that gender is a critical factor in determining the resilience and vulnerability of individuals. Reimer (2002) argues that gender is correlated with stress, coping and PR in early adulthood. However, females are more prone to depression than males in mid-adolescence and adulthood (Culbertson, 1997; Conger et al., 2001; Nolen-Hoeksema and Joan, 1994). This study determined that female music students' PR levels were significantly higher, as well as their scores on self-perception, perception of the future, structural style and social resources sub-factors.

Some studies in the literature (Arastaman and Balci, 2013; Arokiaraj and Shahrazad, 2011; Terzi, 2008b) have found that PR did not vary significantly by gender, which is not consistent with the results of this study. However, there are also relevant studies which are consistent with this study. For instance, Werner and Smith (2001) found a significant difference in social and interpersonal resources in favor of females. In another study, Friborg et al. (2003) found a significant difference in the social support dimension of PR in favor of females. Thornton et al. (2006) conducted a study with high school students and found that male students' PR levels were lower than those of the females, which is similar to the results of this study. Another study by Hjemdal (2011) found no significant difference between males' and females' total

<table>
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<th>Source of the Variance</th>
<th>Sum of Squares</th>
<th>sd</th>
<th>Mean Squares</th>
<th>F</th>
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correlated with social perfectionism, depression and anxiety.
<table>
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<td>.355(**)</td>
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<td>Academic achievement</td>
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<td>3.5706</td>
<td>.82065</td>
<td>.355(**)</td>
<td>.000</td>
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<td>.355(**)</td>
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</tbody>
</table>

**p<.01

PR scores. However, they found significant differences in the social resources and family harmony dimensions in favor of females. This study also supports the idea that females are more successful at coping with psychological difficulties than males.

The study also searched for differences in PRs due to type of high school and year of study, but found none (See Tables 3 and 4). Thus, the high school type and year of study variables had no effect on pre-service music teachers’ PRs. Arastaman and Balci (2013) conducted a study of the correlation between high school students’ PR levels and certain protective factors and, like this study, found that grade had no influence on PR.

There is a significant and moderately positive relation between pre service music teachers’ resilience and academic achievement levels in total and sub-dimension scores. Based on this result, it appears that resilience of students is influential on their academic achievement or vice versa. Johns (2005) found a significant relation between students' academic achievement and resilience levels. Additionally, Arastaman and Balci (2013) determined a significant relation between high school students' gpa and resilience levels. Thornton et al. (2006) however conducted a study on high school students and found no significant relation between achievement and resilience. This study's result is in accordance with the results of the studies by Johns (2005) and Arastaman and Balci (2013).

Taking the relation between resilience and academic achievement into consideration, these results suggest that alternative approaches be created to increase or support resilience in pre service music teachers. The relevant literature also offers suggestions about increasing resilience. For instance, Hartley (2010) argues that assistance training programs should be organized to improve students’ awareness about how to use the protective factors to increase resilience and to inform them about the risk factors that weaken resilience. Assistance training programs include career planning, continuing education and social support and research services (Mowbray et al., 2005). Assistance training programs have been proven to improve confidence and perception of self, to help individuals cope with psychiatric illnesses and to increase the number of people who attend university after completing high school (Collins and Mowbray, 2005).

In another study, Robinson (2000) suggested these positive trainings to help build resilience:

1. See any kind of interaction as an opportunity
2. Make a friendly, sincere, open and soft approach
3. Listen and provide positive feedback to young persons
4. Approve of and respect young persons while giving feedback to them, discuss sensitive issues, make efforts to understand them
5. Create a positive framework
6. Have respect for young persons’ life experiences and
inner views
7. Be fair and consistent in educational environments

If Robinson’s suggestions were to be taken into consideration in music education environments, they would facilitate the building up and support of resilience levels in pre service music teachers.

In addition, Terzi (2005) conducted a study on education faculty students about the protective factors that support university students’ resilience. He found that resilience, as a personal characteristic, had an indirect influence on being in a good state via cognitive assessment and coping. Moreover, he showed that individuals with a high level of resilience used effective coping strategies when they encounter stressful circumstances. In another study by Aydoğdu (2013), it was found that individuals with resilience used problem-focused coping strategies in stressful situations. Based on these results, it is suggested that pre service music teachers receive guidance about stress factors or negative situations they might encounter during their university lives; assistance should also be provided to help them develop coping strategies to use as protective factors for fostering resilience.

Conflict of Interests

The author has not declared any conflict of interest.

REFERENCES


Full Length Research Paper

The influence of acute arm vibration on coordination in Physical Education

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Akdeniz University School of Physical Education and Sports, Antalya, Turkey.

Received 29 December, 2014; Accepted 14 July, 2015

Today, some researchers have focused on the impacts of new and easily applicable non-invasive methods on physical education. The purpose of this study is to examine the vibration-related acute change in rotary pursuit coordination performance soon after arm vibration. In the study, 27 students in School of Physical Education and Sport were divided randomly into two groups. In order to eliminate the effect of learning, vibration and non-vibration rotary pursuit test was applied to each group rotationally. Group 1 (n_group1=14) was subjected to 4 rotary pursuit (40 s) tests each involving 3 vibration (30 s, 50 Hz, 2 mm) interventions. Two weeks later, the same participants were subjected to rotary pursuit tests with 30 s. rests instead of vibration interventions. Group 2 (n_group2=13) first received the non-vibration test and then the vibration test in the same order. According to the results of repeated measure of ANOVA, a significant improvement (F(3,24)=9.08, p=0.00) was found in the rotary pursuit performance with vibration (1st: 28.28±5.21., 2nd:29.59±4.61, 3rd: 30.51±5.31, 4th: 31.42±4.29 s). A significant improvement was not found (F(3,24)=1.80, p=0.17) in the rotary pursuit coordination practice without vibration (1st: 27.42±4.80., 2nd:28.54±4.45, 3rd: 29.03±3.58, 4th: 28.60±4.21 s). The study revealed that acute hand vibration positively affected rotary pursuit coordination. This positive impact is considered to have originated from the reconstructive effect on the sense of joint position of acute vibration. It is believed that the results of this research might inform physical education teachers working on hand-eye coordination.

Key words: Physical Education, coordination, vibration, intervention, rotary pursuit.

INTRODUCTION

Today, the sports industry tends to evaluate the anatomical and physiological needs of athletes with due regard to the characteristics of the sports branch they deal with and thus improve the performance of athletes. With time, athletes have been subjected to an intensive analysis and research process. This inevitable analysis process evolves in the direction of increasing the performance of athletes without using ergogenic aids. As a result, athletes are searching for more efficient, reliable and noninvasive intervention to improve their performance (Apple et al., 2010). As indicated in the references, vibration training may improve strength, neuromuscular performance and efficacy of this performance (Abercromby et al., 2007; Cardinale and...
The researches using acute and chronic vibration practices seem to be revealing differing results. Furthermore, the researchers studying the impacts of acute vibration practices on neuromuscular performance also reveal separate results. This difference in the results of the research is considered to have originated from variables such as the severity, duration and amplitude of vibration practices (Kin-İşler, 2007).

Neuromuscular, metabolic and hormonal impacts of vibration practices are known (Issurin, 2005). In addition, it has been proven that it is possible to improve the balance, strength, walking stability and some physical and physiological characteristics of individuals through whole body vibration practices (Madou and Cronin, 2008). The results of a study conducted on young skiers suggest that it could be more effective to use whole body vibration training as supplementary to conventional strength training (Mahieu et al., 2006). Indirect acute vibration training as supplementary to conventional increase could be attributable to the increasing fatigue value (1.85±3.85 cm.). Researchers suggested that this result could be attributable to the acute harmony of spinal stretch reflex response (Lamont et al., 2009). In another study examining the acute impact of vibration, maximal muscle strength also increases due to motor unit synchronization and increased neuromuscular harmony (Jordan et al., 2005).

Studies on leg strength suggest that vibration training could positively affect leg strength. In a sham operated study conducted by Cormie et al. (2006), Whole-Body Vibration was applied for 30 s in semi-squad position, with 30 Hz., 2.5 mm. amplitude. In the Isometric Squad and Countermovement Jump performance tests conducted soon after Whole-Body Vibration, an increase in jump height was found. Researchers note that this result could have emanated from the heating-supporting impact of vibration and that different Whole-Body Vibration protocols should be tried (Cormie et al., 2006). In the study conducted by Lora et al. (2009), subjects received 15-week Whole-Body Vibration and an insignificant increase were found in the vertical jump value (1.85±3.85 cm.). Researchers suggested that this increase could be attributable to the increasing fatigue preventive impact of vibration and the increase in the rate of signal transmission in the nervous system (Lora et al., 2009). In another study examining the impact of Squad training together with low-density Whole Body Vibration training, it was found that low-density Whole Body Vibration training affected power output and jump height more than those without vibration. Researchers noted that this result could be attributable to the acute harmony of spinal stretch reflex response (Lamont et al., 2009). In another study on the impact of acute whole body vibration practice on vertical jump and flexibility, low-density vibration was found to be more effective than high-density vibration (Cardinale and Lim, 2003). In a study conducted on college athletes, a peak force increase of 6 % was found in sprint start performance measured soon after short-term whole body vibration during warm-up (Roberts et al., 2009).

In studies regarding arm strength, both whole body and local vibration training were found to be affecting arm strength. In the study of Cochrane and Stannard (2005), examining the acute effect of Whole-Body Vibration training on arm countermovement vertical jump, grip strength and flexibility, vibration was found to have increased arm countermovement vertical jump and flexibility. The researchers concluded that this change could be due to the neural potential in stretch reflex loop (Cohrane and Stannards, 2005). In a study studying the effect of short-term vibration training on bench press power output, vibration intervention was found to have increased muscle power (Poston et al., 2007). In another study on the impacts of low and high frequency and amplitude vibrations applied to foot on elbow-extensors, the biggest impact was found to be at 50 Hz., 2.51 mm. amplitude. The study concluded that high-frequency vibration practice had a greater neuromuscular facilitation impact than low-frequency vibration practice (Marin et al., 2010).

Some other studies addressed the impacts of vibration training on balance and neuromuscular coordination and concluded that vibration could positively affect neuromuscular coordination. In a study conducted by Fort et al (2012), 15-week Whole-Body Vibration training was found to have increased postural stability (Fort et al., 2012). In another study analyzing the acute effects of acute vibration practice intermittently applied on legs (100 Hz.) on static and dynamic postural control, vibration was found to be effective on dynamic postural control rather than static control. Researchers noted that this result could be attributable to the disruption of proprioceptive information by vibration intervention (Hosseninimehr and Noresteh, 2010). In a study examining the acute impact of vibration, particularly low-density whole-body vibration was associated with improvement targeting accuracy and precision of hand coordination (Nina and Ewald, 2012).

As evident from the references, there are few studies on the impacts of vibration on coordination. The studies in literature reveal conflicting results. Researchers interpret the results they have reached in differing ways. This study will contribute to the literature as regards the impact of arm vibration loading on hand-eye coordination. Because vibration has perturbative effect, it is considered that the intervention and super-compensation impact originating from the effort of neuromuscular
system to rearrange and compensate this perturbation will improve hand-eye coordination. Accordingly, the hypothesis of this study is that acute vibrations loading on arm will positively affect hand-eye coordination gradually. This study analyzes the acute/short-term impact of acute arm vibration interventions on rotary pursuit performance.

METHODS

Participants

27 subjects, who are active but not exercising regularly, volunteered to participate in the study. Before starting the study, the subjects were informed about the study and were asked to fill out the informed consent form. The ages, heights and weights of participants were 23.75±2.01 years, 173.04±9.65 cm and 65.06±13.89 kg, respectively. The participants reported that they did not have any physical, skeletal or neurological disorder.

Study design

Because learning effect could be possible, randomized controlled crossover study design was used in the study (Figure 1). Before starting the study, 27 subjects were divided into two groups randomly, according to their rotary pursuit performance (P>0.05).

Group 1 (n=14) first took rotary pursuit tests with intermittent vibration interventions, and two weeks later rotary pursuit tests without vibration. Group 2 (n=13) first took rotary pursuit tests without vibrations, and two weeks later tests with vibration interventions.

Performance test

Rotary pursuit test procedure

Rotary Pursuit test apparatus, which is preferred in some learning and control researches relating to hand-eye coordination, is used to measure sensory-motor coordination. There is a rotating disc with pre-configurable speed on the apparatus. The luminous point revolving around a center on the upper edge of the disc is in contact with a stylus that is held manually. The task of the subject is to follow the revolving luminous point as long as possible and keep it in contact. Rotary pursuit apparatus separately records the time during which the stylus is in contact with the light and the time during which contact is lost.

In this study, on-target time of stylus has been taken into account. While applying the test protocol, test time was adjusted as 20 s, test cycles as 2 sets (2×20 s=total test time 40 s), rest time as 5 s, stimulus sensitivity as 5, direction as “clockwise”, and revolution speed as 20 rpm (Revolution per minute). After explaining the test protocol to the subject, Rotary Pursuit apparatus was placed on a desk at the hip level of the subject, and the subject was asked to try the protocol once before the first test.

Intervention

Acute vibration practices

In the acute vibration intervention section of the study, the subjects took 4 rotary pursuit tests and 3 vibration interventions between them. During acute arm vibration intervention, subjects were asked to stand in push-up position, with their hands on the vibration platform and elbows slightly bent (150°-170°) for 30 s. Vibration intervention was applied with 50 Hz., 4 mm amplitude. The rotary pursuit test applied soon after vibration was performed within 10 s after vibration. Subjects said that vibration intervention stimulated their arm muscles.

In the study section without acute vibration intervention (2 weeks later), the same procedure was applied but the subjects were asked to rest for 30 s, instead of arm vibration practice, between the rotary pursuit interventions and tests.

Data analysis

First, a descriptive analysis of data was conducted. Because the number of subjects was less than 50, the distribution of data used was verified through Shapiro-Wilk normality test.

To compare differences, two way ANOVAs with repeated measures on the “protocol: vibration and non-vibration” and “time: 1st, 2nd, 3rd and 4th measurement” factors followed by Tukey’s post-hoc test was conducted.

RESULTS AND DISCUSSION

Test results obtained from the study are shown in Table 1.
Table 1. Interaction between protocol (Vibration and Non-vibration) and time (1st, 2nd, 3rd and 4th) performance of rotary pursuit on-target measurement.

<table>
<thead>
<tr>
<th>Time</th>
<th>Protocols</th>
<th>Vibration</th>
<th>Non-vibration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>28.28±5.21</td>
<td>27.42±4.80</td>
<td></td>
</tr>
<tr>
<td>2nd</td>
<td>29.59±4.61</td>
<td>28.54±4.45</td>
<td></td>
</tr>
<tr>
<td>3rd</td>
<td>30.51±5.31</td>
<td>29.03±3.58</td>
<td></td>
</tr>
<tr>
<td>4th</td>
<td>31.42±4.29</td>
<td>28.60±4.21</td>
<td></td>
</tr>
</tbody>
</table>

*Significant difference (P<0.05) between protocols at the time point. Note: There are not significant differences among time measurements according to Tukey’s post hoc test results for two protocols.

and Figure 2. The table shows the ANOVA results in repeated measurements applied to determine the time-bound changes in protocols with and without vibration, as well as the differences among time measurements. Furthermore, the results in each of the interventions with and without vibration (protocols) were compared. In the table, 4 rotary pursuit tests performed consecutively are named “Time”.

According to the results of variance analysis in repeated measure of ANOVA during vibration and non-vibration coordination practices, while a time-bound, regular and cumulative increase is observed in protocols (P<0.05). In addition, there is significant interaction of protocols by time with respect to 4th measurement (P<0.05). As revealed by the table, there is not any significant interaction (P>0.05) between protocols (vibration vs. non-vibration) and times (1st, 2nd, 3rd and 4th measurement).

This study, designed to identify the effect of acute isometric arm vibration intervention in push-up position with bent elbow, on rotary pursuit performance, used the hypothesis that vibration with bent elbow could have a cumulative positive effect on rotary pursuit performance.

The hypothesis has been confirmed by research results, and it was concluded that acute vibration intervention between tests could have positively affected rotary pursuit performance that requires hand-eye coordination.

Neuromuscular control exercises are used to develop joint position sense. However, it is difficult to standardize these exercises and their validations are limited. Tripp et al. (2009) suggest that neuromuscular control exercises with vibration on hand improved Joint Position Sense (Tripp et al., 2009).

In a study examining the change in hand-eye pointing after acute vibration intervention, researches emphasize that visual control is necessary for hand-eye coordination, but suitable conditions have to be created for this. Researches also suggest that pointing performance is affected less by high-frequency vibration (Martin et al., 1998).

Furthermore, researchers note that local vibration could have an enhancing effect on neuromuscular system and sensory structure (Cardinale and Bosco, 2003).

According to the study results, vibration interventions were found to have a positive effect on rotary pursuit
coordination. This effect is considered to be attributable to the ameliorated and sensitized joint position sense of subjects due to acute vibration intervention. It is believed that the results of this research might inform physical education teachers working on hand-eye coordination.

**Conflict of Interests**

The author(s) have not declared any conflict of interests.

**REFERENCES**


Full Length Research Paper

Assessment of 6th grade elementary school students, their parents’ and branch teachers’ perspective on physical education classes

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A total of 437 volunteers including 54 teachers, 218 6th grade students and 102 parents from Beykoz Elementary Schools participated in this study to understand the perspectives of students, families and teachers on Physical Education classes. The perspectives of students, families and teachers of other branches are identified by survey method. Cronbach Alpha Coefficient of the survey is 0.81. SPSS (17.0) package software is used to analyze the data. At the end of the study, it is found that students have more favorable perspectives about Physical Education classes than their parents. Students’ perspective include: more time should be allocated for physical education classes, they enjoy attending these classes, physical education has an important role in daily life, it is not a boring class, and physical education class affects people’s perspectives on their health. In comparison with students’ perspective, teachers’ perspective are: students have relatively more fun in physical education classes, thus they attend these classes more willingly than others, and it is more appealing to them to study in an area related to physical education classes. In conclusion, physical education classes should remain and continue its positive role as a tool of socialization. Physical education is an important part of the entire education system and time and credit that it deserves should be given.

Key words: Physical Education lesson, middle school, point of view.

INTRODUCTION

Lack of knowledge on physical education and sports in our society, inadequate understanding about the importance of physical education classes and physical activity habits on health, and gradually adapting an inactive life style have become the top reasons causing an increase in chronic diseases like obesity, cardiovascular diseases, high blood pressure, diabetes, osteoporosis (Baltaci, 2008).

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While physical education classes enable children to be more physically active, it also helps improve their abilities. It helps to develop personality traits like self-confidence, and to pick up individual work and teamwork skills. It also encourages kids to set goals they can achieve and implement, get socialized and establish positive human relations. They can have goals such as to become more health-conscious, and to improve physical fitness (Finlay and Faulkner, 2005; Harrison et al., 2005).

Other studies on the opinions about physical education classes revealed that the ideas of school administration and teachers have been mostly prioritized. Even though students are the other important part of the education system, there have not been many studies mainly focusing on their opinions. Students and society are the main reasons the schools exist. Because of this, it is really important to seek the opinion of the students that are the biggest and the most important part of the school system (Sisman and Turan, 2001).

While the benefits of physical education classes are undeniable, reducing the class hours in Turkey is a senseless action. Children are the future of our society and physical education class is essential to their physical and mental developments. This research aims to reveal children's, families' and teachers' opinions on physical education classes since they are effective on the time allocated for physical education classes in schools.

In this study, families’ perspective on physical education classes are questioned; whether they perceive them as necessary, whether they encourage their children to attend these classes, and whether they are in an active lifestyle. Other branch teachers are also included to see whether they see physical education classes as vacant times that can be utilized to make up other classes, and whether physical education class is necessary for children etc.

**MATERIALS AND METHODS**

In this study, a descriptive method is utilized to reveal the current opinion of the public that is part of the education system. Since elementary schools in Beykoz are the main population focused for this research, 281 6th grade students, 102 parents and 54 branch teachers are chosen from these schools for sampling. A survey model questionnaire is designed to find out the perspectives of students, parents and teachers on physical education classes. In our study, generally by following the developing phases of the measuring tool successively: item pool, expert opinion, pre-trial; factor analysis and reliability calculation phases are applied. A factor analysis is done to examine the internal consistency and reliability of the survey, and then Cronbach Alpha Reliability Coefficient of the scale is 0.81. The parameter found is within the values and considered as quite reliable in literature (Kalayci, 2009). The survey includes 19 questions; 5 of them are about demographics, and 14 of them are designed as Likert type. The Likert scale questions offer five possible answers: Completely Agree (1), Agree (2), Neutral (3), Disagree (4) and Completely Disagree (5).

**Data collection**

After the required permissions are taken from participants, families and ministry of education, surveys were given to the students, parents and teachers in the schools at the designated time and date defined by the schools’ administrations. Before handing out the surveys, the participants were taught how they should fill them out, and that there is no right or wrong answers; the scale is only for the researcher to read, they should answer the questions honestly, and if they need help, they can ask questions. Students and parents are seated in a way that they are not able to see each other’s answers. They are given 20 min to fill out the survey.

**Analysis of Data**

SPSS (version 17.0; SPSS Inc., Chicago, IL, USA) package software is used to analyze the data. Descriptive statistics and analysis of variance is used to review the data. Also, Tukey test is implemented at the p<0.05 level of significance to detect the differences between students and families and between students and teachers of their opinions about physical education classes.

**RESULTS**

A total of 437 volunteers including 54 teachers, 218 6th grade students and 102 parents participated in this study, to understand the perspectives of students, families and teachers on physical education classes. The results about perspectives of students, parents and teachers on physical education classes are presented in Tables 1 and 2.

There is a statistically significant difference between students and parents on allocating more time for physical education classes, physical education classes are waited for and physical education classes have an importance place in daily life (p<0.01). Also there is statistically significant difference between students' and parents' perspectives on whether physical education classes are boring or not, and if what people learn in these classes make them more careful about their health (p<0.05).

When the students’, parents’ and teachers’ perspectives are reviewed, it can be seen that 71.5% of the students, 44.1% of the parents, 74.1% of the branch teachers think more time should be allocated to physical education classes, 83.3% of the students, 69.7% of the parents, 94.5% of the teachers of other branches think that physical education classes have an important place in daily life, 82.9% of the students, 68.7% of the parents, 68.5% of the teachers of other branches think that people become more careful about their health after physical education classes, 54.8% of the students, 50% of the parents think that covering theoretical topics during bad weather is boring. Also it is seen that 74% of the teachers of other branches think that covering with theoretical topics on sports during bad weather is not boring but it is necessary.

There is a statistically significant difference between
Table 1. Percentage distribution and difference between students’ and parents’ perspective on physical education classes.

<table>
<thead>
<tr>
<th>Students’ and parents’ perspectives</th>
<th>Completely agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Completely disagree</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F %</td>
<td>F %</td>
<td>F %</td>
<td>F %</td>
<td>F %</td>
<td></td>
</tr>
<tr>
<td>Physical education classes are fun</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td>172</td>
<td>61.2</td>
<td>66</td>
<td>23.5</td>
<td>19</td>
<td>6.8</td>
</tr>
<tr>
<td>Parent</td>
<td>56</td>
<td>54.9</td>
<td>33</td>
<td>32.4</td>
<td>5</td>
<td>4.9</td>
</tr>
<tr>
<td>Physical education classes are boring</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td>12</td>
<td>4.3</td>
<td>14</td>
<td>5.0</td>
<td>31</td>
<td>11.0</td>
</tr>
<tr>
<td>Parent</td>
<td>2</td>
<td>2.0</td>
<td>6</td>
<td>5.9</td>
<td>11</td>
<td>10.8</td>
</tr>
<tr>
<td>More time should be allocated for physical education classes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>154</td>
<td>54.8</td>
<td>47</td>
<td>16.7</td>
<td>46</td>
<td>16.4</td>
</tr>
<tr>
<td>Parent</td>
<td>25</td>
<td>24.5</td>
<td>20</td>
<td>19.6</td>
<td>27</td>
<td>26.5</td>
</tr>
<tr>
<td>Physical education classes are waited for</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td>127</td>
<td>45.2</td>
<td>87</td>
<td>31.0</td>
<td>31</td>
<td>11.0</td>
</tr>
<tr>
<td>Parent</td>
<td>20</td>
<td>19.6</td>
<td>44</td>
<td>43.1</td>
<td>17</td>
<td>16.7</td>
</tr>
<tr>
<td>Students attend physical education classes more willingly than other classes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td>81</td>
<td>28.8</td>
<td>78</td>
<td>27.8</td>
<td>65</td>
<td>23.1</td>
</tr>
<tr>
<td>Parent</td>
<td>23</td>
<td>22.5</td>
<td>35</td>
<td>34.3</td>
<td>24</td>
<td>23.5</td>
</tr>
<tr>
<td>Physical education classes have an important place in daily life</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td>148</td>
<td>52.7</td>
<td>86</td>
<td>30.6</td>
<td>34</td>
<td>12.1</td>
</tr>
<tr>
<td>Parent</td>
<td>33</td>
<td>32.4</td>
<td>38</td>
<td>37.3</td>
<td>17</td>
<td>16.7</td>
</tr>
<tr>
<td>Information learned in physical education classes can be used in daily life</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td>98</td>
<td>34.9</td>
<td>112</td>
<td>39.9</td>
<td>39</td>
<td>13.9</td>
</tr>
<tr>
<td>Parent</td>
<td>34</td>
<td>33.3</td>
<td>35</td>
<td>34.3</td>
<td>16</td>
<td>15.7</td>
</tr>
<tr>
<td>There isn’t a more boring class than physical education classes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td>14</td>
<td>5.0</td>
<td>6</td>
<td>2.1</td>
<td>25</td>
<td>8.9</td>
</tr>
<tr>
<td>Parent</td>
<td>8</td>
<td>7.8</td>
<td>3</td>
<td>2.9</td>
<td>7</td>
<td>6.9</td>
</tr>
<tr>
<td>Some of the topics in physical education classes are boring</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td>47</td>
<td>16.7</td>
<td>45</td>
<td>16.0</td>
<td>53</td>
<td>18.9</td>
</tr>
<tr>
<td>Parent</td>
<td>11</td>
<td>10.8</td>
<td>18</td>
<td>17.6</td>
<td>22</td>
<td>21.6</td>
</tr>
<tr>
<td>Studying in a physical education classes or sport related area is appealing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td>49</td>
<td>17.4</td>
<td>36</td>
<td>12.8</td>
<td>87</td>
<td>31.0</td>
</tr>
<tr>
<td>Parent</td>
<td>15</td>
<td>14.7</td>
<td>21</td>
<td>20.6</td>
<td>36</td>
<td>35.3</td>
</tr>
<tr>
<td>I don’t want to miss the programs shown on TV or radio about physical education classes, sport, physical development and healthy living</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td>74</td>
<td>26.3</td>
<td>88</td>
<td>31.3</td>
<td>49</td>
<td>17.4</td>
</tr>
<tr>
<td>Parent</td>
<td>16</td>
<td>15.7</td>
<td>41</td>
<td>40.2</td>
<td>20</td>
<td>19.6</td>
</tr>
<tr>
<td>People become more careful about their health after what they learn in physical education classes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td>136</td>
<td>48.4</td>
<td>97</td>
<td>34.5</td>
<td>28</td>
<td>10.0</td>
</tr>
<tr>
<td>Parent</td>
<td>32</td>
<td>31.4</td>
<td>38</td>
<td>37.3</td>
<td>14</td>
<td>13.7</td>
</tr>
<tr>
<td>Most of the free time is spent with what is learnt in physical education classes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td>55</td>
<td>19.6</td>
<td>66</td>
<td>23.5</td>
<td>62</td>
<td>22.1</td>
</tr>
<tr>
<td>Parent</td>
<td>15</td>
<td>14.7</td>
<td>29</td>
<td>28.4</td>
<td>22</td>
<td>21.6</td>
</tr>
<tr>
<td>It is boring to cover theoretical topics in physical education classes when weather conditions are bad.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td>110</td>
<td>39.1</td>
<td>44</td>
<td>15.7</td>
<td>53</td>
<td>18.9</td>
</tr>
<tr>
<td>Parent</td>
<td>26</td>
<td>25.5</td>
<td>25</td>
<td>24.5</td>
<td>17</td>
<td>16.7</td>
</tr>
</tbody>
</table>

**p<0.01; * p<0.05.

students and teachers on “physical education classes are fun”, “if some topics in physical education classes are boring or not”, and “what people learn in physical education classes makes them careful about their health in their future life” (p<0.05).

A statistically significant difference is detected between students and teachers on students attend physical education classes more willingly than other classes, studying physical education or sport related area is appealing and covering theoretical topics during bad weather is boring or not (p<0.01).

DISCUSSION AND CONCLUSION

Even though physical education classes have many positive effects on children's development, public opinion about the subject has not fully been formed. In one of their studies, Yao and Jin (2005) found out that physical education classes are given less important status in comparison with other study areas, and schools can easily replace this class with literature or mathematics.

According to Aicinena (1991), teachers’ attitudes, class environment, family and school administration play a
great role on students' attitudes towards physical education classes. Teachers' awareness raises the positive attitude towards physical education classes for primary school students.

Hardman (2008), in the study about the status and continuity of physical education found out that even though physical education classes are officially part of the curriculum and have the same status as other classes, the situation is different in practice. More importance is given to other classes and teachers of other branches, and in the cases when teachers are behind the syllabus, time of physical education classes are used to catch up with the syllabus for other classes.

Tannehil and Zakrajsek (1993) found out that students like physical education classes because they have fun, and their opinion towards physical education classes is affected by their social and cultural backgrounds. Students' positive attitude towards physical education classes may help the class activities become more efficient and easy to reach personal goals and general
goals in the class. Also, it can encourage students to voluntarily participate in class activities (Silverman and Scrabits, 2004). On the contrary, students' negative attitude towards physical education classes may reduce the efficiency of the class, student may not participate or care about the class, and thus this may cause problems in the teaching process.

In many countries, class teachers are obliged to teach different study areas even though they do not have any interests in those studies or their study backgrounds are different from those studies. Newton and Newton (2005) argued that class teachers feel insecure especially in physical education classes and; the main reason of this is that they lack the important motor skills physical education teaching requires. DeCorby et al. (2005) indicated that class teachers do not have enough gym space or sportive knowledge to teach proper physical education classes.

Dogan (2000)'s study showed that class teachers consider their inadequate teaching education as their biggest problem while teaching physical education. Xiang et al. (2002) found out that many teachers without a proper teaching education have negative attitude towards physical education classes.

Positive attitude towards physical education classes is considered to be attained at younger ages, like many others (Hicks et al., 2001). They argue that many different and likable physical activities offered in physical education classes help children build a positive attitude towards physical activities and help them gain lifelong habit of doing physical activities. It is claimed that people who do physical activities will be healthier, happier and live high quality lives (Ozer and Aktop 2003).

According to results of this research, students, parents and branch teachers indicated that they are aware of the importance of physical education classes in life, how it helps develop health-conscious individuals and more time should be allocated for physical education classes. However, it is a brute fact that physical education classes should be converted to a more fun experience for children. For children, in order to be able to develop positive attitudes towards physical education classes, the attitudes of the teacher, family and school administration are absolutely significant. For upbringing healthy societies and even to raise record holder athletes, it is an absolute necessity to give the required importance to the physical education classes.

Physical education classes should become important again to build a lifelong physical activity habit. Physical education classes should continue to exist, and it should continue its role as a tool of socialization. Physical education classes are an important part of the whole education system, and the respect and the time it deserves should be given to it. Increasing the importance of physical education classes will help children future of our society grow healthier.

Conflict of Interests

The author(s) have not declared any conflict of interests.

REFERENCES


CITATIONS


The opinions of Masters students about the learning program in the field of teaching Turkish to foreigners

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The purpose of this study is to determine the opinions of Master students about the learning program in the field of teaching Turkish to foreigners. In the study, case study design which is one of the qualitative research methods was used. The population of the study consists of students studying in the Master program with thesis of Teaching Turkish to Foreigners at Turkish Education Department of Institute of Social Sciences in Hacı Bektaş Veli Nevşehir University. In analyzing the datas, N-VIVO 8 program was used. As a result of the study, it was concluded that the studies of teaching Turkish to foreign students are important and necessary in terms of language diffusion, the increasing of the intercultural interaction, providing the Turkish development and gloabalization, the introduction of Turkish culture, having the right to comment on something in the world. Moreover, it has been determined that the program has met the expectations of the students but the students see themselves insufficient about the control of the field and to do scientific studies. The students expressed themselves that the samples were not enough in the field in which they will do scientific research; researches were inadequate; the intensity of the course program was surplus; there was lack of practice activities; they feel insufficient in foreign language and they have trouble doing scientific studies.

Keywords: Teaching Turkish to foreigners, scientific qualities, undergraduate education.

INTRODUCTION

Nowadays, the request to communicate with the members of other nationalities increased in accordance with the necessities of the modern age as a result of factors such as religious, commercial, cultural or some other reasons, and even it has turned into an obligation in some extent. This obligation has brought the need of learning the languages of other nationalities, in other words, need for foreign language. Naturally, this situation has led to the emergence of disciplines that are related to foreign language teaching.

Although it cannot be told when or where the teaching of foreign languages started precisely, it is thought that in the period when the write was not found it has been conducted, in the communities where the language was spoken or as a result of the education by the people who spoke that language (Demircan, 1990: 141).

Although there have been many definitions on language, the meeting point of the descriptions is about how the language is so important. But at this time, beside the importance of language, the power of language also

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comes to the fore. The power of language is parallel with the power of community and affects each other in this direction. Only in our country, moral and material efforts to learn English, from second class at the primary school to the graduate degree, show the power of foreign language today and the enforcement on people. Zeyrek (2001) expressed this situation with giving examples, that the language of the powerful countries has become a kind of material that was sold to poor countries, and the revenues which come from teaching English in the United Kingdom has a significant amount. In recent years, the number of people who shows interest to Turkey and Turkish in various parts of the world is increasing. This situation brings with the desire of learning Turkish.

Although there is no need to learn Turkish as a language of science nowadays, some political and social changes occurred in our region and in the world, led to the emergence of opportunities and obligations to teach and learn Turkish as a foreign language (Avcı, 2002). Bilkân (2002) expressed that Turkish spoken in many parts of the world, has a very old cultural background; has been gaining importance with the new social and political developments and it has been responded with interest in very different geographies and as a natural consequence, the demands for learning Turkish is increasing day by day.

Looking at the history related to the teaching of Turkish as a foreign language, it is seen that the first source is based on the eleventh year. The study, Divanü Lügâti’t Türk by Mahmud of Kasghar is known as the first work in this field. This is true that the interest on Turkish increased in the last thirty years again. That this interest has been noticed and made a state policy is one of the important developments on behalf of the Turkish language teaching. Currently, systematic and programmatic studies have been conducted by many universities in the Turkish teaching centers. These positive developments are important, but it can not be told that Turkish has the value it deserves. Although the studies that are related to Turkish’s foreign/ as a second language in the field of science have accelerated in recent times, it is seen that many people from other countries were already affected by various aspects of Turkish and did researches in this field. Hengirmen (1993: 7) specified that “While the foreign writers wrote two hundred twenty-eight books about teaching Turkish and we wrote one hundred fifty-six books in the 20th century”.

One of the biggest developments in the field of education in Turkish to foreigners is to open the doctoral and master programs with thesis or without thesis under the name of “Teaching Turkish to Foreigners” and “Teaching Turkish as a Foreign Language” in various universities in Turkey. Because the development and progress in a field can only be achieved with academicians in this field. Academicians of the future will be the students trained by these programs. Even if the “Foreign Language Education” is not a new field, “Teaching Turkish as a Foreign Language” can be considered as a new field.

Nowadays, it is needed to improve different teaching techniques such as preparation of books and many other studies apart from the techniques developed by the mostly demanded languages such as English and German. Memiş and Erdem (2013: 317) express this situation as follows: “Foreign language techniques have been developed to teach Western languages. Considering the origin of the languages, the languages other than those of Indo-European family should develop unique teaching methods.” Bilkân (2002) expresses that Turkish at the moment is among the contemporary languages, domestically and abroad it has become one of the world’s language that foreigners tried to learn, and adds that in order to meet these demands under the light of modern education and teaching methods, the preparation of language teaching books in a modern approach has become a necessity.

Certainly the role of academicians in the development of science is important. The basis of this is the postgraduate education. According to Vanş (1972: 27), the postgraduate education is an educational process that aims to raise academicians who will respond to knowledge and to evolving needs of a society with their studies. The postgraduate education has an important role to do research on the problems of the country by the universities, to raise qualified academicians, to prepare the future of communities, to adopt the requirements of knowledge society, to develop their high capabilities and to raise the elites for modern society (Özoğlu, 2001).

Teaching Turkish as a foreign language is a field that could be considered new. The students’ opinions about the master program that raises academicians in this field are as important as academicians who conducted the program. In the literature many studies that have been carried on the student’s opinions on the program who studied in various postgraduate programs, have been come across. However, there were no studies that examined the opinions of the students, about the so-called master program, studying at the master program with thesis to teach Turkish to foreigners. When it is considered that each study in such a new field will be smallest positive step to develop this field and the program, it was observed that such a study is a necessity.

Purpose of the study

The purpose of this study is to determine the opinions of the master students about the learning program in the field of teaching Turkish to foreigners and their own competence. With this purpose, replies were sought for the following questions.

For students;
1. What are their opinions on the importance and necessity of teaching Turkish to foreigners?
2. What are their opinions on the reasons to do master in this field?
3. What are their opinions on the level to meet their expectations of the program?
4. What are the opinions on the field control?
5. What are the opinions on which features or equipment students should have who wish to do master in this field?
6. What are the opinions on the sufficiency to do the scientific studies?
7. What are the opinions on the competency for using the scientific methods and techniques?
8. What are the opinions on the problems that they have faced?
9. What are the request and suggestions about the program?

METHODOLOGY

The model of research

In this study, the case study design which is one of the qualitative methods was used. Case study is a qualitative study design that a case is investigated in-depth. (Yıldırım and Şimşek, 2006).

Study group

The population of the study consists of students who are studying in the Master program with thesis of Teaching Turkish to Foreigners at Turkish Education Department of Institute of Social Sciences at the Haci Bektas Veli Nevsehir University. Because all students in the population are thought to be involved in the study, sample selection has not been needed, additionally. In this study, 25 volunteer students from 30 students doing master in this program have participated.

Data collection tool

In the study, semi-structured interview form was prepared with intent of getting their opinions about the importance and necessity of teaching Turkish to foreigners, the features and equipment students should have in this program, the student’s reason for doing master in this program, the competencies on scientific studies, field control, the future of program, the competence of using the scientific methods and techniques, the problems that they have faced, their request from the program and suggestions regarding the program. Interviews are divided into three groups according to the formation of construction; structured, unstructured and semi-structured. (Merriam, 1998: 73; Ekiz, 2003: 62; Karasar, 2004: 167-168; Lichtman, 2006: 118). The interview that aims to reveal individual’s opinions, experiences and feelings is one of the frequently used data collection tools in qualitative research (Yıldırım and Şimşek).

Validity and reliability of data collection tool

For the scope of validity of the questions used in the study, the two faculty members working in the Department of Educational Sciences and at Turkish Education Department of Education Faculty at the Hacı Bektas Veli Nevşehir University have been consulted. In accordance with the feedback from both, the final shape of the data collection tool has been given. The individuals have been participated as voluntarily in the study and it was stated that the names will be kept confidential. In addition, the opinions of the people who participated in the research have been quoted directly in the results section and thus the reliability and validity of data was tried to be ensured. In qualitative studies, to explain how the results achieved and report the collection of data in a detailed manner is among the most important criteria to provide the validity (Yıldırım and Şimşek, 2006).

Data collection and analysis

The data were collected by a questionnaire form consisting of nine semi-structured questions. Semi-structured and open-ended interview questions were asked to the 25 students by researchers during the face to face interviews. Content analysis was used in this study and in the analysis of the data, the N-VIVO 8 program was used. While doing analysis, data were encoded, classifications have been made, data were created and interpreted with the arrangement of code and themes.

The content analysis is carried out in the way of encoding of data, finding of theme, the arrangement of codes and themes, identification and interpretation of findings (Yıldırım and Şimşek, 2006). In the study, direct citations were given in the text and they were written as they are without no change within the apostrophes. Also, the explanatory abbreviations were used at the beginning of the citations to indicate where the quotations were taken. For Example:

When the quotations were taken from the interview, an explanatory mark like “S-11 M” was written to the beginning of the sentence. The abbreviations stand for like below

“S” = Student (Source Person)
“11” = The frequency of source persons
“M” = Male (the sex of the students / -male, female-)
fields as “diffusion of the language” by 13, “intercultural interaction” by 7, “the development of the language” by 5, “the introduction of the culture” by 5, “the conservation of Turkish” by 5, “have a say in the world” by 4, “the globalization of the language” by 4. Some of those responses that the students who participated in the study gave to these questions are as follows:

**S-11 M** He said that “To destroy a nation, it is enough to destroy its language. For continuity of our nation’s existence, Turkish language and culture should be taught and spread much more people. For existence, unity, strength, peace to teach Turkish language is our national service.” He also expressed that teaching Turkish to foreigners is important and necessary for diffusion of Turkish language and culture.

**S-14 M** “It is important…” he said. “Foreigners began to do this job for years ago and became dominant in the world. We woke up a little late.” He expressed that teaching Turkish is important and necessary for having a say in the world.

**S-23 M** “Because of Turkey’s growing role in the world politics and being in the middle of a boiling boiler geographically and due to the heirs of a great state, Turkish language has been important and will continue to do so. To have a say in the world, Turkish language should be widespread in the world…” He expressed that teaching Turkish to foreigners is important on behalf of having a say in the world.

**S-19 M** With saying that “It is important to transport Turkish, which is one of the oldest, strongest and most spoken language of the world, to much more people…”, he expressed that teaching Turkish to foreigners is important on behalf of diffusion of Turkish language.

**S-24 F** “To teach Turkish to foreigners is important and necessary to move our language to a different dimension in the international field and to improve the intercultural interaction.” She expressed her opinion that to teach Turkish to foreigners is important and necessary for globalization of the language and increasing of intercultural interaction.

**S-4 F** With saying that “Each language has its own reasons to learn. Turkish language is an attractive language in the world now… Apart from that, there is a question of the foreigner’s immigrations or settlements to Turkey. For making these people integrated into our country and society, to teach Turkish to foreigners is a need.” she expressed that to teach Turkish to foreigners has become a need as a result of various causes in our country and in the World.

As a result of these findings in this study, it can be said that to teach Turkish to foreigners is important and necessary for diffusion of Turkish. At the same time, it can be said that to increase the interaction between cultures; to provide language development and universalization, to introduce Turkish culture, to have a say in the world, to conserve Turkish effectively and to have a need to teach Turkish to foreigners became important and necessity.

**Reasons for preferring the Master program with Thesis of Teaching Turkish to Foreigners of Undergraduate Students.**

In the study, to determine the reasons to prefer the masterprogram with thesis of teaching Turkish to foreigner for undergraduate students, the question “What are the reasons to do your master studies at Masterprogram with thesis of teaching Turkish to foreigner?” was asked. In accordance with the student’s answers, sub-themes of the themes created for this question and the model that shows the number of installation is given in Figure 2.

As shown in Figure 2; responses regarding the reasons to prefer the masterprogram with thesis of teaching Turkish to foreigners vary. When the students’ answers to this question were analyzed; they expressed the reasons to prefer this program “to show interest to the field” by 12, “it is a new field” by 11, “the request of spread of Turkish language and culture” by 9, “self-realization request” by 7, “environment’s encouragement” by 5, “future promising future” by 4. Some of those responses that the students who participated in the study gave to these questions are as follows:

![Figure 1. The model of the importance and necessity of teaching Turkish to foreigners.](image-url)
Students’ opinion on level of their master programmes’ capacity to meet their expectations

Students were asked whether their master programmes had met their expectations in order to determine the level of meeting expectations of the programmes. Figure 3 shows the sub-themes of the main theme formed accordingly with the question.

As it is seen from the figure, the answers that students gave to the question are various. When the students’ answers are analysed, it is clear that 14 of them said the programme met the expectations, 6 of them said it did not meet the expectations, and 5 of them partially got what they wanted from the programme. 5 of the students expressed that the programme did not meet the expectations in terms of the intensity, 1 said that content of the programme was not satisfying while 7 of the students were satisfied with the education that they received, 7 of them were contented at the point of meeting the needs and interests, and 4 of them were pleased with the content of the programme. Some of the answers elicited from the students who participated to the research are below:

S-3 F “It met my expectations. Moreover, I think that it met my needs and interest more than I expected.” By saying this, the student stated that the programme met the needs and interests apart from the expectations.

S-4 F “It partially met my expectations although it is a new programme and field. Because of my field, I did not have difficulties.” By this answer, the student reported that the programme partially met her expectations and she did not have difficulties in the education process.

S-10 F “The programme met my expectations in terms of the schedule of the courses and the educators.” By this saying the student expressed that her expectations were met in terms of the education received and the content of the programme.

S-23 M “It did not meet my expectations but it does not affect me. I can develop myself on my own.” As it can be clearly understood, the student is not contented with the programme.

S-12 F “It mostly met my expectations. Instructors’ interest is more than I expected.” By this sentence, the student stated that the programme met her expectations in terms of the educators.

According to this, it can be concluded that master degree programme with the thesis “Turkish Language
Teaching to Foreigners” meets the expectations of students, and the education received in the programme, meeting needs and interests and the content of the programme are effective.

**Students’ opinion related to their adequacy in their master programme that they study**

In order to elicit their ideas on their adequacy in the master programme, students were asked the question “How do you evaluate yourself for your adequacy in the master programme that you study?” Figure 4 shows the frequencies and sub-themes of the main theme formed accordingly with the question.

As it is seen in Figure 4, the answers elicited from the students are various. 13 of students stated that they were inadequate in their field of Master while 7 of them said that they were partially adequate and 5 of them reported that they were fully adequate in their field. 7 of students who say they are inadequate also stated that the reason for their inadequacy is the need for time, 4 of them said it is a new field for them, 2 of them reported the reason as not receiving the related education in undergraduate level, 2 of them stated that their inadequacy is because of the courses that they received in their undergraduate level, and 2 of them said that they are inadequate because they did not receive education in Turkish-medium university. On the other hand, 3 of the students who think them as adequate stated the reason as the experience in TÖMER (Turkish Teaching Center), 2 of them stated that the education in the programme made them adequate. Some of the answers elicited from the students who participated to the research are below:
S-13 F “Because I am being educated in a Turkish language teaching centre, I have a chance to evaluate my theoretical information. We are just at the beginning, but I think I have much information.” By this sentence, she stated that she was adequate in the field. This was because she was being educated in a Turkish-medium course.

S-16 M “I do not perceive myself as fully adequate. The reason is that I am at the beginning. I think I will be adequate in the future.” By saying this, the student expressed that he was not adequate and he needed time for that.

S-18 M “I am inadequate in this area. Because it is a new field and I did not take this course in undergraduate level. It is mostly related to the newness of the field, not me.” By this explanation, the student said that he was inadequate in the area because of the field’s being new and not taking this course in his previous education.

S-19 M “I have learned about the field while doing my bachelor degree. I did not have detailed information about its content. I have taken this course for once, but it was not effective. Now, I do not have enough adequacy but it will be better as the time goes by.” Stating this, the student said that he was inadequate and this was because of the ineffectiveness of the course that he took in his bachelor degree.

S-11 M “When I applied for the master programme I was not adequate in this field. With the support of my instructors and contribution of my researches, I became adequate. From this point, I think I am good.” In this answer, he reported that he was adequate in the field, and in accomplishing this adequacy his individual work and his instructors were very effective.

In consideration of these findings, it can be said that students perceive themselves as inadequate in the field of this master programme that they registered. The reasons for this perception can be the need for time to accomplish the adequacy, the field’s being new, not receiving the education in undergraduate level, ineffectiveness of the courses that they took in undergraduate level, and not having graduated from the Turkish Teaching Department.

Students’ opinion on the attributes and qualities that a student in the Master Programme with the Thesis “Turkish Language Teaching to Foreigners” has to have

Students were asked “Which attributes and qualities does a student in the Master Programme with Thesis of Turkish Language Teaching to Foreigners have to have?” in order to elicit answers about their opinion on the attributes and qualities that a student in the Master Programme with the Thesis “Turkish Language Teaching to Foreigners” has to have. Figure 5 shows the frequencies and sub-themes of the main theme formed accordingly with the question.

As it can be seen in Figure 5, students’ answers to the question various. 11 of the students gave the answer “adequacy in mother tongue”. 8 of them answered the question with “knowing a foreign language” while 5 of them emphasized the importance of “interest in the field”. 5 of them said “ability to teach and learn” is a must and 5 of them said “investigator personality” is significant. 4 of them stated that the attribute should be “adequacy in Turkish culture” while 2 of them stated that it should be “the ability to learn a new language”. 2 of them told that “being open to novelty” is an attribute of a student in the programme and 2 of them told “thinking globally” can be a quality. Some of the answers elicited from the students who participated to the research are below:

S-11 M “A student should be able to learn a new language, should have an investigator personality, should think globally, and should know how to teach and learn.”
Students' opinions on their adequacy in scientific studies (seminar, thesis, article, report, project, book, and so on) that they think of doing during their education in their master programme

In order to determine students' opinion on their adequacy in scientific studies (seminar, thesis, article, report, project, book, and so on) that they think of doing during their education in their master programme, students were asked “What do you think about your adequacy in scientific studies (seminar, thesis, article, report, project, book, and so on) that you think of doing during your education in your master programme?” Figure 6 shows the frequencies and sub-themes of the main theme formed accordingly with the question.

As it can be seen in Figure 6, when students' answers to the question are analysed, it is clear that 21 of them perceive themselves as inadequate while 4 of them perceive themselves as adequate. Some of the answers elicited from the students who participated to the research are below:

S-10 F “I do not think I am adequate but in progress of time I will be improved.” By this sentence, the student stated that she was inadequate in doing scientific research.

S-11 M “I do not consider myself adequate enough. I need to improve myself by reading more articles, theses, and communiques. Experience is also necessary after gaining information. Therefore, I need to fully learn both the method and basic principles.” By saying this, the student did not consider himself adequate enough.

S-18 M “A student in this field should speak and Turkish well and should know the characteristics of the language. The programme should be in connection with the Turkish Teaching department.” Here, the student expressed that students in this field should be adequate in Turkish

In consequences of the research, it can be said that students who are studying Master Programme with Thesis of Turkish Language Teaching to Foreigners should have the full adequacy in every aspect of Turkish, should know a foreign language, and should have interest in the field, investigator personality, and adequacy in Turkish culture, ability to learn a language and globally thinking.
In this context, it could be said that students find themselves inadequate in doing scientific research.

**Students’ opinions related to their adequacy in using scientific methods and techniques concerning the research projects they have done or they will do**

In order to determine students’ adequacy in using scientific methods and techniques concerning the research projects they have done or they will do, students were asked the question “What do you think about your adequacy in using scientific methods and techniques concerning the research projects that you have done or will do?”. In accordance with answers given by students, Figure 7 shows the frequencies and sub-themes of the main theme formed accordingly with the question.

As it is seen in Figure 7, the answers regarding adequacy in using scientific methods and techniques concerning the research projects that students have done or will do are various. When the answers given by students are examined, it is observed that 19 of them find themselves inadequate in this matter while 6 of them find themselves adequate. Some of the answers elicited from the students who participated to the research are below:

**S-4 F** “What I am the most uncomfortable with in this programme is that I do not have full knowledge of scientific methods and techniques. In other words, I do not know where to start to work, how to start, and which method I should apply.” By saying this, she stated that she did not feel adequate for using scientific methods and techniques.

**S-6 F** “I think I do not have full knowledge of scientific methods that I can use in the subject I determine.” By saying this, she stated that she did not consider herself adequate for using scientific methods and techniques.

**S-15 F** “I can interpret data in Statistic. I think I can implement the methods and techniques.” By saying this, she stated that she felt adequate for using scientific methods and techniques.

**S-19 M** “It is necessary to have full knowledge of computer as our age requires it. I began to improve myself after starting this programme. Thanks to this, I managed to learn how to use methods and techniques over time.” By saying this, he stated that he felt adequate for using scientific methods.

**S-24 F** “I still conduct studies in this field, and attend training courses, seminars and symposiums. I have a considerable amount of adequacy in using scientific methods and techniques.” By saying this, she stated that she conducted scientific studies and felt adequate for using scientific methods and techniques.

In this context, it can be stated that students do not find themselves adequate for using scientific methods and techniques.

**Students’ opinions about the problems that they experience in Master Degree Programme with the thesis “Turkish Language Teaching to Foreigners”**

Students were asked the question “What are the problems that you experience in master degree programme with the thesis “Turkish Language Teaching to Foreigners” in order to determine the problems that they experience in Master Degree Programme with The Thesis “Turkish Language Teaching to Foreigners”. In accordance with the answers given by students, Figure 8 shows the frequencies and sub-themes of the main theme formed accordingly with the question. As it is seen in Figure 8, the answers elicited from the students regarding the problems that they experience in master degree programme with the thesis “Turkish Language Teaching to Foreigners” are various. When the answers elicited from the students to this question are examined, it is observed that 15 of them reported that problems stem from themselves, 8 of them reported that problems stem from the programme while 7 of them reported that problems stem from the field. It has been determined that 7 of the students, who experience field related problems, experience due to “lack of sources” while 2 of them experience due to “lack of population and sample”; 5 of the students who experience programme related problems experience these problems due to “intensiveness of lessons” while 4 of them experience due to “lack of practice; 7 of the students who experience individual related problems experience due to “adequacy in scientific methods and techniques” while the remaining 7 students experience due to other factors.”
students”, 5 of them due to “not having full knowledge of the field”, other 5 due to “inadequacy in foreign language” while 2 experience due to “not having full knowledge of Turkish”. Below are some of the answers given to this question by the students who have participated in the research.

S-15 F “Because I do not have full knowledge of the field, I have difficulty in determining the fields in which I can conduct study. Considering what I have gained in Turkish language teaching centre, I have come to realise that practice and theory are considerable different. In the programme, there should be activities intended for practice.” By saying this, she stated that she experienced field related problems and mentions that there should be practices for the purpose of studies in Turkish language teaching centres.

S-13 F “Lack of sources, lack of people to be chosen as sample... In addition, problems that I experience because sources are written in a foreign language and I do not know a foreign language...” with this statement, she mentioned that she experienced problems with lack of sources, lack of population and sample and being unable to read sources written in foreign languages.

S-25 F “The fact that studies conducted in Turkey in this field are insufficient and those conducted in terms of foreign language are written in foreign languages is the most important problem that I encounter.” By saying this, she stated that there was a lack of sources in the field in question, and the fact that there were more sources written in foreign languages than those in her native language, creates a problem for her.

S-4 F “I can say as foreign language teacher that I lack grammatical terms though my native language is Turkish. I need to overcome this with language studies. I feel inadequate for this.” With this statement, she mentioned that she experienced problems with not having full knowledge of Turkish.

S-3 F “Not doing practice in Turkish language teaching centres is a problem in terms of not gaining experience.” By saying this, she stated that she experienced problems with doing practice in Turkish language teaching centres.

Considering the answers given above, the problems that students experience in master degree programme with the thesis “Turkish Language Teaching to Foreigners” can be said to be lack of sample in the field in which they mean to conduct study, lack of sources, lack of practice, students’ not having full knowledge of the field, intensiveness of lessons in the programme, not having full knowledge of Turkish, inadequacy of foreign language knowledge and being inadequate for doing scientific research. In addition to this, it can be said that students experience individual related problems much more.

**Students’ opinions related to their demands and suggestions regarding Master Degree Programme with the thesis “Turkish Language Teaching to Foreigners”**

Students were asked the question “What are your demands and suggestions regarding master degree programme with the thesis “Turkish Language Teaching to Foreigners” in order to determine students’ opinions about their demands and suggestions regarding master degree programme with the thesis “Turkish Language Teaching to Foreigners”. In accordance with the answers elicited from the students, Figure 9 shows the frequencies and sub-themes of the main theme formed accordingly with the question.

As it is seen in Figure 9, even though students’ answers concerning their demand and suggestions regarding the programme are various, it is seen that the demands centre on implementation of practice lessons in
Turkish language teaching centres. When the answers elicited from the students to this question are examined, it is observed that 6 of the students support “implementation of obligatory practice lessons”, 7 of them “increasing the number of academic studies”; while 5 of them advocate “opening up undergraduate study” and 2 support “foreign language courses. Some of the answers given by the students who have participated in the research are as follows:

S-4 M “I think we should frequently do practice lessons in Turkish education centres as our department requires it.” By saying this, he stated that he thought there should be obligatory practice lessons in Turkish language teaching centres.

S-17 M “Undergraduate study should be opened up and the programme should be enhanced with foreign language education.” By saying this, the student demanded that this programme provide education at a level of undergraduate study and foreign language education be provided.”

S-9 F “Undergraduate study should be opened up and the programme should be enhanced with foreign language education” By saying this, the student stated that lessons should be done in a practical way.

In this context, it can be said that to increase the number of academic studies, implementation of obligatory practice and foreign language lessons to be applied in Turkish language teaching centres and efforts to open up undergraduate study could be beneficial.

DEBATE, RESULT AND SUGGESTIONS

The fact that learning a foreign language is a necessity at some points in our age cannot be denied. This necessity has also become a matter of great importance for Turkish language due to the same or different reasons. Studies of Turkish language teaching which have become an obligation rather than a necessity and need in recent years have become the country’s policy. Systematic and planned studies are carried out in many universities by Turkish language teaching centres. The fact that Master Degree Programmes with thesis or without thesis and doctoral programme have been opened up in some universities with the names of “Turkish Language Teaching as Foreign Language” and “Turkish Language Teaching to Foreigner indicates that this field has become a discipline. Turkish teaching as foreign language needs improving because of its being a new field. Asking opinions of students who study in Master Degree Programme which trains academicians in this field, is as important as asking opinions of academician who run this programme. This programme has started based on this idea. Accordingly, an effort was made to determine opinions of students involved in the Master Degree Programme with The Thesis “Turkish Language Teaching to Foreigners” about this programme and their adequacy.

When finding about students’ opinions about importance and necessity of Turkish language teaching have been examined, it has been found that they find Turkish Language Teaching to Foreigners important due to such reasons as the spread of the language, the increase in cross-cultural interaction, promotion of the improvement and the universalization of the language, promotion of Turkish culture, having a voice in the world, protection of Turkish language and the necessity of Turkish language teaching to foreigners. In the research projects conducted on students who learn Turkish as their foreign language (Koçer, 2013: 165; Çangal, 2012: 89) it has been found that the reasons why students learn Turkish include business, education, livelihood needs, trade, personal interest and needs. “Making your presence felt among other cultures and protecting your own culture from wiping out can be accomplished through protecting your own language and making it one of the most-spoken languages in the world. Societies who have improved their languages and kept it have prolonged their existence” (Göçer, 2009: 1300). In this context, it is necessary that special attention be given to these studies conducted in terms of this need being met due to the desire of foreigners to learn Turkish, the spread of Turkish language across the world, promotion of Turkish culture and cross-cultural interaction.
Another issue scrutinised in the research is the reasons why students do their master degree in post graduate programme with the thesis “Turkish Language Teaching to Foreigners”. These reasons are factors like students’ interest in this field, its being a new field, the desire to spread Turkish language and culture, desire for self-fulfilment, encouragement of others and its being promising. Gömleksiz and Yıldırım (2013) and Ören et al. (2012) whose research results show parallelism with one another have implemented a research on the students who do master degree and have found that what students expect of master degree most are to have a good career, be master of their field, learn scientific research methods, expertise in their field. In the research conducted by Savaş and Toprak (2005), it has been found that students tend to do master degree in order to benefit from student rights, and have an advantage in academic career and business life.

Another finding that we have achieved through students’ answers is that Master Degree Programme with The Thesis “Turkish Language Teaching to Foreigners” has met students’ expectations and this is because the education provided by the programme has met students’ expectation and the content of the programme is efficient. Similarly, in the research conducted by Gömleksiz and Yıldırım (2013), it has been determined that most of the students stated their opinions that master degree education had met their expectations.

In order to determine students’ opinions about having full knowledge of the field in which they study, students were asked about their opinions. As result of interviews, it has been found that they find themselves inadequate for having full knowledge of their field because of the fact that not having studied in a department related to Turkish Language Teaching causes them to find themselves inadequate for having full knowledge of field, and some other reasons that include the need for time to have full knowledge of the field, the field’s being new, now receiving its education during undergraduate study, inadequacy of the lessons provided during undergraduate study. In the study conducted by Aslan (2010) on the students who receive Turkish language education in their Master Degree Programmes, it has been found that most of the student feel adequate for having full knowledge of the field and those who feel adequate, have full knowledge of Turkish literature, but feel inadequate for having full knowledge of foreign literature.

The questions were asked to students in order to obtain their opinions about the qualifications that students, who study in the Master Degree Programme with The Thesis “Turkish Language Teaching to Foreigners”, should have. When the findings have been examined, it has been found that the students who study in the Master Degree Programme with the thesis “Turkish Language Teaching to Foreigners” should have full knowledge of Turkish, know a foreign language, have an interest in the field, the ability to learn and teach, and investigative characteristics as well as having full knowledge of Turkish culture, the ability to learn foreign language and to think globally.

When students’ opinions about their adequacy in scientific studies (seminar, thesis, article, communiques, project, book etc.) have been examined, it has been found that students find themselves inadequate for conducting scientific study. In Aslan (2010)’s study, it has been found that some of the student feel inadequate for writing article while most feel inadequate for writing book. In the research, in order to determine their opinions about using scientific methods and techniques, students were asked questions. It has been found that students do not find themselves adequate for using scientific methods and techniques. In Aslan (2010)’s study, similarly, it has been found that all students feel inadequate for using scientific research methods. In the research conducted by Arabacı and Akıllı (2013), it has been discovered that postgraduates feel inadequate in terms of scientific research methods. This negative situation could stem from the fact that the students, whose opinions were asked, are in first semester of master degree study year and they are at the beginning of the studies that could improve them.

Another matter scrutinised in the research is students’ opinions about the problems that they experience in The Master Degree Programme with The Thesis “Turkish Language Teaching to Foreigners”. As result of the findings, it has been found that students experience problems in Master Degree Programme with The Thesis “Turkish Language Teaching to Foreigners” due to lack of sample in the field in which they mean to conduct scientific study, lack of sources, intensiveness of lessons in the programme, lack of practice, students’ not having full knowledge of the field as well as Turkish, adequacy in foreign language and students experience problems related to themselves more. According to Meydan (1994)’s study, most of the students registered in Ankara University Social Science Institution find themselves inadequate in term of foreign language. When studies are examined, it is observed that students who receive postgraduate education in different fields have adequacy in foreign language. (Gürdal et al., 2008; Kaya, 2007; Aslan, 2010)

Finally, In order to determine students’ demands and suggestions regarding master degree programme with the thesis “Turkish Language Teaching to Foreigners”, their opinions were asked. When findings have been examined, it has been found that increasing the number of academic studies, implementation of obligatory practice lessons and foreign language courses to be organized in Turkish language teaching centres and opening up undergraduate study could be beneficial. In the research conducted by Gömleksiz and Yıldırım (2013) on postgraduates, students demanded to focus on practices during study period. In the research Demirbolat (2005) conducted, students suggested that the programmes should be for practise and 1-year obligatory
foreign language education should be provided. Within the scope of the findings in this study, possible suggestions are as follows:

1. Considering the importance and necessity of Turkish Language Teaching to Foreigners, special attention should be given to the studies in this field.
2. Students should be provided with efficient foreign language education in the master degree programme “Turkish Language Teaching to Foreigners”.
3. In order to increase experience and motivation of the students who receive postgraduate education in this field, obligatory practice lesson(s) should be implemented in Turkish language teaching centres.
4. In order students to specialise and have full knowledge of the field, undergraduate studies in the field of Turkish Language Teaching to Foreigners should be opened up.
5. Special attention should be given to teaching students the scientific methods and techniques, as well as attention to actions enabling students to apply such acquired skills.
6. The focus should be on scientific / academic studies related to this field such as workshop, symposium, congress, conference and thus enabling qualified studies related to this field to be more and literature to grow greater as well as enabling a variety of people to benefit from these studies.

Conflict of Interests

The author has not declared any conflict of interest.

REFERENCES

Çangal S (2013). The Language Needs Analysis In Teaching Turkish To Foreigners: An Example of Bosnia-Herzegovina (Unpublished Master’s Thesis), Ankara: Gazi University, Institute of Educational Sciences.
Göçer A (2009). The Assessment Of The Attitude Toward Target Language Of High School Students Learning Turkish As A Foreign Language In Turkey In Term Of Certain Variables. Turkish Studies - International Periodical for the Languages, Literature and History of Turkish or Turkic 4(8):1298-1313.
Using the assessment model for developing learning managements in enrichment science classrooms of upper secondary educational students’ outcomes in Thailand

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The aim of this work is to develop and investigate the model for assessing learning management on the enrichment science classrooms in the upper secondary education of the Development and Promotion of Science and Technology Talents Project in Thailand. Using the research methodologies with the four phases: to investigate the background of the theory and thinking on learning management for enrichment science classes was assessed; to invent and build the enrichment science classes learning management model for trying out this model at school class was developed; using the 5-ranking questionnaire scale of the quantitative data for responding students’, teachers’, and schooling administrator’ perceptions were used; and using qualitative data; students’ interviews were selected of 5% students were interviewed and the at Grade 10, 11, and 12 level at their learning environment classes were observed at Sarakham Pittayakom School, an enrichment science classes. Statistically significant with the frequency, percentage, mean, and standard deviation were analyzed. It was found 7-Factor assessments, namely; heading assessment, purposing assessment, assessing goal, typing assessment, assessor, criteria assessment, and user of information communication. Focused on the factors assessing goal and typing assessment were the most important assessment scale for suitability, truth, possibility, and using opportunity, indicated at highest level.

Key words: Assessment model, enrichment science classrooms, enrichment science students, learning management, upper secondary education, Thailand.

INTRODUCTION

Education system in Thailand

Education in Thailand is provided mainly by the Thai government through the Ministry of Education from pre-school to senior high school. A free basic education of twelve years is guaranteed by the constitution, and a minimum of nine years’ school attendance is mandatory. Formal education consists of at least twelve years of education.
basic education, and higher education. Basic education is divided into six years of primary education and six years of secondary education, the latter being further divided into three years of lower- and upper-secondary levels, respectively. Kindergarten levels of pre-primary education, also part of the basic education level, span 2–3 years depending on the locale, and are provided variable (Ministry of Education, 2010).

School structure in Thailand

The school structure is divided into four key stages: the first three years in elementary school, the first primary level or Prathom 1–3, are for age groups 7–9 (Grade 1-3); the second primary level or Prathom 4 through 6 are for age groups 10–12 (Grade 4-6); the third lower secondary level or Matthayom 1–3, is for age groups 13–15 (Grade 7-9). The upper secondary level of schooling consists of Matthayom 4–6 for age groups 16–18 (Grade 10-12), and is divided into academic and vocational streams. There are academic upper secondary schools, vocational upper secondary schools and comprehensive schools offering academic and vocational tracks. Students who choose the academic stream usually intend to enter a university. Vocational schools offer programs that prepare students for employment or further studies.

Admission to an upper secondary school is through an entrance exam. On the completion of each level, students need to pass the NET (National Educational Test) to graduate. Children are required to attend six years of elementary school and at least the first three years of high school. Those who graduate from the sixth year of high school are candidates for two decisive tests: O-NET (Ordinary National Educational Test) and A-NET (Advanced National Educational Test). The school year is divided into two semesters. The first begins in the beginning of May and ends in October; the second begins in November and ends in March.

The years from 2001 to 2006 showed some improvements in education, such as computers in the schools and an increase in the number of qualified native-speaker teachers for foreign languages. Experiments with restructuring the administrative regions for education or partly decentralizing the responsibility of education to the provinces were conducted. By 2008, however, little real change had been made, and many attempts to establish a clear form of university entrance qualification had also failed due to combinations of political interference, attempts to confer independence (or to remove it) on the universities, administrative errors, and inappropriate or mismatched syllabuses in the schools.

Thai student IQs

On 27 May 2015, the Ministry of Public Health released Thai student IQ survey results. They indicate that the IQ of Grade 1, students have dropped from 94 in 2011 to 93. The international standard is 100. It is highly possible that Thailand’s education system is harming student IQs. While the IQ of pre-school students is acceptable, IQ drops as primary schooling commences, suggesting a need for changes at schools. The IQ of students in rural areas is considerably lower, at just 89. This difference persists at university. While studies have found the IQ of Bangkok university students averages 115, the IQ of provincial university students is 5-8 points lower (Maxwell and Kamnuansilpa, 2015). Alarmingly, the low IQ levels in the recent survey confirm continuing high levels of intellectual disability: IQ levels lower than 70, also termed "mildly impaired or delayed". The average global percentage of such students is 2%. However, a previous 2011 survey found that 6.5% of Thai students scored in this range. The recent results suggest intellectual disability in some rural areas could now be up to 10% (Maxwell and Kamnuansilpa, 2015).

One cause of lower IQs might be traced to nutrition. WHO research suggests iodine deficiency accounts for losses of between 10–15 IQ points. However, according to Thailand’s 2012 Multiple Indicator Cluster Survey, only 71% of Thai households consume enough iodised salt, falling to 54% in the poorest households. There is again a huge regional disparity, with 82% of households in Bangkok and only 54% of households in Thailand’s northeast consuming adequately iodised salt. The regions with the lowest IQs are those same areas with the highest iodine deficiency. Students in ethnic minority areas score consistently lower in standardized national and international tests. This is likely due to unequal allocation of educational resources, weak teacher training, socio-economic factors (poverty) and lower ability in the Thai language, the language of the tests (Draper, 2014).

An assessment of the quality of secondary education students

An assessment of the quality of secondary school education has indicated that only 40% of 3 secondary learners received adequate preparation for readiness in learning before attending university. Although Thailand has a very high percentage of youth learners attending child development centers, if such centers are not supported properly through strengthening capacity and management, the quality of secondary development and young children’s preparation for primary and secondary schooling can be seriously affected (UNESCO, 2011). Most students attend formal educational institutions administered by the Ministry of Education and about half of these children enroll in learning childcare/development centers of the formal education system, mainly administered by the Department of Local Administration.
The Office of Basic Education Commission (OBEC) prepares the basic core curriculum and disseminates it to all Educational Service Area (ESA) Offices for distribution to parents, guardians and teachers, so as to ensure that all key stakeholders combine efforts to provide school children with quality education. The 10-Year Plan and Policy for the Basic Educational Secondary Development (2006-2015) provides a blueprint for achieving universal student education for all Thai children. The 10-Year Plan and Policy gives priority to three main strategies, namely; (1) to support youth development; (2) to support parents and other stakeholders; and (3) to promote an environment that facilitates secondary educational learners.

The Institute for the Promotion of Teaching Science and Technology (IPST)

There is an institute of the Ministry of Education in Thailand, the Institute for the Promotion of Teaching Science and Technology (IPST) was established in 1972 supported by UNDP. Now an agency under the direction of the Ministry of Education; to research, develop and advocate science, mathematics and technology, such as; curricula, teaching/learning process, media and materials then publicize them to all relevant organizations, to develop teachers and education personnel in science, mathematics and technology to help they gain cutting-edge knowledge and capacity in using technology and planning lessons effectively focusing on learner’s development, To research, develop and promote the standard evaluation to enhance the quality of teaching and learning science, mathematics and technology, and to promote the culture of science and technology in Thai society especially among new generations (IPST, 2011).

The Development and Promotion of Science and Technology Talents Project (DPST)

The Development and Promotion of Science and Technology Talents Project (DPST) has been founded in 1984, aimed to produce talented personnel in Science and Technology who will make innovations contributed to the development of Thailand. Science and Technology play an important role in the development of the country and have become more and more important. Less and less science talented students enroll in the faculty of science. Most students choose the subjects which will lead to careers with high income e.g. Medicine, engineering. The DPST project encourages more students to choose science as their major by means of financial and academic supports that aimed to produce scientists/researchers in the fields of immediate need for the country and hope to produce 120 scientists/researchers each year. The project partners are the Office of the Basic Education Commission, Office of the Higher Education Commission, Ministry of Science and Technology, and the Institute for the Promotion of Teaching Science and Technology (IPST).

DPST centers are at the 8 upper secondary schools throughout of Thailand; such as Bodindecha (Sing Singhaseni) school, Bangkok, Samwittayalai school, Bangkok; Sriboonyanon school, Nontaburi; Phrapathom Wittayalai school, Nakornpathom; Yupparaj Wittayalai school, Chiangmai; Kaennakorn Wittayalai school, Khonkaen; Suranaree School, Nakorn Rajchasima.; and Hatyai Wittayalai school, Songkha; and DPST students automatically enroll to their relative universities from 195 enrichment science classes from 195 upper education schools on enrichment programs in science and mathematics will enter the DPST Centre Universities; Chulalongkorn University, Mahidol University, Kasetsart University, Silpakorn University, Chiangmai University, Khonkaen University, and Prince of Songkla University. The Outcomes of DPST Projects Organisations in Thailand provide more scholarships to study science and mathematics, the Ministry of Education promotes the science enrichment class. Pathways into DPST, Enter the competition at the end of grade 9 to upper educational center school, and enter the competition at the end of grade 12 to the center higher educational universities (Sangtong and Kreetong, 2011).

Definition of assessment

Assessment may refer to education assessment; the process of documenting, usually in measurable terms, knowledge, skills, attitudes, and beliefs. Assessment can focus on the individual learner, the learning community (class, workshop, or other organized group of learners), the institution, or the educational system as a whole (also known as granularity). The final purpose of assessment practices in education depends on the theoretical framework of the practitioners and researchers, their assumptions and beliefs about the nature of human mind, the origin of knowledge, and the process of learning (Wikipedia, the Free Encyclopedia, 2014).

Assessment is vital to the education process. In schools, the most visible assessments are summative. Summative assessments are used to measure what students have learnt at the end of a unit, to promote students, to ensure they have met required standards on the way to earning certification for school completion or to enter certain occupations, or as a method for selecting students for entry into further education. Ministries or departments of education may use summative assessments and evaluations as a way to hold publicly funded schools accountable for providing quality education. Increasingly, international summative assessments – such as OECD’s Programme for International Student Assessment (PISA) – have been important for comparing national education systems to developments in other...
Important problems of the DPST Project for Enrichment Science Classrooms

What does this project get in assessing a DPST student? In enrichment science classrooms, Tuition fee waiver, to allowance for personal expenses and books, science camps, day trips to see local scientists/researchers at work, summer work experience with a researcher. A DPST room equipped with laboratory instruments for a DPST to do lab work at their own leisure, social events organized by DPST students, learning for the learning sake, DPST students are expected to get at least a master degree in the following disciplines: Mathematics, Chemistry, Biology, Physics, Computer, and Geology. The DPST students have been assessed formative assessment refers to frequent, interactive assessments of student progress and understanding to identify learning needs and adjust teaching appropriately.

Generally, teachers using formative assessment approaches and techniques are better prepared to meet diverse students’ needs – through differentiation and adaptation of teaching to raise levels of student achievement and to achieve a greater equity of student outcomes. But there are major barriers to wider practice, including perceived tensions between classroom-based formative assessments, and high visibility summative tests to hold schools accountable for student achievement, and a lack of connection between systemic, school and classroom approaches to assessment and evaluation (Nevo, 1983).

This type of an assessment is used to know what the student’s skill level is about the subject. It helps the teacher to explain the material more efficiently. These assessments are not graded. There are seven practices to effective learning: one of them is about showing the criteria of the evaluation before the test. Another is about the importance of pre-assessment to know what the skill levels of a student are before giving instructions. Giving a lot of feedback and encouraging are other practices (Black and William, 2009).

Assessment for learning is best described as a process by which assessment information is used by teachers to adjust their teaching strategies, and by students to adjust their learning strategies. Assessment, teaching and learning are inextricably linked, as each informs the others. Assessment is a powerful process that can either optimise or inhibit learning, depending on how it's applied. Assessment for learning helps teachers gather information to: plan and modify teaching and learning programmes for individual students, groups of students and the class as a whole pinpoint students' strengths so that both teachers and students can build on them identify students' learning needs in a clear and constructive way so they can be addressed involve parents, families in their children's learning.

Assessment for learning provides students with information and guidance

To assess for learning provides students with information and guidance so they can plan and manage the next steps in their learning. Assessment for learning uses information to lead from what has been learned to what needs to be learned next. Assessment for learning should use a range of approaches. These may include: day-to-day activities (such as learning conversations) a simple mental note taken by the teacher during observation student self and peer assessments a detailed analysis of a student’s work assessment tools (which may be written items, structured interview questions or items teachers make up themselves). What matters most is not so much the form of the assessment, but how the information gathered is used to improve teaching and learning.

The policy of Thailand to support the enrichment science students

The policy of Thailand has been supported from the time a student has met criteria and signed the agreement in the first year of upper secondary school (Grade 10) until the student secured employment. In the agreement of the scholarship, any DPST grantee must earn at least a Master's degree or Doctoral degree from enrichment students at Grade 9 with a Grade Point Average (GPA) in mathematics and science of at least 3.00, and a GPA of all school subjects at least 3.00 are eligible to apply for a DPST scholarship. Applicants have to take a paper-and-pencil exam before being screened by a practical laboratory examination and an interview to improve and develop students to researchers, inventors, and thinkers in field of science and technology whose standard quality throughout of Thailand.

Most popular schools in districts or provinces that agreed with the local social and higher education were selected and indicated that are too high standard and quality on learning management and invention educational Medias in science, mathematics, and technology, representational international awards were guaranteed. Enrichment classroom learning for science and mathematics enrichment students should be have a class in each school that it’s supported of 400,000 THB per 40 students in 5 years, a school is the local area of students’ homes for less outcome, and this project is benefited to one who is poor and disadvantaged child (Researcher: Translated from website: 2013). Recently, there are administrations on the project of enrichment science classroom are explored in the network at the 9
educational regions and 195 enrichment classes in 195 enrichment schools that they are learning management curriculum on the basic educational curriculum in 2008.

In Thailand, the government has focused their efforts and policies on the national development of science, mathematics, and technology through the promotion of high caliber students in these areas by means of a project named “The Development and Promotion of Science and Technology Talented Project (DPST)”. This project was approved by the cabinet and first launched on March 6, 1984 and was jointly administered by the Ministry of Education, the Ministry of University Affairs, the Ministry of Science, Technology and Environment, and the Institute for the Promotion of Teaching Science and Technology (IPST). This project has had to express concern about the critical phenomenon that there was a lack of high performing students participating in science and mathematics. It was hard to imagine the future of the nation without expert scientists who create and invent tools for developing new technologies for Thailand. As the institute which is directly responsible for mathematics, science and technology education, IPST has worked very hard to establish an infrastructure for DPST until it was approved by the cabinet in 1984. After 14 years of implementation, DPST has been granted status as a permanent routine activity in 1998 in order to enhance the government’s aims for national sustainable development. At present, the DPST project is one of the departments of IPST and is operated by IPST’s staff (Tama Duangnamol, website: 2012).

Most of the DPST graduates work in universities, which are affiliated with the Ministry of Education. There are 112 out of 785 scholars who graduated in mathematics, which represents about 14% of the DPST graduates. This is a good representation, even though the scholarships do not specifically target mathematical giftedness. Because of the flexible nature of the DPST programs, however, some students come to realize their real passion for mathematics only after they have begun the program.

The enrichment science curriculum

In terms of enrichment curriculum, School’s programme is an integral part of the Secondary School curriculum and provides students with an opportunity to develop through experience. One of the main aims is to involve students in activities or situations which they may not have experienced before and which encourage them to think about the values they are applying and the attitudes they adopt. The one-week, residentially take place in November each year and involve Year groups and tutors travelling to different locations around Thailand. Each visit is designed with a specific programme to help enhance the mainstream curriculum and to provide opportunities for personal and social development. Each visit and its related activities are planned to accomplish the following aims: exploration of cultural, historical and/or physical environments with specific targets linked to the school’s curriculum, reinforcement of self-esteem and positive interaction amongst students and staff within a unique setting. Great teachers are always looking for new ways to expand their instruction and engage their students. Innovative teaching is important--but it can be expensive. Luckily, there are a wide variety of sources available for funding educational initiatives. Grants, fellowships and scholarships are available for teachers who want to help their students.

Generally, most standardized tests are not designed to evaluate the individualized growth and development taking place in the classroom. But there are assessments tools that do; many educators are uncomfortable with the idea of testing the students they work with. This is because the assessment tools they know were designed primarily for school’s students. Students taking these tests are assessed on isolated skills in ways that are unfamiliar to them, and the test results often do not reflect student’s personal experiences or knowledge (Meisels, 2015). In recent years, however, a new approach to assessment has been gaining acceptance among enrichment science classroom students with primary grade better teachers. Known as “performance” or “ authentic” assessment, these new tools have many benefits that standardized tests do not. For example: firstly, they systematically document what students know and can do based on activities they engage in on a daily basis in their classrooms. Standardized test items, in contrast, barely approximate actual classroom tasks. In addition, performance assessment evaluates thinking skills such as analysis, synthesis, evaluation, and interpretation of facts and ideas skills which standardized tests generally avoid. Secondly, they are flexible enough to allow teachers to evaluate each student’s progress using information obtained from ongoing classroom interactions with materials and peers. In other words, they permit an individualized approach to assessing abilities and performance. Thirdly, they are a means for improving instruction, allowing teachers to plan a comprehensive, developmentally oriented curriculum based on their knowledge of each student. Fourthly, they provide valuable, in-depth information for parents, administrators, and other policy makers. Finally, they put responsibility for monitoring what children are learning and what teachers are teaching in the hands of teachers, where it belongs, this five phases are the actual assessments for enrichment science classroom leaning management (IPST, 2013).

Focused on actual assessment, Nevo (Nevo, 1983) was reported to their thinking on development of the 5 questions to assess student’s learning: Why do teachers do assessment and valuation? What is assessment and evaluation? Who is assessed and evaluated? and How is assessment and evaluation done? Khamjanawasee (2009) reported on his website the 4-question on
performance assessment; Why do teachers do assessment and valuation? What is assessment and evaluation?, and How is value judgment?. Focused on this study, researchers were going on to plan from the 2-Educators' thinking for the basically development on this research instrument to invent the assessing and valuating model, namely; the Questionnaire on Enrichment Science Classroom (QESC) for assessing students' perceptions of their controlling positions, assessing process evolitional framework, and the position of educational context satisfaction. These model is the instrument that it has been explored and developed the body of knowledge on learning assessment in school and not only this assessment is the processes of assemble and using of communication and information to educator's decisions to educational development, this research is shown and revealed to investigate the enrichment science school classes as a pictorial assessment format to indicate that improving quality of the national education instrument, exactly.

On graduating from upper secondary school, students need to pass the CUAS (Central University Admission System) which contains 50% of O-NET and A-NET results and the other half of the fourth level GPA (Grade Point Average). Many changes and experiments in the university admissions system have taken place since 2001, but by late 2007 a nationwide system had yet to be accepted by the students, the universities, and the government. On returning to democracy in early 2008, after the December election, the newly formed coalition led by the People's Power Party (a party formed by the remnants of deposed Thaksin Shinwatra's Thai Rak Tai party) announced more changes to the national curriculum and university entrance system. At present, state-run universities screen 70% of their students directly, while the remaining 30% coming from the central admission system. The new system gives 20% weight to cumulative grade point average, which varies upon a school's standard. Some students have voiced distrust of the new system and fear it will encounter score counting problems as happened with the A-NET in its first year. The new aptitude test, to be held for the first time in March 2009 and which will be supervised by the National Institute of Educational Testing Service, will replace the Advanced National Education Test (A-net). Students can sit for the aptitude test a maximum of three times, with their best scores counted. After the first tests in March 2009, the next two are scheduled for July and October. Direct admissions are normally held around October. The new test includes the compulsory General Aptitude Test (GAT), which covers reading, writing, analytical thinking, problem solving and English communication. The voluntary Professional Aptitude Test (PAT) has a choice of seven subjects. Students in ethnic minority areas score consistently lower in standardized national and international tests. This is likely due to unequal allocation of educational resources, weak teacher training, socio-economic factors (poverty) and lower ability in the Thai language, the language of the tests (Draper, 2014). The science classroom enrichment students' learning from exploration of the virtual environment is supported with a range of other learning experiences. How each of these experiences targets different aspects in the development of students' scientific literacy will be discussed. Participating teachers will have time to consider how to adapt or extend these learning experiences to meet the needs of their students. By the end of the session teachers should be able to use the resources and learning experiences in the classrooms. However, students ought to be entered to pass the CUAS (Central University Admission System) which contains 50% of O-NET and A-NET results and the other half of the fourth level GPA (Grade Point Average) similar as the normal student at upper secondary school too, meanwhile the opportunities of this student group are more pass to the higher. In order to assess the classroom learning management in the enrichment science school class project at the upper secondary school that it has never found on the methodology for educational management at the last decades, therefore, the development of educational assessment model obtains with the research and development to take this results and developments for exchanging the framework of assessing quality of school learning environment in enrichment science classroom at the upper secondary school class and the results of this study are revealed to find that it's going on to be developed and rectified, school should be stimulated themselves to understanding knowledge, to due to the greatest teaches who are able to have many skills to manage of their enrichment science classroom learning management that it has indicated that this class is the high quality and efficiency, satisfaction interestingly from this study.

Research objectives

1. To describe the enrichment science schooling class learning management and to assess the enrichment science schooling classroom learning managements.
2. To develop the methodological assessment and evaluation on the enrichment science classroom learning managements in the upper secondary education enrichment school classes.
3. To assess the methodological assessment and evaluation on the enrichment science schooling class learning management in upper secondary education with the experimental assessment model.

METHODOLOGY

Approaches to studying educational environments

Limited framework and schedule time

Researchers limited the framework and time schedule in this study...
in four phases.

The First Phase: To Investigate the Management of Learning Environment and Learning Assessment on Enrichment Science Schooling Class

This phase was administered with the investigating documents and interviewed the personnel concerns on learning management and learning outcome assessment of the enrichment science schooling classes. The aims of this phase are to describe and assess the learning management, to involve the students’ and teachers’ perceptions of their learning assessment to their communication and information of interview and analysis foundational data with a sample size of nine persons from three groups of school administrators, undertakers or teachers, and academicians.

The Second Phase: To Invent and Verify the Assessing Learning Management Model.

To synthesis the data from the first phase to make the dummy of assessment model of the enrichment science classroom, satisfied testing and the quality of assessing model, possibility. Using the focus group discussion technique to invent this model and nine professional assessors, namely; professional assessors and evaluators, the curricular and scientist in education professors, and the undertakers or teachers were assessed with separated of three groups for description among groups. Researchers took the results of the season with the consensus of description among groups to invent the assessing model that it has obtains with the selecting factor and indicating assessment form. To improve this model which as the professional advice. On next step, researcher was to develop the assessing manual for the guideline of assessing position for controlling user. This assessing model was analyzed with the validity and reliability testing with the phase of the 9-professionals discussion with their groups, statistically.

The Third Phase: To Try Out this Assessing Model to Assess an Upper Secondary School.

8 upper secondary education school classes for trying out the model was used. The schools like the enrichment science classroom, namely; satisfaction, validity and reliability, and the Cronbach alpha reliability value was analyzed. The assessing committees who were represented from the science academicians, the schools at the Office of Secondary Educational Service Areas, and the Project of Enrichment Science Classrooms were reviewed from a sample of 29 science senior professional persons, adding with of 8 school administrators, 3 persons from the basic educational committee, 8 head of enrichment science classrooms, 24 greater science teachers, 5% of students’ parent, and 240 enrichment classroom students were assessed of students’ perceptions.

The Fourth Phase: To Use the Assessing Model to Assess an Enrichment Science Classroom.

This phase was to assess the assessing model for assessment on the enrichment science school classes in the upper secondary education that it was going on actual situation to experimental model for administrating of the sample size, which as to investigate the assessing standardized efficiency of the 4-dimensions, namely; utility standards, feasibility standards, propriety standards, and accuracy standards (Stufflebeam and Shinkfield, 2007).

Research procedures

Research instruments

Using a combination of qualitative and quantitative data can improve an evaluation by ensuring that the limitations of one type of data are balanced by the strengths of another. This will ensure that understanding is improved by integrating different ways of knowing. Most evaluations will collect both quantitative data (numbers) and qualitative data (interview, observation), however it is important to plan in advance how these will be combined.

Selected the Questionnaire Instrument in this Study

The Questionnaire on Enrichment Science Classroom (QESC)

Using the Questionnaire on Enrichment Science Classroom (QESC) (Adapted original version from Nevo, 1983; Kanjanawasee, 2009) to measure students’ perceptions of their social and laboratory climates to their enrichment science school classrooms was assessed. In particular, the version of the QESC included with 28 items slightly different from the original one to compose with the seven scales, namely; heading assessment, purposing assessment, assessing goal. Each scale of the QESC were composed with the 4-item, minimum scoring is 5 and maximum score is 20. The first scale, Heading Assessment is composed the item of 1, 8, 15, and 22; the second scale, Purpose Assessment is composed the item of 2, 9, 16, and 23; the third scale, Assessing Goal is composed the item of 3, 10, 17, and 24; the fourth scale, Typing Assessment is composed the item of 4, 11, 18 and 25; the fifth scale, Assessor is composed the item of 5, 12, 19 and 26; the sixth scale, Criteria Assessment is composed the item of 6, 13 20 and 27; and the seventh scale, User Information Communication is composed the item of 7, 14, 21 and 28.

More comprehensive statistical information about the QESC was provided, and published research involving the QESC was reviewed. The contents of this manual include a description of the initial development of the QESC; extensive normative and validation statistics for each instrument; reviews of relevant research using these instruments; and observations’ ways in which students were observed toward students’ learning environment management by teachers, and curriculum evaluators ought to investigate of students’ satisfaction.

Interview Instrument

The qualitative research interview seeks to describe and the meanings of central themes in the life world of the subjects. The main task in interviewing is to understand the meaning of what the interviewees say. A qualitative research interview seeks to cover both a factual and a meaning level, though it is usually more difficult to interview on a meaning level. Interviews are particularly useful for getting the story behind a participant’s experiences. The interviewer can pursue in-depth information around the topic. Interviews may be useful as follow-up to certain respondents to questionnaires, e.g., to further investigate their responses. Using the interview technique to be responded by the enrichment science students’ interviewees were interviewed (McNamara, 1999).

Data analyses

The scaling of the items approximated a 5-point ranking scale, internal consistency reliabilities (alpha coefficients) were computed for each of the derived factors of the actual QESC form analyzed.

Sample

This study is improved and developed the assessment model for assessing enrichment science school classroom environment with
administrations of the 4 groups of sample sizes for each research phase:
The 1st Phase: To investigate enrichment science classroom environments was intervened of a three groups of 9 interviewees; such as, schooling administrator, responsible men or teachers, and educationists.
The 2nd Phase: To invent and check the assessing learning management model of enrichment science classroom schools was used, the focus group discussion technique to synthesis of this model with a sample of 9 professional educationists of their assessment and evaluation, curriculum and instruction in science education, and responsible persons or teachers.
The 3rd Phase: Using the assessment model was to try out of the experimental assessment at the enrichment science classroom school in 2 times, suitability and possibility of this model with of three assessing committees, such as; a representative of science educationist, a representative from the Office of Upper Secondary School Service Area, and a representative from enrichment science classroom project. To administer with the 29 educational personnel, such as; a school administer, three persons from the basic educational committees, a head of enrichment science classroom project, 6 science teachers, and 30 talent science students, and 5 students parents were administered in this study.
The 4th Phase: Using the research instrument; The Questionnaire on Enrichment Science Classroom (QESC) were composed of 28 items in 7 assessment scales, minimum scoring is 5 and maximum score is 20. The scale namely as Heading Assessment, Purposing Assessment, Assessing Goal, Typing Assessment, Assessor, Criteria Assessment, and Information Communication User scales.

RESULTS

The results of this study are as follows.

The 1st Phase: A Learning Environment Assessment on the Enrichment Science Classroom at the Upper Secondary

The enrichment science classroom learning in the upper secondary school environments was administered by the policies of the Institute for the Promotion of Teaching Science and Technology (IPST) that it was aimed to recruit, develop and support talented personnel in science, mathematics and technology to build up the human resource foundation for the future, and to produce talented personnel in Science and Technology who will make innovations contributed to the development of Thailand. This project has followed the condition of the Basic Education Core Curriculum B.E. 2551 (A.D. 2008), to administer the Development and Promotion of Science and Technology Talents Project (DPST) of the DPST's centers with a sample of 240 talented science students from 8 enrichment science classrooms in 8 representative enrichment science classroom centers throughout Thailand. In terms of research instruments and science laboratory environment inventory, students were supported of their tuition fee waiver and allowance for personal expenses and books from the three supporting sources, such as; the Office of the Basic Education Commission of Thailand, personal expenses waiver fee, and academy student fund. This DPST project has been never assessed on learning management of enrichment science school classes.

The 2nd Phase: An Invention and Verification of the Structure of the Learning Environment Assessment on the Enrichment Science Classroom at the Upper Secondary

The structure of the learning environment assessment on the enrichment science classroom at the upper secondary of the Development and Promotion of Science and Technology Talents Project (DPST) as seven factors of the structural relative chart, namely, topic of assessment, assessing purposes, assessing goals, assessing methods, assessors, criterion assessment, and information users. Focused on the assessing goals, the synthesis of the efficiency indicators were to procedure as the 5 point factors, namely; management of administration, the foundational factors for management, learning management process, learning management production, and administering management of the DPST's centers (Figure 1).

Normally, the most important indicating seven factors was assessing goals and assessing methods that composed within 5 factors as learning management processes. In terms of the three steps for assessing methods were composed with the assessing steps, assessing instrument and time schedule for assessment.

The 3rd Phase: Using the Model: The Questionnaire on Enrichment Science Classroom (QESC) to Assess the Schools of the Enrichment Science Classroom

The first result of learning management administering assessment of the enrichment science classroom at the upper secondary educational schools were investigated, this research has found that the learning management processes and the administration of the DPST's centers as highest confidence level, learning management of students' outcomes was the high confidence level. In the other hand, the poorly confidence level has shown with indicators of the foundational learning management and learning management production factors (Figure 1).

Table 1 shows mean score, means, variance, and standard deviations of actual students' perceptions of their development of learning management of the enrichment science classroom at the upper secondary educational schools as the high confidence level (66.44%). In terms of comparisons between the actual score for developing scores of assessing students' outcomes, it has found that statistically significant different as the second actual scores evidence higher than the first actual score this was indicated that this development of the learning management assessment model shown to develop and confirm the enrichment science classroom at the upper secondary educational schools within the concurrent validity. The results given in Table 1 show that on average item means for each of the
seven QESC scales, that they contain four items, so that the minimum and maximum score possible on each of these scales is 5 and 20, respectively. Because of this difference in the number of items in the seven scales, the average item mean for each scale was calculated so that there is a fair basis for comparison between different scales. These means were used as a basis for constructing the simplified plots of significant differences between forms of the QESC. For the remaining seven scales, namely; Topic of assessment, Assessing
Table 1. Scale Mean Scores, Means, Variance, and Standard Deviations for Actual 1 and Actual 2 Forms of the QESC.

<table>
<thead>
<tr>
<th>Scale</th>
<th>Form</th>
<th>Mean score</th>
<th>Mean</th>
<th>Variance</th>
<th>Standard validation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topic of Assessment</td>
<td>Actual 1</td>
<td>13.21</td>
<td>3.30</td>
<td>0.43</td>
<td>0.19</td>
</tr>
<tr>
<td></td>
<td>Actual 2</td>
<td>17.31</td>
<td>4.32</td>
<td>0.47</td>
<td>0.22</td>
</tr>
<tr>
<td>Assessing Purposes</td>
<td>Actual 1</td>
<td>12.56</td>
<td>3.14</td>
<td>0.58</td>
<td>0.33</td>
</tr>
<tr>
<td></td>
<td>Actual 2</td>
<td>16.94</td>
<td>4.32</td>
<td>0.56</td>
<td>0.31</td>
</tr>
<tr>
<td>Assessing Goals</td>
<td>Actual 1</td>
<td>16.66</td>
<td>4.17</td>
<td>0.56</td>
<td>0.31</td>
</tr>
<tr>
<td></td>
<td>Actual 2</td>
<td>18.84</td>
<td>4.71</td>
<td>0.55</td>
<td>0.30</td>
</tr>
<tr>
<td>Assessing Methods</td>
<td>Actual 1</td>
<td>15.09</td>
<td>3.77</td>
<td>0.57</td>
<td>0.33</td>
</tr>
<tr>
<td></td>
<td>Actual 2</td>
<td>19.42</td>
<td>4.86</td>
<td>0.49</td>
<td>0.24</td>
</tr>
<tr>
<td>Assessor</td>
<td>Actual 1</td>
<td>16.50</td>
<td>4.12</td>
<td>0.66</td>
<td>0.44</td>
</tr>
<tr>
<td></td>
<td>Actual 2</td>
<td>17.72</td>
<td>4.43</td>
<td>0.59</td>
<td>0.35</td>
</tr>
<tr>
<td>Criterion Assessment</td>
<td>Actual 1</td>
<td>14.36</td>
<td>3.59</td>
<td>0.56</td>
<td>0.34</td>
</tr>
<tr>
<td></td>
<td>Actual 2</td>
<td>16.58</td>
<td>4.15</td>
<td>0.52</td>
<td>0.32</td>
</tr>
<tr>
<td>Information Users</td>
<td>Actual 1</td>
<td>14.23</td>
<td>3.56</td>
<td>0.57</td>
<td>0.35</td>
</tr>
</tbody>
</table>

purposes, Assessing goals, Assessing methods, Assessors, Criterion assessment, and Information users.

The internal consistency reliability of the version QESC used in this study was determined by calculating Cronbach alpha coefficient for the 35 items of the SLEI using both actual and preferred environmental climates' perceptions scores. Table 2 reports the internal consistency of the QESC, which ranged from 0.64 to 0.81 when using the students' actual climate scores and from 0.70 to 0.85 when using the students' preferred climate scores. The QESQ was able to differentiate significantly ($p<0.05$) between students' perceptions in science laboratory environment. The $t$-test statistic which is the ratio of "between" to "total" sums of squares and represents the proportion of variance in scale scores accounted for class by membership, ranged from 2.51 to 21.74 for different scales, respectively.

Table 2 provides information about each scale's internal consistency reliability (alpha coefficient) and discriminant validity (using the mean correlation of a scale with the other scales in the same instrument as a convenient index), and the ability of a scale to differentiate between the perceptions of students in different classrooms (significance level and $eta^2$ statistic from ANOVAs).

The 4th Phase: Learning Management Assessment Outcomes

The result of this phase was to confirmation of the learning management assessment model (The Questionnaire on Enrichment Science Classroom (QESC)) that it was invented and designed by researcher in this study. Using this model from experimental assessment to the two actual concurrently assessments, it has found that overall of this assessment was highest confidence level within the continually of possibility, truly, using and suitability factors, consequently.

DISCUSSION

The research of this study was developed the model of learning management assessment the Questionnaire on Enrichment Science Classroom (QESC) for assessing students' and components' perceptions on the quantitative data, and interviews and observations were qualitative data of this research.

The policy of the Institute for the Promotion of Teaching Science and Technology (IPST) has had an important project; the Development and Promotion of Science and Technology Talents Project (DPST) in 1984, this project aimed to produce talented personnel in Science and Technology who will make innovations contributed to the development of Thailand. Science and Technology play an important role in the development of the country and have become more and more important. Less and less science talented students enroll in the faculty of science. Most students choose the subjects which will lead to careers with high income e.g. Medicine, engineering. The DPST project encourages more students to choose
Table 2. Scale Internal Consistency (Cronbach alpha reliability), Discriminant Validity (Mean Correlation of a Scale with Other Scales) and Ability to Differentiate between Actual and Preferred Forms (ANOVA) for the QESC.

<table>
<thead>
<tr>
<th>Scale</th>
<th>Form</th>
<th>Cronbach’s alpha reliability</th>
<th>Discriminant validity</th>
<th>t-test</th>
<th>ANOVA Results (eta²)</th>
<th>Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topic of assessment</td>
<td>Actual 1</td>
<td>0.64</td>
<td>0.76</td>
<td>15.39</td>
<td>0.23</td>
<td>0.00***</td>
</tr>
<tr>
<td></td>
<td>Actual 2</td>
<td>0.70</td>
<td>0.76</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessing purposes</td>
<td>Actual 1</td>
<td>0.69</td>
<td>0.68</td>
<td>8.49</td>
<td>0.18</td>
<td>0.00**</td>
</tr>
<tr>
<td></td>
<td>Actual 2</td>
<td>0.73</td>
<td>0.73</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessing goals</td>
<td>Actual 1</td>
<td>0.81</td>
<td>0.65</td>
<td>2.51</td>
<td>0.12</td>
<td>0.04*</td>
</tr>
<tr>
<td></td>
<td>Actual 2</td>
<td>0.85</td>
<td>0.70</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessing methods</td>
<td>Actual 1</td>
<td>0.62</td>
<td>0.70</td>
<td>21.74</td>
<td>0.26</td>
<td>0.00***</td>
</tr>
<tr>
<td></td>
<td>Actual 2</td>
<td>0.75</td>
<td>0.72</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessors</td>
<td>Actual 1</td>
<td>0.71</td>
<td>0.67</td>
<td>12.93</td>
<td>0.21</td>
<td>0.00***</td>
</tr>
<tr>
<td></td>
<td>Actual 2</td>
<td>0.75</td>
<td>0.73</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Criterion assessment</td>
<td>Actual 1</td>
<td>0.71</td>
<td>0.74</td>
<td>8.92</td>
<td>0.19</td>
<td>0.00**</td>
</tr>
<tr>
<td></td>
<td>Actual 2</td>
<td>0.80</td>
<td>0.77</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information users</td>
<td>Actual 1</td>
<td>0.68</td>
<td>0.72</td>
<td>9.61</td>
<td>0.20</td>
<td>0.00***</td>
</tr>
<tr>
<td></td>
<td>Actual 2</td>
<td>0.76</td>
<td>0.78</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Correlation is significant at the 0.05 level (2-tailed); **Correlation is significant at the 0.01 level (2-tailed); ***Correlation is significant at the 0.001 level (2-tailed).

Science as their major by means of financial and academic supports to produce scientists/researchers in the fields of immediate need for the country and hope to produce 120 scientists/researchers each year. DPST centers are at the 8 upper secondary schools throughout of Thailand. The DPST students automatically enroll to their relative universities from 195 enrichment science classes from 195 upper education schools on enrichment programs in science and mathematics will enter the DPST Centre Universities. The Outcomes of DPST Projects provide more scholarships to study science and mathematics, the Ministry of Education promotes the science enrichment class. Pathways into DPST, enter the competition at the end of grade 9 to upper educational center school, and enter the competition at the end of grade 12 to the center higher educational universities.

To invent and check of the learning management assessment model for assessing the enrichment science classroom at the upper secondary educational schools were to relate of the structural chart on the 7 point relative factors, such as; topic of assessment, assessment objective, assessing goals, assessing method, assessor, criteria assessment, and information and communication user that this model was to development and synthesis from the developing thinking model of Nevo and Sirichai Kanjanawasee. In terms of the assessing goals were composed with the 5 point factor synthesizes and indicators of the efficiency of educational administration, such as; administrating management, fundamental factor of management, learning management outcome, and administration of learning management of DPST's centers that this model was developed and synthesized factors and affectingly administering indicators of the Office of National Education Standards and Quality Assessment (2012), the Institute for the Promotion of Teaching Science and Technology (IPST) (2007), Quality Assurance Division Education Bureau Hong Kong (2005), Japan Institution for Higher Education Evaluation (2013), and Korea Institute for Curriculum and Evaluation (2013) whereas the heart of educational reform on all countries.

In terms of using the research instruments for assessing students' and partnerships' perceptions with the Questionnaire on Enrichment Science Classroom (QESC), Interviews format, and Observation document of the DPST project in the enrichment science classroom at the upper secondary educational schools, this research has found that the DPST's school projects were indicated that the affecting school climate as higher confidence level on learning management development. These determinants were to indicate disadvantage point for managing educational truly, knowing clearness, to be developed on simply understanding acknowledgement (Bardo and Hartman, 1982; Stoner and Wankel, 1986). The DPST schooling project was able to improve and
develop of their learning management, and developing students’ project as conform to high quality and standardization on administration of learning management model of the enrichment science classroom, directly. This research results were revealed that this developing model was invented by researcher to concurrent validity, understandably.

Assessment of the learning management model for the enrichment science classroom at the upper secondary educational schools were to worthiness, suitability, possibility, and supported the development of learning management on DPST schooling project. These school classes should be used the information communication for developing science skills and science processes of their learning achievement to their learning unity standards, and propriety standards, and accuracy standards were used that these standards are provided within the Joint Committee on Standards for Educational Evaluation (The Joint Committee on Standards for Educational Evaluation, 1994: Cite in Stufflebeam and Shinkfield, 2007). This assessing process was understood the indicating model to disadvantage point of educational management, directly. The enrichment science schooling classrooms with the DPST project were able to improve and develop, clearly. Students are provided their potential learning and achieving standardization with the learning management assessment model to their outcomes as the highest confidence level.

IMPLICATIONS FOR IMPROVING ENRICHMENT SCIENCE CLASSROOM IN THAILAND

This study has implications for enrichment science classroom students, science teachers, educators, the IPST, the DPST schooling project, administrators, and educational researchers in Thailand. The Questionnaire on Enrichment Science Classroom (QESC) was found valid and reliable to provide a means by which students’ perceptions can be monitored by teacher to attempt to improve their classroom teaching practice and reviews of the administration of systematic educational reform of the DPST project. The Based on the findings, suggestions for improving the enrichment science classroom learning environment are needed. Science teacher should provide laboratory activities that promote enrichment science classroom cohesion, practical activities related to what students learn in theory classes, preview and connect to future classes, make a clearly organized plan for teaching, give definitions for vocabulary in science content, and vary the rate of delivery where appropriate.

SUGGESTIONS

Classroom environment research in Thailand is one of the reforms the Thai government has been providing in accordance with the Ninth National Education Development Plan (2002-2006) and the DPST schooling project has been built in 2008. Most of science teachers who are teaching in upper secondary education of enrichment science students in their classroom environments could improve their teaching by using the findings of this research. This present study is one of the first learning environment assessment studies in Thailand. The present research involved enrichment science students in upper secondary schools and the DPST schooling project; it could be replicated in different normal students who sat in the same educational grade level in government schools, private schools, religious affairs schools and demonstration schools of the university. Such study would provide information enabling a more comprehensive view for assessment of enrichment science classroom learning in Thailand.

Conflict of Interests

The authors have not declared any conflict of interests.

REFERENCES


CITATIONS

Exploring the impact of sports participation on multiple intelligence development of high school female students

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After Gardner had introduced the Multiple Intelligence (MI) theory, many researchers tried to find out the possibilities of applying this theory in the education domain. Moreover, the effects of different kinds of athletic applications on intelligence development within the framework of this theory have also been under investigation. This study also tried to explore the possible effects and relations of athletic participation in school sports competitions on MI types of high school female students. For this purpose MI inventory was applied to 198 female students and the data derived from this inventory was evaluated through SPSS 19.0 package programme using descriptive statistics, independent samples t test and Pearson Product Moment Correlation test. The t test results of this research clearly pointed out that participation to athletic activities had significant effects on the verbal/linguistic and bodily/kinaesthetic intelligence development of the students which was also verified through correlation analysis. Besides, correlation analysis showed that there was a significant positive relationship between interpersonal intelligence and sport experience.

Key words: multiple intelligence theory, intelligence, female athlete students.

INTRODUCTION

Traditional education programs have always focused on verbal and mathematical intelligences, which are defined in terms of intelligent quotient (IQ). The three-quarter-century-old, statistical science behind traditional IQ testing was harshly criticised as it was narrow, biased, and even racist, supporting eugenics (Turkmen, 2013). Gardner, who shared the same criticisms on the traditional understanding of intelligence, proposed the existence of at least seven basic intelligences in Frames of Mind (1983); and afterwards added an eighth category of intelligence (Gardner, 1983; Gardner, 1999). According to Gardner’s point of view humans possess a number of distinct intelligences that manifest themselves in different skills and abilities. All human beings apply these intelligences to solve problems, invent processes, and create things. Intelligence, according to MI theory, is being able to apply one or more of the intelligences in ways that are valued by a community or culture (Bas and
Gardner (1991) divided the intelligences into eight different types and defined them:

1. Verbal/linguistic intelligence: the production of language, abstract reasoning, symbolic thinking, conceptual patterning, reading, and writing.
2. Logical/mathematical intelligence: the capacity to recognize patterns, work with abstract symbols (e.g., numbers, geometric shapes), and discern relationships or see connections between separate and distinct pieces of information.
3. Visual/spatial intelligence: visual arts, navigation, mapmaking, architecture, and games requiring the ability to visualize objects from different perspectives and angles.
4. Bodily/kinaesthetic intelligence: the ability to use the body to express emotion, to play a game, and to create a new product.
5. Musical/rhythmic intelligence: capacities such as the recognition and use of rhythmic and tonal patterns and sensitivity to sounds from the environment, the human voice, and musical instruments.
6. Interpersonal intelligence: the ability to work cooperatively with others in a small group, as well as the ability to communicate verbally and nonverbally with other people.
7. Intrapersonal intelligence: the internal aspects of the self, such as knowledge of feelings, range of emotional responses, thinking processes, self-reflection, and a sense of intuition about spiritual realities.
8. Naturalistic intelligence: the ability to recognize patterns in nature and classify objects, the mastery of taxonomy, sensitivity to other features of the natural world, and an understanding of different species.

Gardner’s theory attracted the intention of educators, and they started accepting all children as equals regardless of a quotient produced from an intelligence exam or of academic areas for which they develop competence. Practitioners of MI theory think that children do not fit a single prototype. Gardner sought to broaden the perception of human potential beyond the confines of traditional IQ scores, seriously questioning the validity of determining an individual’s intelligence through the practice of taking the person out of his or her natural environment and asking him or her to attempt isolated tasks never done before—and probably never to be done again (Stanford, 2003).

MI theory has broken down the traditional education approaches which have ignored different capacities and talents of children, and served as a rallying point for a reconsideration of the educational practice of the last century. Therefore after the introduction of MI theory in educational programs, even unsuccessful, unmotivated students had chance to record academic growth when exposed to multifaceted interventions and techniques principled by MI theory (Janes et al., 2000).

Harmer (2001) pointed out that accepting the predominance of different intelligences in different people, we accept that the same learning task may not be appropriate for all our students. While people with a strong logical/mathematical intelligence might respond well to a complex grammar explanation, a different student might need to comfort of diagrams and physical demonstration because their strengths is in the visual/spatial area. Other students who have a strong interpersonal intelligence may require a more interactive climate if their learning is to be effective (Harmer, 2001).

On the other hand, during last few years there have been an important amount of critical analysis on MI theory and its application in education domain. Akpınar and Dogan (2011) listed the main criticisms:

1. MI theory confuses intelligence with abilities; therefore the categorization of MI is not valid and reliable.
2. MI theory is not practical to be applied to education in different cultures as it was primarily developed for talented students in US.
3. Scientists and psychologists have underlined that this theory doesn’t have scientific and empirical basis. Therefore MI is more a theory than a scientific methodology.

Despite these kinds of criticisms towards MI theory, scholars still continue to study the probable effects of MI on different target groups, in alternative learning environments, with different teaching tools, etc.

Sport is also one of the main tools which has always been associated with education and intelligence development. Although many researches have been carried out in order to find the effects of sports participation and physical activity on academic success, to date, limited number of researches focused on the probable effects of sports participation on multiple intelligence development. Therefore, this research is important as it tries to point out the relationships between sports participation and multiple intelligence development of high school female students. Besides, this research will also inspire further studies exploring the various aspects of sports participation, academic success, psychological and sociological development of students with special reference to MI theory applications.

**MATERIALS AND METHODS**

**Sample group**

198 female high school students (\( \bar{X} \) age = 16.09) voluntarily participated in this study; 113 of them were non-athletes, and 85
athletes representing their schools in inter school competitions during 2014-2015 education season in team sports (Basketball, Volleyball, and Petanque). All the students were attending to 6 different high schools located in Ankara, Turkey. The age distribution of the sample group is presented in Table 1.

### Data gathering tool

In order to analyze the multiple intelligence levels of the students, Turkish version of Multiple Intelligence Inventory (MII) developed by Seber (2001) was used. This inventory is composed of 64 questions, 8 questions for 8 types of intelligence, and was prepared as a three-point likert type scale (which was used to differentiate orientations from 1 as low and 3 as high).

### Reliability and data analysis

The data derived from MII was evaluated using SPSS 19.0 statistical package programme for windows through arithmetic means (\( \bar{X} \)), standard deviation (SD), independent samples t-test (p) and Pearson Product Moment Correlation test. For the statistical significance, p value was taken as 0.05 (p<0.05) for the t-test, and as 0.05 (p<0.05) for correlation test.

In order to find out the relationship between each separate multiple intelligence type and sports participation level (SPL) correlation analysis was conducted. Although Tabachnick and Fidell (2001) underlined that correlational studies cannot use to explain causality, this type of study at least can indicate whether a change in the value of the independent variables has a significant effect on changes to the dependent variables (Althouse, 2007).

A reliability analysis with calculation of Cronbach’s alpha was also conducted to determine if the measurement tools were acceptable and reliable or not. Cronbach’s alpha was calculated as 0.84 which indicates that the items of the test have relatively high internal consistency. The p value was taken as 0.05.

### Calculation of sports participation level (SPL) scores

In order to calculate the SPL scores, a question (How long have you participated to school sports competitions?) was added in the demographic information part of the inventory. The answer has 5 alternative items; “I have never participated”, “It’s my first year”, “It’s my second year”, “It’s my third year”, and “More than 3 years”, and each item was given scores rising up from “1” to “5” respectively.

This score is important in the study in order to find out and interpret the relation between the development of intelligence types and SPL. The calculated SPL scores are presented in Table 2.

### FINDINGS

The results which are gathered through the inventory form are presented in below tables. The t test results and correlation tests are given in 2 separate tables. In the correlation table, only the results which are significant were included, and the rest were ignored.

In Table 3, when the arithmetic averages are compared between two groups of students (athletes and non-athletes), slightly higher averages are observed in verbal/linguistic, logical/mathematical, bodily/kinaesthetic, interpersonal, intrapersonal and naturalist intelligence types for athlete students. On the other hand the average of musical and visual/spatial intelligence is slightly higher for non-athlete students.

Examining the differences between the students of these two groups through independent samples t test, there occurs meaningful difference only in 2 types of intelligences; verbal/linguistic intelligence (\( p = .008, p > .05 \)) and bodily/kinaesthetic intelligence (\( p = .029, p > .05 \)) both for the superiority of athlete students. So there is no meaningful difference between two groups in the rest of 6 types of intelligences.

To have a more concrete idea about the effects of sports participation on the multiple intelligence levels, Pearson Product Moment Correlation test was conducted between the intelligence types and the SPL scores, and the significant results are presented in Table 4.

According to the results of Pearson Product Moment Correlation test, there are significant positive relations between SPL scores and verbal/linguistic intelligence (\( r = .643 \)), bodily/kinaesthetic intelligence (\( r = .393 \)), and interpersonal intelligence (\( r = .241 \)).

In Table 4 only significant results are presented. This is to mean that there are no correlations found either positive or negative according to SPL scores of the students in logical/mathematical, intrapersonal, naturalist intelligence, musical and visual/spatial intelligences. These results show that the increasing sport participation helps students’ verbal/linguistic intelligence, bodily/kinaesthetic intelligence, and interpersonal intelligence.

### DISCUSSION AND CONCLUSION

Although there have been very harsh criticisms towards
Table 3. Descriptive statistics and independent samples t test results of MI types.

<table>
<thead>
<tr>
<th>Intelligence Type</th>
<th>N</th>
<th>$\bar{x}$</th>
<th>SS</th>
<th>t</th>
<th>SD</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verbal/Linguistic</td>
<td>Athletes</td>
<td>85</td>
<td>34.25</td>
<td>5.26</td>
<td>-3.193</td>
<td>196</td>
</tr>
<tr>
<td></td>
<td>Non-athletes</td>
<td>113</td>
<td>31.23</td>
<td>5.61</td>
<td>-3.193</td>
<td>196</td>
</tr>
<tr>
<td>Logical/Mathematical</td>
<td>Athletes</td>
<td>85</td>
<td>33.21</td>
<td>5.81</td>
<td>-1.426</td>
<td>196</td>
</tr>
<tr>
<td></td>
<td>Non-athletes</td>
<td>113</td>
<td>32.87</td>
<td>4.81</td>
<td>-1.426</td>
<td>196</td>
</tr>
<tr>
<td>Visual/Spatial</td>
<td>Athletes</td>
<td>85</td>
<td>33.21</td>
<td>5.17</td>
<td>-1.182</td>
<td>196</td>
</tr>
<tr>
<td></td>
<td>Non-athletes</td>
<td>113</td>
<td>35.06</td>
<td>4.97</td>
<td>-1.182</td>
<td>196</td>
</tr>
<tr>
<td>Musical</td>
<td>Athletes</td>
<td>85</td>
<td>32.41</td>
<td>5.43</td>
<td>-1.559</td>
<td>196</td>
</tr>
<tr>
<td></td>
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<td>113</td>
<td>33.51</td>
<td>5.54</td>
<td>-1.559</td>
<td>196</td>
</tr>
<tr>
<td>Bodily/Kinaesthetic</td>
<td>Athletes</td>
<td>85</td>
<td>36.72</td>
<td>5.53</td>
<td>-2.132</td>
<td>196</td>
</tr>
<tr>
<td></td>
<td>Non-athletes</td>
<td>113</td>
<td>32.52</td>
<td>6.61</td>
<td>-2.132</td>
<td>196</td>
</tr>
<tr>
<td>Interpersonal</td>
<td>Athletes</td>
<td>85</td>
<td>34.26</td>
<td>5.41</td>
<td>-1.332</td>
<td>196</td>
</tr>
<tr>
<td></td>
<td>Non-athletes</td>
<td>113</td>
<td>32.72</td>
<td>4.63</td>
<td>-1.332</td>
<td>196</td>
</tr>
<tr>
<td>Intrapersonal</td>
<td>Athletes</td>
<td>85</td>
<td>34.81</td>
<td>5.51</td>
<td>-1.189</td>
<td>196</td>
</tr>
<tr>
<td></td>
<td>Non-athletes</td>
<td>113</td>
<td>33.58</td>
<td>6.20</td>
<td>-1.189</td>
<td>196</td>
</tr>
<tr>
<td>Naturalist</td>
<td>Athletes</td>
<td>85</td>
<td>34.71</td>
<td>5.91</td>
<td>-0.415</td>
<td>196</td>
</tr>
<tr>
<td></td>
<td>Non-athletes</td>
<td>113</td>
<td>34.28</td>
<td>5.83</td>
<td>-0.415</td>
<td>196</td>
</tr>
</tbody>
</table>

Table 4. Correlations found between intelligence types and SPL.

<table>
<thead>
<tr>
<th>Intelligence Type</th>
<th>r</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verbal/Linguistic</td>
<td>.643</td>
</tr>
<tr>
<td>Bodily/Kinaesthetic</td>
<td>.393</td>
</tr>
<tr>
<td>Interpersonal</td>
<td>.241</td>
</tr>
</tbody>
</table>

*p < 0.05

MI theory (Akpınar and Dogan, 2011), it is still very popular in education domains and have seriously been investigated in order to be implemented in the education curriculums. Numerous researches have been carried out through case studies in order to compare the effectiveness of traditional education methods with MI supported learning methods. Most of these studies clearly pointed out that MI approach is much more effective on the development of students' academic achievement levels when compared to traditional teaching methods (Coskunogullu, 1998; Erkan and Uster, 2012). It is also important to note that there are a few other researches in which no difference was observed in the academic achievement levels of the students attending to traditional education programs and MI based education programs (Demirel et al., 2000; Yurtluk, 2003).

Another important research subject has been the use of MI theory in physical education classes (Gorucu, 2007; Tekin and Tasgin, 2008), and positive effects of MI approach has been noted. Also some researchers, such as Mitchell and Kernodle, have focused on the use of MI theory for more effective training of specific sport branch, which is tennis in their study (Mitchell and Kernodle, 2004). Similarly Ilhan et al. (2005) tried to find out the effects MI theory on teaching volleyball and gymnastic units.

On the other hand some other scholars approached from the opposite direction, and explored the effects of sports participation on MI development. Turkmen (2013) tested 9th grade students before and after 12 weeks of taekwondo training, and concluded that taekwondo training had positive significant effect on bodily/kinaesthetic and interpersonal/social intelligence levels which also led to overall development of cumulative intelligence level. Cengiz and Pulur (2008) have adopted 12 weeks football training to the 8-10 years old children, and found that bodily/kinaesthetic and musical intelligences developed. In this study it was pointed out that football training had positive effects on the development of both intelligences. Another case study was carried out by Bozkus, who preferred to investigate the effects of folk dance practices on the intelligence development of 5th grade students in terms of MI theory (Bozkus, 2010). After 16 weeks of folk dance practices, it was found that the experiment group had recorded meaningful development in all 8 intelligence types.

Some scholars approached the theory from different points of view and tried to define the MI types developed...
in athletes, and the relations of MI types with various
cognitive and psychological parameters (Ekici, 2011; 
Aktop and Karahan, 2012; Bavlı, 2013; Kutz et al., 2013; 
Bozkus et al., 2014; Kiremitci and Canpolat, 2014; Kul et 
al., 2014).

This study also tried to find out the effects of sports 
participation on the MI development of female students. As 
presented in Table 3, significantly higher scores were 
calculated in verbal/linguistic and bodily/kinaesthetic 
intelligence levels of athlete students when compared to 
non-athlete students. On the other hand there were no 
significant differences between the groups in the rest of 6 
types of MI. Especially the finding about 
bodily/kinaesthetic intelligence is in line with the findings 
of the references cited, but for the rest of the intelligence 
types there were different results in previous studies. For 
example, in the case study carried out by Cengiz and 
Pulur (2008), it was musical intelligence with 
bodily/kinaesthetic intelligence which showed significant 
increase; and in Kul et al. (2014)’s study it was 
interpersonal intelligence. In another study further type of 
intelligence, which was spiritual intelligence was studied 
and significant difference was observed between athlete 
and non-athlete students (Solaaimani et al., 2013). 
Therefore the only common MI type which is affected by 
sports participation appears to be the bodily/kinaesthetic 
intelligence, and the rest of intelligence types may differ 
according to the sample group, applied sports activities, 
demographic variables, etc.

In this study more important result was found in the 
correlation analysis which is presented in table 4. 
According to this table, not only verbal/linguistic and 
bodily/kinaesthetic intelligences but also interpersonal 
intelligence appeared to have significant relation with SPL. As there is no meaningful difference between 
athletes and non-athletes in interpersonal intelligence 
levels (table 3), the positive relation found in correlation 
analyses is very important. This difference in interpersonal 
intelligence appears to be clear evidence for the 
benefit of sports participation, and shows that increasing 
experience in school sports results with the increase of 
interpersonal intelligence level. As the general average of 
female participation to sports activities in Turkey is rather 
low when compared to male participation (Noordegraaf 
and Coknaz, 2014), these benefits appear to be 
important tools to promote girls’ participation to sport 
activities both within school and club frame. Kiremitci 
(2014) also found out that participation to the sports 
activities helped to the socialization process of secondary 
school students as a result of increase in self confidence, 
self esteem, self expression, control of stress and anxiety, and some other positive psychological feelings.

To conclude, this study proved that female students’ 
participation to school sports contribute to development 
of their specific intelligence types. Moreover, increasing 
sport participation experiences contribute to their 
socialization process through the development of 
interpersonal intelligence. Therefore girls should be 
encouraged to take part in school sport competitions, and 
more sport activities should be adopted as 
supplementary activities in the school curriculum. Further 
research is needed to understand the possible 
relationships between various variables, such as different 
sports, gender, psychological and cognitive skills, and MI 
development. And last, it is important in to underscore the 
main limitation of this study; this study did not apply an 
experimental or longitudinal design including changes 
over time. Thus, it would not be appropriate to interpret 
the results in terms of a casual effect between sports 
participation and multiple intelligence development.

Before concluding, it is important to note that further 
studies needed in order to find out the effects of sport 
participation on intelligence development according to 
different sport branches, such as team sports, martial 
arts, mind sports, precision sports, extreme sports, etc. It 
would be definitely interesting to put forward that sports 
have different effects on different types of intelligences 
which would be a valuable contribution for the selection 
of sport types.

Conflict of Interests

The author has not declared any conflict of interest.

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participated in this study voluntarily, and also the 
directors of schools who assisted in the application of the 
inventory.

REFERENCES

Akpinar B, Dogan Y (2011). The theory of multiple intelligences: A 
critical perspective. Cagdas Egitim Dergisi, 23(388): 5-12.

Aktop A, Karahan N (2012). Physical education teachers’ views of 
effective teaching methods in physical education. Procedia-Social 
and Behavioral Sciences, 46: 1910-1913.

academic motivation and motivational balance between academics 
and athletics. The Pennsylvania State University the Graduate 

Bas G, Beyhan O (2010). Effects of multiple intelligences supported 
project-based learning on students’ achievement levels and attitudes 
towards English lesson. International Electronic Journal of 

Bavlı O (2013). Investigation of the multiple intelligence areas of sport 

Bozkus T (2010). The effects of folk dance practices on the multiple 
intelligence development of primary school 5th grade students. Gazi 
University Institute of Education Sciences, unpublished PhD 


Janes L, Koutsopanagou M, Mason CL, Villaranda l (2000). Improving student motivation through the use of engaged learning, cooperative learning and multiple intelligences. Chicago: Master’s action research project, Saint Xavier University and Skylight fieldbased master’s program.


Sport and nutrition education interaction on stress

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The aim of the study was to determine sport and nutrition education interaction on stress. Three groups were selected for the study: control, single treatment and social treatment under nutrition treatment, too. The groups that were under nutrition treatments should have information about the nutrition resources. This experiment was done for two years, 2013-2014. Results showed that sport has significant effect at 5% probability level on weight loss. Also, sport has significant effect at 5% probability level on illness percent decreasing, and decreasing of illness percent under single sport treatment was more than other treatments. The results showed that by increasing the cortisol reactivity ratio, the cortisol concentration at the end measurement decreased. This study concluded that doing daily exercise and using of benefit nutrition resource can be a new natural technique for coping with stress.

Key words: Cortisol, hydrocarbon, vitamin C, single exercise, social exercise.

INTRODUCTION

In recent years, academic studies showed that sports is not only a game but also a life style, a social phenomenon and a need such as eating, drinking. Research also indicated social and individual benefits of sports activities and contributed the recognition of scientific branch which was necessary for whole society (Sari et al., 2012). The stress concept was first used by Dr. Hans Selve, Canadian physiology scholar and defined it as ‘organisms non-specific (common) reaction to all kinds of change’ (Sari et al., 2012). Stress is an inevitable reality of everyday life (Avsaroglu, 2007). Stress seems to trigger productivity and ability in society, but actually it has negative psychological effects on individual and it can even result such as death (Altungul, 2006; Avsaroglu and Tasgın., 2011). Stress identification is not easy, so a description is more preferred and it is a complicated concept. There are many stress definitions. The term stress has long been widely used but there was not one and enough definition. Depending on that stress was used as a meaning of resistance against deterioration and distortion of form due to person and object power (Baltas and Baltas, 2000). Any factors can be source of stress in the surrounding environment (Kara, 2009). Then, individual must gain skills to struggle with stress factor and developer compliance (Ozdevecioğlu and Yalçın, 2010). Stress can be found in the lives of all human beings and is an inevitable fact of life. Since stress caused emotional and physical pressures are undesirable and irritant, therefore, people are motivated to take actions to reduce their stress. Stress reactions are very different and this is because of the different types of coping. Coping is cognitive and behavioral efforts that is
done to manage internal and external requirements that are considered as stressful and supra-personal resources and aims to eliminate, minimize or tolerate stress. These efforts are in the form of performing an activity or work, or in the form of mental activity. The results concluded that there is a significant relationship between the ways to deal with stress, social support and self-efficacy (Kerry, 2013). Coping with stress is necessary to protect psychological and physical health and to live a healthy, productive life. The most important psychological effects of stress are anxiety and depression (Dagdeviren, 2009). The study of stress has been and continues to be of heuristic value to the sports sciences. Indeed, from a psychosocial perspective, there has been considerable discussion and debate of how to investigate stress-related cognitions and behaviour (Hanton et al., 2005). The conception of stress aside, additional concerns exist regarding the research that has examined the stressors experienced by performers. Specifically, some investigators have not considered the origin of these demands— that is, whether they emanate from competitive or organizational sources (Fletcher et al., 2006). Primary appraisal is the process of assessing the impact of the event in relation to the individual’s physical and psychological well-being. Females have been found to appraise a specific stressor more severely than males (Tamres et al., 2002). A variety of stressors tend to elicit self-grooming in the rat, but the time course, form and magnitude of grooming are different with the different stressors (Erp et al., 1994). Despite the theoretical idea that a model should reproduce all properties of the phenomenon under investigation, this is achieved, reflecting the complex manifestations of psychiatric disorders and the huge cognitive differences between humans and laboratory animals. Animal models of anxiety, so, do not intend to replicate all features and symptoms of a specific anxiety disorder but rather generate a state of anxiety that could be related to these disorders. Animal models that measure unconditioned conflicts are defined as ethological, since they are all based on unlearned fear/ avoidance behavior, whereas models that involve learned/punished responses are referred to as conditioned operant conflict tests (Campos et al., 2013). Exposure to stressors induces behavioral and neuroendocrine squeal that are often used to experimentally mimic in animals the symptoms that characterize specific human psychiatric disorders. This is possible because animals of the same species, strain, sex, and age maintained in controlled environmental conditions show a sufficiently homogeneous response to stressful conditions that is proportional to the intensity of the stressor and the duration of the exposure (Willner, 1995).

In animal studies glucocorticoids stimulate pleasurable behaviors such as drug taking and palatable feeding (Goeders, 2003). Animal models of stress include stressors such as hunger, cold exposure, inescapable food shock, tail pinch, physical restraint or exposure to a socially dominant member of the same species (Bhatnagar et al., 2000). Under conditions of acute stress, increases in brain serotonin may improve stress adaptation and thus may contribute to the initiation as well as termination of a cortisol response by way of different serotonergic pathways in the brain (Takeda et al., 2004). The potentially detrimental role of stress highlights the importance of examining and implementing healthcare interventions that control the impact of stress on health. A variety of practical interventions for stress management (to control physiological stress–reactivity) has been proposed including aerobic exercise. Exercise has been proposed to reduce sympathetic responses to stress thereby limiting exposure to repeated patho-physiological hypersympathetic arousal. Although there is a general consensus that chronic aerobic exercise (a physiological adaptation to exercise training) exerts a significant anti-hypertensive effect (Whelton et al., 2002) and acute exercise (the physiological response to one bout of exercise) results in post-exercise hypotension (Pescatello and Kulikowich, 2001), the relationship between chronic/acute exercise and stress related BP responses is less clear. Health and fitness are complex notions encompassing a variety of meanings, are influenced by a myriad of issues and having unique discourses. Discourses of health and fitness produce and rely on specific meanings of the ‘body’ which are themselves very much dependent upon specific cultural climates (Shea and Beausoleil, 2012). Health claims related to food products and the scientific elucidation process thereof will be the focus of our contribution to the discussion concerning appropriate methods of researching the relationship between food and human health and the scientific evaluation and grading of outcomes of primary research (Hanekamp et al., 2015). In modern societies, human nutrition science has made invaluable contributions to our knowledge of what constitutes a healthy diet (Sassi et al., 2009). Increasingly, the context in which food choice is made is recognised as complex and requiring a multi-disciplinary approach (Bestwick et al., 2013). Nutrition-focused interventions are frequently individualised and often designed to impart knowledge and/or skills for behaviour change (Foresight 2007). Public health nutrition is facing an ingenuity gap: that is, a schism between the quality of the evidence base, the spectrum of problems encountered, and the capacity of current thinking and practice to devise effective solutions (Homer-Dixon, 2006). The foods have three functions. The primary function is a nutritional function, which is essential to human survival. The secondary function is a sensory involving both flavour and texture to satisfy sensory needs. The tertiary function is physiological functions such as regulation of biorhythms, control of aging, the immune system and body defence. An increase in brain tryptophan levels, on the order of that produced by eating
Materials and Methods

Participants

To determine sport and nutrition education interaction on stress, was selected 500 students of university with 20-25 age range; 250 of them were females and 250 of them were males. The participants mean age was 20.5±1.5 years. And mean weight for male was 72.25±3.2 and for female was 62.42±2.7. All of the students were doing B.S. and M.S. of different fields in the university. All of the students live normally and do exercise less than 1 h per day. Their diet is normal and they use different kinds of nutrition resources with various percent of the nutrition resource. All participants volunteered to be involved in the study and were informed of the general purpose of the investigation.

Procedure

The participants were contacted via invited papers on board in the faculties. Participants were assured that the experiments and study did not have any damage for them and the treatments were natural without chemical materials. There were 3 groups in each year. The first group was control, the second group was single sport and the third group was social group, with 20 and 15% more carbohydrate and vitamin C resource compared to normal diet. The groups that were under nutrition treatments learn nutrition sources and their effects. There are 4 groups of nutrition sources and their properties were measured every 3 months during two years such as increasing 20% of carbohydrate resource compared to normal diet and the third group was 20% more carbohydrate-rich, protein-poor meal, causes parallel increases in the amounts of serotonin released into synapses. The aim of this study is evaluation the decreasing factors of the stress, especially in the students that stress can be important factor to educate. Sport and physical activity and nutrition as factors that decrease stress are studied in this research; they influence student life and education progress.

Stress measurement

Cortisol measured in saliva reflects the fraction of cortisol that is free, the portion that crosses the blood-brain-barrier to affect different brain structures. This mechanism is believed to be at the basis for alterations in higher-order cognitive function and behaviour. This free fraction of cortisol, after crossing the blood-brain-barrier, binds to receptors in brain structures that are known to be involved in learning, memory and emotional processing (Lupien et al., 2005). The most common technique used to collect saliva samples for cortisol assay is through the Salivette device, a cotton dental roll placed in a pierced tube, fitted in an external tube. To reduce bacterial growth, it is recommended to cool the sample in the refrigerator or the freezer, until the research team retrieves it. Using this device, saliva samples can be collected at home, by the participant and then mailed back to the laboratory setting without significantly affecting the quality of its assay (Clements and Parker, 1998). All of the samples were collected at afternoon in the starting day and the end day of the third month by the participant at home. In study designs when participants are instructed to collect saliva samples at home, it is important to remind the participants to respect the prescribed timing and conditions of saliva collection. We have evaluated an enzyme immunoassay (EIA) for salivary cortisol marketed by Salimetrics.

A microtitre plate is coated with monoclonal antibodies to cortisol. Cortisol in standards and unknowns competes with cortisol linked to horseradish peroxidase for the antibody binding sites. After incubation, unbound components are washed away. Bound cortisol peroxidase is measured by the reaction of the peroxidase enzyme on the substrate tetra methyl benzidine (TMB). This reaction produces a blue color. A yellow color is formed after stopping the reaction with sulfuric acid. Optical density is read on a standard plate reader at 450 nm. The amount of cortisol peroxidase detected, as measured by the intensity of color, is inversely proportional to the amount of cortisol present. The cortisol concentration was identified as μg/dL. unit but Cortisol reactivity was computed by ratio way.

Ratio=concentration of primary time/concentration of end time.

Statistics analysis

Statistical evaluation of the data was accomplished by a repeated measures analysis of variance. In addition, a comparison between the groups was analysed with a one-way analysis of variance. In the event of a significant F-ratio, LSD post hoc tests were used for pairwise comparisons. A criterion alpha level of P ≤ 0.05 was used to determine statistical significance. Effect size (ES) calculations were used to determine the magnitude of treatment effects, and are reported with all statistically significant results as a measure of practical significance. All data are reported as means ± standard deviation.

RESULTS

Analysis of variance results showed that the effects of sport, nutrition and their interaction effects were significant on the studied persons stress at 5% of probability level. The P amount for the control group, single sport group and social sport group for the first year was 1.000, 0.0001 and 0.001, respectively and F amount was 0.69, 4.53 and 3.96, respectively. The P amount for the control group, single sport group and social sport group for the second year was 0.98, 0.006 and 0.002, respectively and F amount was 0.61, 4.21 and 3.60, respectively.

Weight change

According to the means comparison of weight under
three groups of treatment (control, 2 h single sport and 2 h social sport) resulted that sport has significant effect at 5% probability level on the weight decreasing and its changing. Decreasing of weight under single sport treatment was more than other treatments. It can be as a result of the emotional factors and stress that had negative effects on the weight decreasing and decrease the weight of the social group by raising trend of weight decline. Although the result was shown the mean weight decreasing under social sport treatment but this decreasing was normal and as a result of sport and exercise. Also, in control group there was weight increasing and this group showed no decreasing change for the weight (Figure 1). According to the means comparison of weight under three group of treatment (control, 2 h single sport+20% carbohydrate increasing in nutrition resource and 2 h social sport+20% carbohydrate increasing in nutrition resource+15% vitamin increasing in nutrition resource) resulted that sport and nutrition had significant effect at 5% probability level on the weight changing trend and decreasing of weight under the second treatment (single sport) was the nearly similar to the third treatment (social sport). It showed that nutrition can modify the sport effects on the weight decreasing and fix the eight changing trend. Also, by the fixing the weight changing trend and improving the nutrition can be influenced on the stress that may be as a result of weight increasing or un-sufficient nutrition. The second and third treatment did not have significant difference at 5% probability level. Also, control treatment had weight increasing and the less positive changing for the weight (Figure 3).

Illness percent

According to the means comparison of illness percent under three group of treatment (control, 2 h single sport and 2 h social sport) resulted that sport has significant effect at 5% probability level on the illness percent decreasing and decreasing of illness percent under single sport treatment was the most than other treatments that it can be as a result of the emotional factors and stress and had negative effects on the illness percent decreasing. Also, for the control treatment there was not regular trend for the illness percent trend and did not show significant difference during the months (Figure 5). The other data of
Figure 2. The weight mean of female group during the second year of study.

Figure 3. The weight mean of male group during the first year of study.

Figure 4. The weight mean of male group during the second year of study.
illness percent for the other months of female and male group during the years did not have significant difference and they were fiddling amounts so did not indicated their results. Also, the results showed that sport and nutrition diet had significant effects at 5% probability level on the illness percent and caused to decrease the percent.

**Stress**

The results showed that by increasing the cortisol reactivity ratio, the cortisol concentration at the end measurement decreased so for the first year was indicated that the ratio was decreased for the second treatment (single sport) and indicated stress increasing in this treatment, but in the third treatment (social sport) the ratio increased and indicated the cortisol concentration decreasing at the end measurement and stress decline. Also, the results illustrated the more effects of stress on the female emotional and their life. In the second year the ration both for the second group and third group increased and showed the cortisol decreasing and stress decline and indicated the nutrition resource effects on the stress decline especially in the second treatment that influenced by stress more the third treatment. So the nutrition and sport interaction on the stress decline was significant at 5% probability level. The control treatment did not have significant difference between the months during two years (Figure 6).

The results showed that there were significant difference for the first year and second year at 5% probability level but between the months during one year there was not significant difference. Also ration increasing amount for the second year was more than first year that indicated the nutrition resource effects on the stress that had significant decreasing for cortisol concentration for the second year. Also, between second treatment and third treatment there was significant difference at 5% probability level that illustrated the Vitamin C effect on the stress decline. Male group was influenced by the stressless than the female group (Figure 7).

**DISCUSSION**

The results illustrated positive correlation between stress levels and active coping and ego-orientation (Lyne and Roger, 2000). Students can securely gain psychological skills, which are generally acquired through sports events, if they subjectively practice activities for the primal purpose of sport activities, that is, "Enjoying sports as a challenge for techniques and records of higher level (the Ministry of Education, Culture, Sports, Science and Technology (Murakami et al., 2004). The results showed that male group had more stress management skill than the female group and can coping with the stress both under single and social group at 5% probability level both in the first and second year, but female under single group was influenced on the stress and emotional problems (Althaus, 2005). Despite the overwhelming evidence of the relation between diet and health as a general concept, it is an expression of the inadequacies of the nutritional sciences that the fundamental details thereof still elude us for the most part (Godfrey-Smith, 2003). Cognitive appraisal is recognized as a critical process in the stress and emotion process and reflects underlying beliefs related to personal well-being in important situations (Moors et al., 2013; Lazarus, 2000). Positive psychological adjustment in achievement settings like sport should be reflected by higher
perceptions of perceived control and challenge and lower perceptions of threat (Adie et al., 2008). There are many other different types of appraisals that could be assessed in sport achievement settings (Moors et al., 2013). The results suggest an acute bout of aerobic exercise (of moderate to high intensity) attenuates stress related BP responses. Interestingly, the findings from the present review are comparable to a previous meta-analysis of stress reactivity research (Crews and Landers, 1987) that focused on the effects of fitness (a chronic exercise adaptation). Crews and Landers (1987) reported that greater physical fitness reduced responses to psychological stressors (Hamer et al., 2006). Acute stress does alter normal eating patterns as reported by Torres and Nowson (2007). Sweet foods, therefore, appear to provide comfort to the stressed individual and such comfort may be due to innate biological processes (Pecina et al., 2006). Pretreatment with corticosterone exaggerates the effect and is thought to mimic a condition of chronic stress (Mantsch et al., 1998). There is accumulating evidence that highly palatable food has properties that promote dependence. As with drugs of abuse, palatable food can activate the brain reward system, comprising opioid, dopamine and endocannabinoid (Cota et al., 2006). The results showed that the food with carbohydrate resource can decrease the

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**Figure 6.** The ratio of Cortisol reactivity mean of female group during the first and second year of study.

**Figure 7.** The ratio of Cortisol reactivity mean of male group during the first and second year of study.
stress of persons by 11.8%, but this amount can be changed under different condition such as acute stress (Wallis and Hetherington, 2004). The researchers showed that the young persons that ingest more vitamin resources in their food are more happy than the persons have less consumption of vitamins as 26.7%. Also, this percent increases by vitamin C consumption compared to the other vitamins (Zellner et al., 2006). According to the results, vitamin C consumption by decreasing the illness percent can be effected on the happiness and stress decline. This matter showed more percent in female in compare to the male as 17.2% (Wardle et al., 2000).

**Conclusion**

This study extends previous research by researchers studying about different treatments about sport, nutrition education and information and used of the studying results for coping the stress. Doing daily exercise as single and social and using of benefit nutrition resource such as hydrocarbon and vitamin C can be a new natural technique for coping stress. We demonstrated that both male and female students. This study results showed that sport had positive effects on the stress decline, especially female reaction was more significant in compare to male. The result, however, did not support the tendency. Indeed, it was contradictory to the hypothesis that health-related life skills can be acquired through sport activities. This study indicated that social sport was more effective on the stress decline and illness percent than single sport, although for male this fact was not significant. Also, sport by decreasing the weight could had significant effect on the stress and decrease it. The result showed a significant primary effect in gender in each sub-scale scores of 'Physical Activities Skill,' 'Target Pursuing Skill,' 'Stress Management Skill,' and 'Interpersonal Relationship Skill,' and also in grade in each sub-scale scores of 'Physical Activities Skill,' 'Target Pursuing Skill,' 'Stress Management Skill,' 'Interpersonal Relationship Skill,' and 'Collective Behaviour Skill.' Especially, males were able to use exercises and sports more positively and have higher stress management skill than females. Nutrition education and use of carbohydrate and vitamin C resource affected weight decreasing, illness percent and stress significantly. Especially, for the female group under single exercise, using of the nutrition resource had significant effects in compare to the other treatments. Carbohydrate decreased stress but its reaction with vitamin C had significant difference at 5% probability level and caused decline in stress and illness percent compared to carbohydrate; it keeps weight under normal condition, decreases and controls it.

**Conflict of Interests**

The authors have not declared any conflict of interests.

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**REFERENCES**


Altungul O (2006). Personal Characteristics of the participants in the Light of Football for Determination of Stress levels (Master Thesis). Institute of Health Sciences, Firat University, Department of Physical Education and Sports.


Dagdeviren I (2009). Stress and Struggle with Stress, Kayseri Police Department, Counseling and Guidance Bureau.


Kara D (2009). Factors Causing Stress to Education Life and Examination of Students Behaviours to Cope with Stress according to their Family Features. Selcuk University Social Sciences Institute.


Full Length Research Paper

Review of the relationship between the college students’ attitudes towards love and depression levels

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This study aims to review the relation between college students’ love attitudes and depression levels. Subjects selected were 125 male and 275 female bachelor’s and master’s degree students; a total of 400 students from various universities in Istanbul in academic year 2013-2014. Data for this study were collected employing both the Love Attitudes Scale (short form) developed by Hendrick et al. based on the love styles classification by Lee, and the Beck Depression Inventory developed by Beck et al. Review of the findings obtained from this study reveals as follows; there are meaningful statistically inverse correlations between the students’ depression scores and passionate love attitudes, and meaningful statistically linear correlations between their playful love attitudes and possessive love. No meaningful correlations were found between their other love attitudes and depression level. The findings obtained were discussed with reference to relevant literature and the other studies conducted on this subject, and various suggestions were made under the frame of the findings.

Key words: Love, love attitudes, depression, young adult.

INTRODUCTION

Along with being an essential topic of philosophy and literature, in particular love also became a focus of interest in psychology field. This interest is substantially arises from the desire of understanding the social and psychological traces on human created by being in love. Love is a phenomenon that combines all emotions, behaviors, and attitudes. Not only being able to originate from positive emotions, love may be originated from negative emotions as well. Love related topics were not considered scientific to be analyzed in 1950’s and it caused this topic to be ignored. However, psychologists started to reanalyze the topic in last thirty years (Büyükgşahin, 2004; Myers and Shurts, 2002; Neto, 2005).

Various researchers explained love in different ways and tried to make a classification of various love forms. Lee stated that approaches towards love are different seeing a black and white picture; therefore, he used colorfulness as a resemblance in order to explain love suggesting the need to compose a colorful picture of love. Being named after Greek words and signified as primary for the first 3 and secondary for the other 3, there are 6 types of love; passionate love (Eros), friendship love (Storge), game-playing love (Ludus), possessive love (Mania), practical love (Pragma), and altruistic love (Agape). When the description of love concept is examined, determination of the difference between love

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and friendship and the efforts to measure love, Rubin’s (1970) emphasis on the differences of emotions felt in love and friendship relations are found to be amongst the first studies on love.

According to Rubin (1970), love is an attitude that combines three compounds such as intimacy, protection and commitment. In the following years, Berscheid and Walster’s (1974) passionate love, Walster and Walster’s (1978) classification of passionate love and friendship love are among the most comprehensive and the most significant social psychological studies carried out on love. Passionate love is associated with profound desire for being together with the other person, intensive physical arouse (temperature, sweating, dizziness etc.), feeling emptiness in case of a separation with that person and having anxiety. Friendship love is defined as an emotional state which includes endeavoring for the happiness of the other person, taking care of that person, sharing self-disclosure behaviors and experiences correlatively, understanding, compassion, protection, sympathy and deep affection (Hatfield, 1988).

Another frequently mentioned model in the literature is Sternberg’s (1986) triangular theory of love. According to this model, love has three important elements. These are passion, intimacy and commitment. Sternberg implied that these components of love can be regarded as a three sided triangle. For this reason, his theory was named as triangular theory of love. According to Sternberg, passion, intimacy and commitment remain in all love relationships at different levels (Cited in Büyükşahin, 2006).

In the literature, it is seen that most of love-related studies are focused on positive emotions of being in love. The findings of the studies on this subject revealed that there are relations at significant levels between positive emotions such as love and happiness, appreciation and satisfaction(cited in Özer and Tezer, 2008) and that love is one of the most important factors which predicts one’s state of being well (Masuda, 2003). In addition, it is also seen that there is a relationship between love and negative emotions/psychological state. In the theory of Berscheid and Walster, it was implied that even unpleasant emotional experiences will become a stimulus in love and if they are referred as convenient parts of being in love, they will strengthen the passionate love experience. Therefore, fear, being rejected, being precluded and being opposed might contribute to the emotion of love invariably (Cited in Atkinson, 1999). In the study conducted by Büyükşahin and Hovardağılı (2004), love attitudes of couples were analyzed. Researchers obtained the findings that men are more altruistic than women, yet there was not a significant difference between women and men concerning other styles of love. They found a positive relationship between the happiness of couples and altruistic and passionate love styles, and a negative relationship between game-playing love styles. Especially stupid love (passion and commitment elements), which is a type of love, is a Hollywood style love; in which two people meet each other the way we see it in the movies and soon after they get married. Evolved in time, intimacy is disregarded; a commitment based only on passion is established. They put passion onto the basis of their relationships; yet when the passion decays, they get disappointed. Possessive love (Mania) is a jealous, insecure, obsessive, and slightly pathologic type of love as well. Possessive lovers are in tendency of being insecure about their relationships and they live with the constant fear of losing the partner. Even if the relationship is problematic, people with passionate love usually fail to end it; it is generally the partner who ends the relationship (Büyükşahin, 2004).

Another phenomenon that predicts strong emotions on the individual is depression. Depression is one of the most common disorders among mental illnesses. Due to the different research methods, the conducted data related to frequency and prevalence of depression differentiates. The frequency of depression generally may vary between 9 and 20% and risk of lifelong depression may vary between 8 and 12 % among men, 20 and 26% among women (Öztürk, 2004). The word ‘depression’ in Western languages can be used to define an emotion, a cluster of indication or a manifestation that has diagnosis criteria (Favazza, 1985). Cognitive approach does not accept that causes of depression come from outside. Beck (1967) who stated that depression is a thought disorder more than an feeling, emphasized that evaluating self as worthless, world as meaningless and future as hopeless are the primary elements of depression. According to Beck, negative and decayed mentality, ideas and symbols form the roots of depression (cited in, Boyacıoğlu, 1994). According to this theory, the depressed person feels worthless, insufficient, holds oneself responsible for negative situations and thinks he/she is not liked by others. He/she perceives the relationships with others and experiences in a negative way, thinks that world is full of difficulties that are impossible to overcome. He/she also perceives future as a dark, in failure expectancy and a hopeless state (Savaşır and Yıldız, 1996).

A study examining the relationship between love, which has been examined with its various aspects in the field of psychology in recent years, and depression that is frequently seen in the society is not conducted in our country so far. The inception of this study is to support the forthcoming and similar studies, and to regard the subject as being current.

The general purpose of this study is to determine the relationship between love attitudes of university students and their depression levels. In accordance with this
purpose, these are the sub-purposes to be answered:
a) Is there any relationship between university students’ styles of attitude towards love (including sub-scales) and their depression levels?
b) Do university students’ styles of attitude towards love and depression levels differentiate according to their gender, age, type of universities and previous love experience?

METHOD
Model of study
In this study, relational survey model was used to describe evaluating university students’ attitudes towards love and their depression levels (Karasar, 1999). Relational survey model was used to examine the university students’ attitudes towards love and depression levels in the study.

Study group
The study group consists of 125 male, 275 female students, in total 400 bachelor and master students in Marmara University and Maltepe University in 2010-2011 academic year.

Data collection instruments
In order to collect data; personal information form, Love Attitudes Scale (short form), and Beck Depression Inventory were used in the study.

Personal information form
The form was structured by the researcher aiming to ascertain the demographic features of the university students that participated in the study group.

Love Attitudes Scale (Short Form)
Based on Lee’s (1973) love styles, Love Attitudes Scale: Short Form (LAS) was developed by Hendrick et al. (1998) to determine love styles of people’s relationships (Büyükşahin and Hovardaoğlu, 2004). LAS Short Form measured six different love styles as passionate love, friendship love, game-playing love, possessive love, practical love and altruistic love. LAS consists of 24 items, four of them measure each type of love style. The subscales of LAS (short form) consisted of three-item or four-item were obtained by factor analysis in three different studies. Cronbach Alpha reliability coefficient of the subscales range from 0.62 to 0.88 regarding each of the sub-dimension and all of them are significant (Büyükşahin and Hovardaoğlu, 2004). In conclusion, the studies related to the reliability, validity and Turkish adaptation of LAS Short Form indicated that the scale has the required qualifications to be used in studies. Along with psychometric properties, it is also practical for application; therefore, “Love Attitudes Scale: Short Form” was preferred to be used in this study.

Beck Depression Inventory
Developed by Beck (et al., 1961), Beck Depression Inventory is the most frequently used self-report scale in depression studies. There are two types of BDI: the first is the original 21-question form was developed in 1961 and evaluated the patients’ present mood together with patient and clinician. The second 21-question form was developed in 1978 and it is a self-evaluation form and can be applied into groups (cited in Doğan, 2006). Nesrin Hisli Şahin adapted Beck Depression Inventory into Turkish and developed the Turkish Form. Hisli (1988) conducted a validity survey of Beck Depression Inventory with Turkish university students. The studies conducted in both Turkey and abroad indicated that Beck Depression Inventory is a reliable and valid instrument.

Data analysis
After collecting data, “Beck Depression Inventory” and “Love Attitudes Scale” was scored. Incomplete and incorrect forms were not put to scoring process. SPSS for Windows 16.00 package program was used to analyze and interpret the data collected form “Personal Information Form”, “Beck Depression Inventory” and “Love Attitudes Scale”.

FINDINGS
The range of demographic variables of the students that participated in the study is shown in Table 1.

As seen from Table 2, it was found out that there was a linear but statistically insignificant relationships (total attitude, r=.060; practical attitude r=.060; altruistic attitude, r=.064;) between the students’ total depression scores and love attitudes styles (p>.050). In other words, the more students’ depression scores increase, the more their total love, practical love and altruistic love attitudes scores increase though being statistically insignificant. It was also found out in the same table that there was a statically insignificant inverse relationship (p>.050) between the students’ depression scores and friendship
Table 2. The results of Pearson product-moment correlation coefficient for determining between students’ depression levels and styles of love attitudes (total, passionate, game-playing, friendship, practical, possessive and altruistic love sub-scales).

<table>
<thead>
<tr>
<th></th>
<th>Total Depression</th>
<th>Total Love Attitude</th>
<th>Passionate Love</th>
<th>Game-Playing Love</th>
<th>Friendship Love</th>
<th>Practical Love</th>
<th>Possessive Love</th>
<th>Altruistic Love</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Depression</strong></td>
<td><strong>r=1</strong></td>
<td>.060</td>
<td>.165**</td>
<td>-.165</td>
<td>-.050</td>
<td>.060</td>
<td>.203**</td>
<td>.064</td>
</tr>
<tr>
<td><strong>Total Love Attitude</strong></td>
<td><strong>r=1</strong></td>
<td>.629**</td>
<td>.259**</td>
<td>.584**</td>
<td>.493**</td>
<td>.612**</td>
<td>.694**</td>
<td></td>
</tr>
<tr>
<td><strong>Passionate Love</strong></td>
<td><strong>r=1</strong></td>
<td>-.059</td>
<td>.348**</td>
<td>.144**</td>
<td>.163**</td>
<td>.428**</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Game-Playing Love</strong></td>
<td><strong>r=1</strong></td>
<td>-.005</td>
<td>.063</td>
<td>.162**</td>
<td>-.074</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Friendship Love</strong></td>
<td><strong>r=1</strong></td>
<td>.075</td>
<td>.120</td>
<td>.233**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Practical Love</strong></td>
<td><strong>r=1</strong></td>
<td>.219**</td>
<td>.171**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Possessive Love</strong></td>
<td><strong>r=1</strong></td>
<td>.405**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Altruistic Love</strong></td>
<td><strong>r=1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3. The results of independent group t-test to determine whether the students’ depression levels differentiated by their genders.

<table>
<thead>
<tr>
<th>Score</th>
<th>Gender</th>
<th>N</th>
<th>X</th>
<th>SS</th>
<th>Sh x</th>
<th>T</th>
<th>Sd</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>126</td>
<td>31.99</td>
<td>9.13</td>
<td>0.81</td>
<td>-.223;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>275</td>
<td>32.22</td>
<td>9.94</td>
<td>0.59</td>
<td>p&gt; .396</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

When Table 4 was examined, it was ascertained that there was no statistically significant differentiation between the groups according to the results of independent group t-test conducted to determine whether the students’ love attitudes styles (total, passionate, game-playing, friendship, practical, possessive and altruistic love sub-scales) differentiate by their genders (p>.05). In other words, the scores of students’ love attitudes styles (total, passionate, game-playing, friendship, practical, possessive and altruistic love sub-scales) do not differentiate statistically significant according to their genders.

According to the results of Kruskal Wallis-H Test conducted on the purpose of determine whether the students’ depression levels are differentiated by their age or not, the difference among average scores of the groups was found as statistically insignificant (p>.05). In other words, the depression levels of students do not differentiate by their ages.

According to the results of Kruskal Wallis-H Test conducted to determine whether the students’ love attitudes styles (total, passionate, game-playing, friendship, practical, possessive and altruistic love sub-scales) differentiate by their age or not, the difference among average scores of the groups was found as statistically insignificant (p>.05). In other words, students’ love attitudes styles (total, passionate, game-playing, friendship, practical, possessive and altruistic love sub-scales) do not significantly differentiate from their ages (Table 6).

When Table 7 was examined, it was found out that there was no statistically significant differentiation between
Table 4. The results of independent group t-test to determine whether the students’ love attitudes styles (total, passionate, game-playing, friendship, practical, possessive and altruistic love sub-scales) differentiate by their genders.

<table>
<thead>
<tr>
<th>Score</th>
<th>Gender</th>
<th>n</th>
<th>( \bar{x} )</th>
<th>SS</th>
<th>Sh_( x )</th>
<th>f Test</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passionate</td>
<td>Male</td>
<td>125</td>
<td>14.08</td>
<td>3.12</td>
<td>0.27</td>
<td>-0.283;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>275</td>
<td>14.17</td>
<td>3.07</td>
<td>0.18</td>
<td>&gt;0.555</td>
<td></td>
</tr>
<tr>
<td>Game-Playing</td>
<td>Male</td>
<td>125</td>
<td>11.16</td>
<td>2.63</td>
<td>0.23</td>
<td>2.842;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>275</td>
<td>10.38</td>
<td>2.51</td>
<td>0.15</td>
<td>&gt;0.329</td>
<td></td>
</tr>
<tr>
<td>Friendship</td>
<td>Male</td>
<td>125</td>
<td>11.67</td>
<td>3.57</td>
<td>0.32</td>
<td>-0.111;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>275</td>
<td>11.67</td>
<td>3.86</td>
<td>0.23</td>
<td>&gt;0.362</td>
<td></td>
</tr>
<tr>
<td>Practical</td>
<td>Male</td>
<td>125</td>
<td>11.32</td>
<td>3.19</td>
<td>0.28</td>
<td>-3.954;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>275</td>
<td>12.63</td>
<td>3.02</td>
<td>0.18</td>
<td>&gt;0.479</td>
<td></td>
</tr>
<tr>
<td>Possessive</td>
<td>Male</td>
<td>125</td>
<td>11.83</td>
<td>3.13</td>
<td>0.28</td>
<td>-2.548;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>275</td>
<td>12.66</td>
<td>2.96</td>
<td>0.17</td>
<td>&gt;0.859</td>
<td></td>
</tr>
<tr>
<td>Altruistic</td>
<td>Male</td>
<td>125</td>
<td>12.66</td>
<td>3.77</td>
<td>0.33</td>
<td>3.579;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>275</td>
<td>11.25</td>
<td>3.60</td>
<td>0.21</td>
<td>&gt;0.486</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>Male</td>
<td>125</td>
<td>72.73</td>
<td>12.03</td>
<td>1.00</td>
<td>-0.039;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>275</td>
<td>72.78</td>
<td>10.18</td>
<td>0.61</td>
<td>&gt;0.289</td>
<td></td>
</tr>
</tbody>
</table>

Table 5. The results of Kruskal Wallis – H test to determine whether the students’ depression levels differentiated by their ages.

<table>
<thead>
<tr>
<th>Score</th>
<th>Age</th>
<th>( N )</th>
<th>( \bar{X}_{sira} )</th>
<th>( x^2 )</th>
<th>sd</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depression Levels</td>
<td>17-19 ages</td>
<td>38</td>
<td>184.96</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>20-22 ages</td>
<td>205</td>
<td>202.25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>23-25 ages</td>
<td>136</td>
<td>197.75</td>
<td>2,121</td>
<td>3</td>
<td>0.548</td>
</tr>
<tr>
<td></td>
<td>26 ages and over</td>
<td>21</td>
<td>229.33</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>400</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

the groups according to the results of independent group t-test conducted to determine whether or not the students' depression levels differentiate by the types of universities (p>0.050). In conclusion, depression levels of the students who participated in this research do not differentiate by the types of universities that they are studying at.

When Table 8 was examined, it was indicated that there was no statistically significant differentiation between the groups according to the results of independent group t-test conducted to determine whether the students’ love attitudes styles (total, passionate, game-playing, friendship, practical, possessive and altruistic love sub-scales) differentiate by the types of universities (p>0.050). In other words, the scores of students' love attitudes styles (total, passionate, game-playing, friendship, practical, possessive and altruistic love sub-scales) do not differentiate statistically significant according to the types of university. However, it was found out that the scores of students' practical love attitudes statistically differentiate by the types of universities that they are going (p<0.010). This differentiation resulted in favor of the students who have been educating in private universities. In other words, private university students have more significant practical love attitudes than the public university students.

When Table 9 was examined, it was ascertained that there was statistically significant differentiation between the groups according to the results of independent group t-test conducted to determine whether the students’ depression levels differentiate by their previous love experiences (p<0.050). This differentiation derived from the students that do not have any previous love experiences. In conclusion, students that do not have any previous love experiences have more significant depression levels than the ones who have previous love experiences.

According to Table 10, it was found out that there was
Table 6. The results of Kruskal Wallis – H test to determine whether the students’ love attitudes styles (total, passionate, game-playing, friendship, practical, possessive and altruistic love sub-scales) differentiated by their ages.

<table>
<thead>
<tr>
<th>Score</th>
<th>Age</th>
<th>N</th>
<th>$\bar{x}_{sra}$</th>
<th>$x^2$</th>
<th>sd</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passionate</td>
<td>17-19 ages</td>
<td>38</td>
<td>223,43</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>20-22 ages</td>
<td>205</td>
<td>195,13</td>
<td>5,219</td>
<td>3</td>
<td>.156</td>
</tr>
<tr>
<td></td>
<td>23-25 ages</td>
<td>136</td>
<td>208,45</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>26 age and over</td>
<td>21</td>
<td>159,95</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>17-19 ages</td>
<td>38</td>
<td>169,63</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Game-Playing</td>
<td>20-22 ages</td>
<td>205</td>
<td>202,35</td>
<td>3,125</td>
<td>3</td>
<td>.373</td>
</tr>
<tr>
<td></td>
<td>23-25 ages</td>
<td>136</td>
<td>205,15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>26 age and over</td>
<td>21</td>
<td>208,19</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>17-19 ages</td>
<td>38</td>
<td>208,42</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Friendship</td>
<td>20-22 ages</td>
<td>205</td>
<td>198,40</td>
<td>3,813</td>
<td>3</td>
<td>.846</td>
</tr>
<tr>
<td></td>
<td>23-25 ages</td>
<td>136</td>
<td>204,03</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>26 age and over</td>
<td>21</td>
<td>183,86</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>17-19 ages</td>
<td>38</td>
<td>197,43</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Practical</td>
<td>20-22 ages</td>
<td>205</td>
<td>200,84</td>
<td>3,790</td>
<td>3</td>
<td>.285</td>
</tr>
<tr>
<td></td>
<td>23-25 ages</td>
<td>136</td>
<td>207,79</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>26 age and over</td>
<td>21</td>
<td>155,48</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>17-19 ages</td>
<td>38</td>
<td>221,93</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Possessive</td>
<td>20-22 ages</td>
<td>205</td>
<td>194,62</td>
<td>2,516</td>
<td>3</td>
<td>.472</td>
</tr>
<tr>
<td></td>
<td>23-25 ages</td>
<td>136</td>
<td>205,75</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>26 age and over</td>
<td>21</td>
<td>185,14</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>17-19 ages</td>
<td>38</td>
<td>222,12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Altruistic</td>
<td>20-22 ages</td>
<td>205</td>
<td>194,69</td>
<td>4,566</td>
<td>3</td>
<td>.206</td>
</tr>
<tr>
<td></td>
<td>23-25 ages</td>
<td>136</td>
<td>208,72</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>26 age and over</td>
<td>21</td>
<td>164,81</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>17-19 ages</td>
<td>38</td>
<td>218,36</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>20-22 ages</td>
<td>205</td>
<td>194,16</td>
<td>5,032</td>
<td>3</td>
<td>.169</td>
</tr>
<tr>
<td></td>
<td>23-25 ages</td>
<td>136</td>
<td>211,06</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>26 age and over</td>
<td>21</td>
<td>161,67</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>400</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 7. The results of independent group t-test to determine whether the students’ depression levels differentiated by the types of universities.

<table>
<thead>
<tr>
<th>Score</th>
<th>University</th>
<th>n</th>
<th>$\bar{x}$</th>
<th>SS</th>
<th>$Sh_{\bar{x}}$</th>
<th>$t$ Test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Public University</td>
<td>230</td>
<td>32,09</td>
<td>9,23</td>
<td>0,60</td>
<td>$-136$; $p&gt;.414$</td>
</tr>
<tr>
<td></td>
<td>Private University</td>
<td>170</td>
<td>32,22</td>
<td>10,30</td>
<td>0,79</td>
<td></td>
</tr>
</tbody>
</table>

no statistically significant differentiation between the groups according to the results of independent group t-test conducted to determine whether the students’ love attitudes styles (total, passionate, game-playing, friendship, practical, possessive and altruistic love sub-scales) differentiate by their previous love experiences variables ($p>.050$). In other words, the scores of students’ love attitudes styles (total, passionate, game-playing,
friendship, practical, possessive and altruistic love sub-scales) do not differentiate statistically significant according to their previous love experiences.

**DISCUSSION AND CONCLUSION**

Discussions concerning the findings obtained as a result of the conducted study and suggestions brought forward within this framework are covered below:

Linear yet statistically insignificant relationship was obtained between total depression and love attitude styles scores of students who participated in this survey. It was indicated that there was an inverse yet statistically insignificant relationship between students’ depression scores and friendship love attitudes scores. It was stated that there was a statistically inverse relationship between depression scores and passionate love attitude scores; and a statistically linear relationship between game-playing love attitudes and possessive love attitudes scores.

The results of the analysis conducted to examine the relationship between love styles and depression levels of students, a statistically significant inverse relationship between passionate love and depression level was obtained. When related literature was examined, Arnold and Thompson (1995) analyzed the relationship between love forms and personality disorders. People with passionate love types have lower scores on the depression scales. The findings coincide with the literature. When examining the literature, it was seen that Hatfield and Walster defined passionate love as the intensive desire for becoming a whole with one another. When it is a mutual feeling, it is correlated with sense of integration and pleasure. In cases of rejection, it causes emotions as emptiness, anxiety, jealousy, pain, and hopelessness. Consequently, passionate love is a profound state of psychological stimulus (Cited in Curun, ...
Table 10. The results of independent group t-test to determine whether the students’ love attitudes styles (total, passionate, game-playing, friendship, practical, possessive and altruistic love sub-scales) differentiated by their previous love experiences variable.

<table>
<thead>
<tr>
<th>Score</th>
<th>Gender</th>
<th>N</th>
<th>$\bar{x}$</th>
<th>SS</th>
<th>$Sh_{\bar{x}}$</th>
<th>$t$ Test</th>
<th>$T$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passionate</td>
<td>Yes</td>
<td>361</td>
<td>14.22</td>
<td>3,093</td>
<td>0.16</td>
<td>1,621;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>39</td>
<td>13.38</td>
<td>2.97</td>
<td>0.47</td>
<td>p&gt;,495</td>
<td></td>
</tr>
<tr>
<td>Game-Playing</td>
<td>Yes</td>
<td>361</td>
<td>10.67</td>
<td>2.60</td>
<td>0.13</td>
<td>1,019;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>39</td>
<td>10.23</td>
<td>2.31</td>
<td>0.37</td>
<td>p&gt;,126</td>
<td></td>
</tr>
<tr>
<td>Friendship</td>
<td>Yes</td>
<td>361</td>
<td>11.65</td>
<td>3.81</td>
<td>0.20</td>
<td>-0.253;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>39</td>
<td>11.82</td>
<td>3.33</td>
<td>0.53</td>
<td>p&gt;,128</td>
<td></td>
</tr>
<tr>
<td>Practical</td>
<td>Yes</td>
<td>361</td>
<td>12.18</td>
<td>3.14</td>
<td>0.16</td>
<td>-0.824;</td>
<td>398</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>39</td>
<td>12.61</td>
<td>3.00</td>
<td>0.48</td>
<td>p&gt;,555</td>
<td></td>
</tr>
<tr>
<td>Possessive</td>
<td>Yes</td>
<td>361</td>
<td>12.36</td>
<td>3.03</td>
<td>0.15</td>
<td>-0.793;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>39</td>
<td>12.76</td>
<td>3.07</td>
<td>0.49</td>
<td>p&gt;,630</td>
<td></td>
</tr>
<tr>
<td>Altruistic</td>
<td>Yes</td>
<td>361</td>
<td>11.70</td>
<td>3.72</td>
<td>0.19</td>
<td>-0.136;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>39</td>
<td>11.61</td>
<td>3.63</td>
<td>0.58</td>
<td>p&gt;,494</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>Yes</td>
<td>361</td>
<td>72.80</td>
<td>10.77</td>
<td>0.56</td>
<td>0.202;</td>
<td>99</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>39</td>
<td>72.43</td>
<td>11.06</td>
<td>1.77</td>
<td>p&gt;,197</td>
<td></td>
</tr>
</tbody>
</table>

2004). Beştaş (2007) also stated in her research that mostly passionate love style predicts relationship satisfaction of individuals. Therefore, having passionate love attitude, though it may cause negative psychological states on the individual, is a subsidiary for positive feelings as well.

The findings indicated that there is statistically significant linear relationship between the students’ depression levels and game-playing and possessive love attitude. In the study of Arnold and Thompson (1995), it was seen that people with possessive and game-playing love have higher scores in depression scales. When examining the literature which explains attitudes towards love, it can be seen that obtained results are concordant to a large extent. Game-playing love is the love that couples carefully control relationship stages by avoiding making long-term plans and giving promises. These types of people generally have more than one partner and their relationships are short-dated. Therefore, in this love type which is not regular and steady, it is subjected that individuals encounter many problems and life stress in time and these negative situations will cause them to become more prone to depression. However, possessive love attitude is a love type which can be characterized as excessive emotionality, jealousy and obsession. Individuals get jealous of their partners from real or unreal rivals and feel destroyed in case of a rejection. Most of the time, depression and tension cause their relationship to be deteriorated (Lee 1973; 1977). In the first study conducted by Büyüksahin and Hovardaoğlu (2004), they found a negative relationship between game-playing love style and the happiness of the couple. Beştaş (2007) stated that there was a linear relationship between game-playing love attitude and irrational beliefs (as it is found in depression cognitive dimension) in the study which analyzes the relationship between love attitudes and negative automatic thoughts. In the study of Düzgün (2009), it was determined that there is a negative relationship between romantic satisfaction in marriage and depression levels of partners.

In this study, it was stated that there was not a statistically significant difference in students’ depression scores among the groups by gender variable. Examining the studies, research and literature related to the subject, it was seen that there were findings both concordant and discordant with the obtained findings. Some of the conducted studies (Koç, 2008; Yiğit and Yılmaz, 2011; Çelik and Acar, 2007) presented findings as individuals’ depression levels do not differentiate by gender. Öngider and Eyüpoğlu (2013); Bingöl, Demir, and Karabek (2010) stated that depression is more common among women and Otacıoğlu (2008) stated that it is more common among men. All these findings give rise to the thought that depression is not a state only connected with the gender, and it finds meaning when different variables such as negative life-events, individual’s cognitive structures, financial characteristics are involved.

It was seen that students’ attitudes towards love do not differentiate by gender. Obtained findings are concordant with similar studies to a large extent. Büyüksahin and Hovardaoğlu (2004) examined the couples’ love attitudes. Researchers attained the findings that men are more
altruistic than women, yet there was not a significant difference between men and women regarding the other love types. In her study examining love attitudes, Beştaş (2007) stated that love attitudes by gender do not show a significant difference. However, Tüfekçi (2008), Neto (1994), and Ercan (2008) attained the correlated findings in their studies that men have game-playing and altruistic love attitudes more than women, and there was not any difference in the other types of love. It can be suggested that these findings are correlated with the fact that women have more emotional personal characteristics and feel the emotions about love more effectively; men, on the other hand, experience this process without focusing to emotions too much.

It was seen that students’ depression level scores do not statistically differentiate by age variable. Studies conducted with several sample groups concerning this subject reveal different findings about the age variable. Eyüpoğlu (2009) stated that adolescents experience depression more deeply, Ötaçoğlu (2008) and Koç (2008) stated that individuals’ depression levels do not differentiate by age, while Yiğit (2008) and Bingöl et al. (2010) stated that the more age increases, the depression level increases as well. With reference to the hypothesis that different dynamics become active in depression, it can be suggested that the variances in these findings were expectable. It was also found out that students’ love attitudes towards love do not differentiate by their ages.

It was seen that student’s depression scores do not statistically differentiate according to types of university. Depression is a problem which has cognitive, affective and behavioral dimensions (Köroğlu, 1997). Being a woman, an adolescent or elderly, low socio-economic level, being divorced or widow, having depression history in the family, stressful life-events are indicated as significant risk factors for major depression development (Savrun, 1999). As it can be seen in this information listed about depression, predictive variables of depression can happen in all settings and to all individuals.

It was seen that students’ love attitudes also do not differentiate by university types. Yet, it was seen that university students’ practical love attitude scores vary statistically by university types. This differentiation resulted in favor of the students who have been educating in private universities. Practical love is a love type which has historical origins such as arranged marriage or partnership can associated with finding a partner on the internet in the modern times. These type of people consider the other person’s education level, religion, age, family, friends, etc. before they involve in the relationship. They are loyal when they make a reasonable selection. Sexual intercourse is relatively insignificant (Lee, 1973, 1977). Examining the literature related to practical love, it is an expectable finding that love attitudes may be at higher levels among private university students. Because, these individuals who are at a higher level in financial terms usually tend to prefer people at the same level as their own in love, as well and experience their emotional relationships in this state-of-mind.

Examining the students’ depression scores according to their previous love experiences, it was ascertained that depression levels of students that do not have any previous love experience is statistically higher at a significant level comparing to students that have a previous love experience. As a similar finding, in the study conducted by Eyüpoğlu (2009), it was found that married people experienced lower depression levels.

It was seen that students’ love attitudes styles do not vary according to their previous love experiences. As a similar finding relating the subject, in the study conducted by Tüfekçi (2008) it was stated that individuals with an emotional relationship have passionate and altruistic love attitudes more than people with any emotional relationship. As for the other types of love, it does not differentiate according to the fact whether or not the individual has an emotional relationship. A parallel finding was subjected in this study as well.

In the context of obtained finding, the suggestions brought forward are presented below:

Love is a topic which human beings emphasize frequently in literary works and songs, and which occupies an individual’s agenda considerably at a certain stage of life with a few exceptions. In our country there is not adequate scientific study about love, which has various effects on mental health of an individual as it, is an excessive emotional state. It is considered that carrying out more scientific studies about love and love-related topics is important especially in the field of psychological counseling and guidance.

Love and love attitudes of individuals are the phenomena that involve what happened in an individual’s private life, and although it is tried to be identified, they are known as to be personally identifiable. Therefore, it can be suggested that it is essential to support qualitative research with quantitative research in order to be able to reach excessive information about love.

Conflict of Interests

The author(s) have not declared any conflict of interests.

REFERENCES

Full Length Research Paper

Social studies teacher candidates’ views on historical thinking skills

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Current study aimed to present Social Studies teacher candidates’ views on historical thinking skills. Study was conducted using qualitative design and working group was composed of a total of 121 teacher candidates (62 females and 59 males) attending Social Studies Teaching Department of Karadeniz Technical University and Adıyaman University Faculties of Education. Results showed that Social Studies teacher candidates were aware of historical thinking skills and they regarded historical thinking skills as important although they did not fully develop thinking skills in the area and they wished to receive training in the field. The fact that the majority of Social Studies teacher candidates perceived historical thinking skills as thinking about history regarding the conditions of a specific period and some teacher candidates perceived historical thinking skills as empathizing with and comprehending historical events may be interpreted in a manner that teacher candidates perceived historical thinking as historical comprehension. Research results showed that other dimensions and sub dimensions of historical thinking skills were not highly emphasized by the candidates. Teacher candidates stated that the biggest problem in acquiring historical thinking skills was related to the method used in teaching.

Key words: Social studies, history, historical thinking

INTRODUCTION

History teaching, which was previously accepted as “the casebook of the past” and perceived as teaching past events chronologically to students (Sungu, 2002), has undergone a major transformation due to influences created by recent political, economic and technical advances and changes, problems faced by individuals and societies, individual relationships and social value norms (MEB., 2011: 5; MEB, 2010: 6). Today, history teaching aims to contribute to students’ life in some way (Sungu, 2002). When student acquisition of knowledge, skills and behaviors that are required to form a balance between the expectations of society and human needs is in question, history teaching becomes crucial as a social studies discipline (Öztas & Turan, 2009) and educating individuals with awareness of and sensitivity towards history is included among the general goals of this teaching field (MEB., 2011: 5; MEB, 2010: 6). Also, the most significant role of history teaching is providing students with sufficient information and skills about the life they take part in.

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The sole intention of history teaching is not providing information about past events but to understand the phases that the humanity has undergone till today and to better comprehend today’s problems to generate a course of action based on this comprehension (Sungu, 2002). According to Collingwood (1996: 40), knowledge of history is the knowledge of the self in a sense. Knowing oneself means knowing what to do. Since no one can know what to do without trying it first, the only clue is what has been done before. Hence, the value of history lies in its teaching about what humanity is and what it has accomplished so far.

In reality, talking about history is talking about everything; the topics of history are never related only to the past. People, states, systems, problems and even the present are included in sphere of interest. However, the past is always the main theme of history (Safran, 2011: 18).

**Historical thinking skills**

Historical thinking skills, one of the basic elements included among student requirements for acquisitions during history teaching, date back to 19th century (Drake and Nelson, 2005, cited in: Demircioğlu, 2009). Although historical thinking skills are somewhat different from critical thinking skills, they develop students’ critical analysis skills while they examine a historical event or document (Anderson, 2013: 8). Historical thinking skills also allow teaching thinking skills based on logic and reasoning (URL.1). Students will assess the relationships between past events while they learn about history using logic and will be able to use historians’ methods to observe how knowledge is generated (Demircioğlu, 2009).

Discussions following WWII were the main factor in including historical thinking skills in modern countries’ history curriculums. In the 60’s, the goal of teaching history in school programs was discussed in England for the first time and the main topic of those discussions was focused on the types of acquisitions students needed (Phillips, 1996 cited in: Demircioğlu 2009). According to Nichol (1984) even whether or not to teach history in English schools was discussed at that period. Similarly, allegations by developmental psychologists such as Piaget stating that necessary skills and concepts did not develop in children for historical thinking led educators to believe history teaching was to be lessened in amount or even removed altogether for younger children (Ata, 1999). Discussions in 70’s in England regarding why and how history should be taught at schools made revolutionary contributions to the teaching and understanding of history (Hawkey, 2010). Definition of the relationship between thinking and historical learning provided by Jeanette Coltham opened up new horizons in history teaching (Vass, 2015). Coltham and Fines’ work in 1971 titled “Educational Objectives for the Study of History” (Booth, 1983) which aimed to define the structure of history and supported a history curriculum was an important step towards the development of history teaching taxonomy (Ata, 1999).

In short, history programs in England from 1960’s to 1995 were organized in a manner in line with students’ thinking processes and steps were taken to ensure and facilitate their logical thinking. History curriculums and programs in this period underwent a process based on rationality dominated by the optimistic views of Jerome Bruner contrary to Piaget’s pessimistic ones. However, Englishmen did not ignore Piaget’s cognitive stages of development altogether and they adopted teaching of history as a method of research as opposed to solely teaching historical information. Therefore, the idea became dominant that students should write their own history like historians by using resources (Ata, 1999).

A recent approach to history teaching is based on student interests and learning by doing, reflective teaching and critical approaches to history are dominant (Güven et. al., 2014: 2). Progressive organizations, that support dignified teaching of history that includes even the controversial topics based on multi perspectives, critical thinking and mutual respect, believe in the development of skills for innovation and transformation and strive to increase the quality of teaching history and citizenship by promoting teacher training and innovative teaching materials with a process-based approach (Roord, 2012: 6). History perception that is objective and free from sentimentalism will only be possible with teaching historical thinking skills that require analytical and scientific thinking (Demircioğlu, 2009). In this way, students will be able to better comprehend, visualize and restructure historical knowledge (Anderson, 2013: 8). In this context, various skills have been identified by The National Center for History in United States of America which included historical thinking skills in history programs. These skills are: (URL.2)

**Chronological thinking skills**

Chronological thinking, the base for the science of history, acts like a cognitive structure that organizes historical thinking. Chronology is the time and order of events that took place in the past. It is not possible for students to explore relationships between events and explain the cause and effect relationships without this skill (historical-thinking-standards/1).

**Historical comprehension**

Providing students with comprehension of historical texts and historical approaches will necessitate examination of history with the circumstances, concepts and
Historical analysis and interpretation

Historical investigations and research are not about memorizing concepts but to arrive at valid results by using evidence and assessing allegations and claims about a historical point. Students should comprehend that historians can utilize different concepts while creating historical texts. Students need to employ historical comprehension skills in order to undertake historical analysis and interpretations (historical-thinking-standards/3).

Historical research capabilities

Studying about or writing history is maybe the most exciting and constructive dimension of historical thinking. Students should develop hypotheses like a historian by presenting past problems and test these hypotheses to obtain results (Demircioğlu, 2009). In this way, students will better comprehend that written history is manmade obtained from research based on questioning and therefore it is temporary and open to discussions (historical-thinking-standards/4).

Historical issues-analysis and decision-making

Issue-centered analysis and decision-making skills provide students with experiences related to historical dilemmas and problems faced by others at critical moments in the past. Confronting the problems of those periods, analyzing the alternatives, evaluating the consequences of options that were not selected at the time and comparing those with the consequences of actions that were adopted are the activities that will increase student interest and participation. (historical-thinking-standards/5).

Knowledge once regarded at schools as the fundamental goal of education should not be perceived as the memorization of principles, concepts and phenomena. Utilization of knowledge is regarded to be more important than simply having it. Although knowledge will always preserve its value and importance, it will not be that crucial if students cannot use the obtained knowledge to develop several skills such as critical thinking and solving everyday problems (MEB, 2005a: 47; MEB, 2005b: 51).

Along with the reflection of developments in education and training and changes and diversity in educational tools as a result of employed methods and techniques on teaching programs and as a parallel to the developments teaching programs and as a parallel to the developments in the world, historical thinking skills were introduced to Primary School Social Studies Programs in 2005 and to Secondary Schools History Programs in 2007 in Turkey (Doğan, 2011:159).

In this sense, it is crucial for social studies teacher candidates to be trained in line with the targets of the educational program and the views of social studies teacher candidates on historical thinking skills are important since they will be undertaking the role of providing secondary school students with these skills in the near future. In this context, current study aimed to identify social studies teacher candidates’ views on historical thinking skills, identify what is needed and provide related suggestions.

METHOD

The study utilized a qualitative approach to determine social studies teacher candidates’ views on historical thinking skills. Qualitative studies are types of research in which qualitative data collection methods such as observation, interview and document review are used and which follow a process to present perceptions and events in natural environments, in a realistic and holistic manner (Yıldırım and Şimşek, 2011). Since participant views are important in qualitative studies, current study aimed to have teacher candidates to express their ideas on historical thinking skills without limitations. As stated by Ekiz (2009), data in qualitative studies are mostly presented in words or visuals rather than numbers. Open-ended questions were used with this aim in mind and the data obtained from these questions were analyzed with the help of content analysis. Content analysis is a scientific approach that allows systematic and objective investigation of written, oral or other type of materials (Tavşancıl and Aslan, 2001). Content analysis is also defined as the process of summarizing and identifying the basic content and messages of the existing written information (Cohen et al., 2007).

Working group

Working group of the study was composed of a total of 121 teacher candidates (62 females and 59 males) attending Primary Social Studies Teaching Department of Karadeniz Technical University and Adıyaman University Faculties of Education in the fall semester of 2014-2015 academy year. Table 1 presents the descriptive data for the working group.

Data collection

Research data were collected by distributing the interview form to last year students attending Primary Social Studies Teaching Department of Karadeniz Technical University and Adıyaman University Faculties of Education in the fall semester of 2014-2015 academic year. Students were provided information about the purpose and content of the study; they were instructed that the study was purely scientific and they were allowed not to write their names while responding.

Data collection tool

“History Teachers’ Views on Historical Thinking Skills” developed by İsmail (2009) was used as the data collection tool. The interview
Table 1. Distribution of social studies teacher candidates based on gender and university.

<table>
<thead>
<tr>
<th>Social studies teacher candidates based on gender</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>62</td>
<td>51.23</td>
</tr>
<tr>
<td>Male</td>
<td>59</td>
<td>48.76</td>
</tr>
<tr>
<td>Total</td>
<td>121</td>
<td>100</td>
</tr>
</tbody>
</table>

Social Studies Teacher Candidates Based on University | f  | %    |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Karadeniz Technical University</td>
<td>79</td>
<td>65.28</td>
</tr>
<tr>
<td>Karadeniz Technical University</td>
<td>42</td>
<td>34.71</td>
</tr>
<tr>
<td>Adiyaman University</td>
<td>121</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 2. Teacher candidates’ views on historical thinking skills as a concept.

<table>
<thead>
<tr>
<th>What do you understand from the term “historical thinking skills”?</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thinking in line with the circumstances of a specific period</td>
<td>66</td>
<td>54.54</td>
</tr>
<tr>
<td>Awareness of change, making connections among past-present-future</td>
<td>22</td>
<td>18.18</td>
</tr>
<tr>
<td>Empathizing</td>
<td>14</td>
<td>11.57</td>
</tr>
<tr>
<td>Criticizing and Questioning</td>
<td>13</td>
<td>10.74</td>
</tr>
<tr>
<td>Making comments</td>
<td>13</td>
<td>10.74</td>
</tr>
<tr>
<td>Comprehending historical events</td>
<td>10</td>
<td>8.33</td>
</tr>
<tr>
<td>Making research and presenting evidence</td>
<td>10</td>
<td>8.33</td>
</tr>
<tr>
<td>Deriving lessons from history</td>
<td>9</td>
<td>7.5</td>
</tr>
<tr>
<td>Recognizing chronology</td>
<td>8</td>
<td>6.66</td>
</tr>
<tr>
<td>Making cause and effect relationships</td>
<td>5</td>
<td>4.13</td>
</tr>
<tr>
<td>No idea- I don’t know- No response</td>
<td>1</td>
<td>0.82</td>
</tr>
</tbody>
</table>

Research questions

1. What do you understand from the term “historical thinking skills”??
2. What are historical thinking skills?
3. What kind of training have you received about historical thinking skills? If your answer is yes, was the training sufficient?
4. Have you ever participated in any educational activity related to historical thinking skills? If your answer is yes, please provide the type of activity?
5. Is there any work on historical thinking skills that you have read or know about? If your answer is yes, please provide information.
6. Why should historical thinking skills be taught to secondary school students?
7. Which methods and techniques should be used in teaching historical thinking skills?
8. What can be the problems related to teaching historical thinking skills?

Data analysis

Data obtained in the study were analyzed using content analysis method, one of the qualitative analysis techniques. Content analysis mainly focuses on arranging the data in a manner to simplify reader comprehension by combining similar data around specific concepts and themes and interpreting it (Yıldırım and Şimşek, 2011). In this context, responses for each question provided by social studies teacher candidates were grouped based on their similarities and interpreted and selected statements were provided directly. Data analysis was repeated in one month by another researcher in the field and results were compared.

FINDINGS AND INTERPRETATION

This section includes the responses and interpretations provided by teacher candidates regarding the historical thinking skills interview form. Table 2 shows that social studies teacher candidates responded to the question “What do you understand from the term “historical thinking skills”?” by citing the following: Thinking in line with the circumstance of a specific period (54.54%), awareness of change, making connections among past-present-future (18.18%) and empathizing (11.57%). There were also responses not included in the table such
Table 3. Views on what historical thinking skills are.

<table>
<thead>
<tr>
<th>What are historical thinking skills?</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Empathizing</td>
<td>44</td>
<td>36.36</td>
</tr>
<tr>
<td>Chronological thinking</td>
<td>31</td>
<td>25.61</td>
</tr>
<tr>
<td>Historical analysis and interpretation</td>
<td>25</td>
<td>20.66</td>
</tr>
<tr>
<td>Critical thinking</td>
<td>21</td>
<td>17.35</td>
</tr>
<tr>
<td>Thinking in line with the circumstances of the period</td>
<td>18</td>
<td>14.87</td>
</tr>
<tr>
<td>Using evidence</td>
<td>17</td>
<td>14.04</td>
</tr>
<tr>
<td>Forming cause and effect relationships</td>
<td>11</td>
<td>9.09</td>
</tr>
<tr>
<td>Objective thinking</td>
<td>16</td>
<td>13.22</td>
</tr>
<tr>
<td>Historical comprehension</td>
<td>9</td>
<td>7.43</td>
</tr>
<tr>
<td>Research based on historical questioning</td>
<td>8</td>
<td>6.61</td>
</tr>
<tr>
<td>Connecting past-present-future</td>
<td>8</td>
<td>6.61</td>
</tr>
<tr>
<td>Perceiving the change and continuity</td>
<td>5</td>
<td>4.13</td>
</tr>
<tr>
<td>Making decisions</td>
<td>2</td>
<td>1.65</td>
</tr>
<tr>
<td>Respecting differences</td>
<td>2</td>
<td>1.65</td>
</tr>
<tr>
<td>No idea- I don't know- No response</td>
<td>22</td>
<td>18.18</td>
</tr>
</tbody>
</table>

Table 3 presents the responses to the question “What are historical thinking skills?” As seen from the table, 18.18% of social studies teacher candidates did not reply the question or stated that they did not know what those skills were.

The most frequently cited responses are as follows: Empathizing (36.36%), chronological thinking, (25.61%) and historical analysis and interpretation (20.61%). None of the teachers were able to cite historical thinking skills completely; however some of the teacher candidates expressed some of these skills indirectly. They mostly stated the sub skills related to the main skills. A few of the teacher candidates were able to provide 3 or 4 of the skills. For instance:

TC. 48. History is a science that attempts to explain human activities throughout ages with cause and effect relationships and the issues in this discipline include “what were the problems of people living in the past, how did they produce solutions to their problems, how did they manage it”; in line with this, students will learn how to react based on both the case and will acquire awareness by being informed of their ancestors’ activities.

TC. 50. Individuals who argue that historical events and concepts should be evaluated based on the circumstances of the period in question, not based on today’s conditions, individuals who make their criticisms in this respect.

TC. 2. I do not completely know what historical thinking skills are. But, thinking based on period, thinking considering the circumstances of that period. Or maybe making relationships among events throughout time and bringing these issues to the present and deriving lessons from them.

Table 4 presents the responses to the following question: What kind of training have you received about historical thinking skills? If your answer is yes, was the training sufficient? 51.23% of social studies teacher candidates stated that they did not receive any training on historical thinking skills whereas 47.10% expressed that their training was included during classes. From the teacher candidates who received training, 23.96% found it sufficient whereas 23.14% found the training insufficient. As the responses point to, the majority of teacher candidates either did not receive any training or found their training on historical thinking skills insufficient. Teacher candidates who reported having training on the topic generally learned about the concept indirectly in special education methods or history classes. For example:

TC. 29. Yes, our teacher mentioned that in special education methods course.
Table 4. Views on receiving education on historical thinking skills.

<table>
<thead>
<tr>
<th>What kind of training have you received about historical thinking skills? If your answer is yes, was the training sufficient?</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
</tr>
<tr>
<td>During class</td>
</tr>
<tr>
<td>Sufficient</td>
</tr>
<tr>
<td>Insufficient</td>
</tr>
<tr>
<td>No answer</td>
</tr>
<tr>
<td>f</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>62</td>
</tr>
<tr>
<td>57</td>
</tr>
<tr>
<td>29</td>
</tr>
<tr>
<td>28</td>
</tr>
<tr>
<td>2</td>
</tr>
</tbody>
</table>

Table 5. Views on participation in educational activities regarding historical thinking skills.

<table>
<thead>
<tr>
<th>Have you ever participated in any educational activity related to historical thinking skills? If your answer is yes, please specify the type of activity?</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
</tr>
<tr>
<td>Conference Seminar, Symposium</td>
</tr>
<tr>
<td>Trips to Museums and Historical Places</td>
</tr>
<tr>
<td>No answer</td>
</tr>
<tr>
<td>f</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>85</td>
</tr>
<tr>
<td>24</td>
</tr>
<tr>
<td>17</td>
</tr>
<tr>
<td>4</td>
</tr>
</tbody>
</table>

TC. 3. Yes, I did. I did under special education class. We learned about historical empathy but it is not sufficient. Because social studies teacher should provide historical thinking skills, not (teach) history.

TC. 39. I have not received any special class (on this) but my history teachers helped me acquire this skill.

TC. 48. I have not received any training but I would like to, especially for this discipline.

TC. 50. I took all these unnecessary classes, but have not received any training on this.

Responses present that the majority of candidates consider historical thinking skills to be important and they agree that training on the topic should be provided skills.

Table 5 provides the responses to the question “Have you ever participated in any educational activity related to historical thinking skills? If your answer is yes, please specify the type of activity?”. 66.94% of social studies teacher candidates reported that they did not participate in such activities. 19.83% stated that they took part in activities such as conferences, seminars and symposiums. 14.04% participated in trips to museums of historical places. Considering that the candidates who did not provide a response to the question also did not take part in such activities, 70.24% of the participating candidates never attended any educational activities related to historical thinking skills. Responses provided by candidates who reported visiting historical places or museums show that they mostly visited Gaziantep Zeugma Museum and Adıyaman Museum and that those trips were beneficial in terms of historical thinking skills. For instance;

TC.82: Yes we did, especially the experiences during museum education in Zeugma and Adıyaman Museums were molded with historical thinking skills.

TC.120: Yes I did. Although the conference on museum as a conference activity is not an accurate example for this situation, it can be given as an example. We experienced just this situation during the Zeugma trip.

TC.118: Yes I did, we went to the museum. We assessed the materials for that time in the passage of history.

Statements point to the fact that museum trips positively affected students’ historical thinking skills. Some of the candidates were found to assess any conferences on history in this context as well.

TC.39: Yes, I participated in symposium on the History of Turkish Education in the auditorium.

TC: 113: I attended historical thinking activities, specifically the history conferences

Table 6 provides responses to the following question: Is there any work on historical thinking skills that you have read or know about? If your answer is yes, please provide information. 71.90% of social studies teacher candidates responded to this question with no, whereas 14.87% mentioned historical texts, novels and 9.09% cited textbooks and articles. It is observed that the majority of teacher candidates have not read about historical thinking skills. Many of the candidates who reported having read about these skills also stated that these materials did not directly mention historical thinking skills but were mostly novels or historical texts. For instance;

TC.84. 19th Century Political History. Since the book
Table 6. Views on reading materials related to historical thinking skills.

<table>
<thead>
<tr>
<th></th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is there any work on historical thinking skills that you have read or know about? If your answer is yes, please provide information.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>87</td>
<td>71.90</td>
</tr>
<tr>
<td>Historical Works - Novels</td>
<td>18</td>
<td>14.87</td>
</tr>
<tr>
<td>Textbooks - Articles</td>
<td>11</td>
<td>9.09</td>
</tr>
<tr>
<td>No response</td>
<td>5</td>
<td>4.13</td>
</tr>
</tbody>
</table>

Table 7. Teacher candidates’ views on why historical thinking skills should be taught to secondary school students

<table>
<thead>
<tr>
<th>Why should historical thinking skills be taught to secondary school students?</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>For effective teaching of history</td>
<td>20</td>
<td>16.52</td>
</tr>
<tr>
<td>So that they can derive lessons from history</td>
<td>19</td>
<td>15.70</td>
</tr>
<tr>
<td>Since it is the best period for them to learn</td>
<td>18</td>
<td>14.87</td>
</tr>
<tr>
<td>So that they can undertake historical analysis and interpretations</td>
<td>15</td>
<td>12.39</td>
</tr>
<tr>
<td>So that they can think about history based on the circumstances of specific periods</td>
<td>14</td>
<td>11.57</td>
</tr>
<tr>
<td>So that they can think critically</td>
<td>11</td>
<td>9.09</td>
</tr>
<tr>
<td>So that they can connect past-present-future</td>
<td>7</td>
<td>5.78</td>
</tr>
<tr>
<td>So that they can obtain an objective perspective</td>
<td>7</td>
<td>5.78</td>
</tr>
<tr>
<td>So that they understand history better</td>
<td>6</td>
<td>4.95</td>
</tr>
<tr>
<td>So that they can empathize</td>
<td>6</td>
<td>4.95</td>
</tr>
<tr>
<td>No answer</td>
<td>6</td>
<td>4.95</td>
</tr>
<tr>
<td>Other</td>
<td>18</td>
<td>14.04</td>
</tr>
</tbody>
</table>

explains history by including people, it develops historical thinking skills.

TC. 114. I read Şah and Sultan by İskender Pala.
TC. 113. I read historical novels about historical thinking skills. Ateşten Gömlek by Halide Edip Adıvar, Sodom and Gomorra by Yakup Kadi Karaosmanoğlu.
TC. 57. Dünyun Dünyası by Şefan Zweig, Abdulhamit’ın Kütürumba Dansı 1,2 by Mustafa Armağan.

Students who reported reading historical thinking skills mentioned that they benefited from special education methods or textbooks. For instance;

TC. 105. I read a section on historical thinking skill in the textbook by Mustafa Safran
TC. 3. Yes, I did; I read sections in a book titled teaching history about historical empathy, historical thinking.

As the responses present, the majority of teacher candidates are unaware of materials that can help them in developing historical thinking skills.

Table 7 cites the answers provided to the question “Why should historical thinking skills be taught to secondary school students?”. The most frequent replies provided by social studies teacher candidates to this questions are as follows: “For effective teaching of history” (16.52%), “so that they can derive lessons from history” (15.70%) and “since it is the best period for them to learn” (14.87%). In addition to the contents of the table provided above, some students mentioned providing research skills, proving an awareness of history, providing aesthetical thinking, perceiving continuity and change, developing scientific thinking skills and perceiving chronology. A large part of teacher candidates stated that secondary school period is the best time to teach historical thinking skills. For instance;

TC.22. (Those skills) should be taught to secondary school students because students at secondary levels should have historical thinking skills.
TC.66. Students at that age should be provided with these skills since they have moved to abstract thinking from concrete thinking stage.
TC. 40. It will be effective to provide students at earliest-most appropriate ages depending on their developmental characteristics for students to acquire, use and develop those skills.
TC. 66. When students are provided with historical thinking skills during the teaching of history in that starts with social studies classes, it (will be) important for those students when they are at high school in terms of perceiving the issues in history classes, making
Table 8. Views on methods and techniques that should be used in teaching historical thinking skills

<table>
<thead>
<tr>
<th>Which methods and techniques should be used in teaching historical thinking skills?</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question-Answer</td>
<td>33</td>
<td>27.27</td>
</tr>
<tr>
<td>Drama</td>
<td>23</td>
<td>19.00</td>
</tr>
<tr>
<td>Discussions</td>
<td>22</td>
<td>18.18</td>
</tr>
<tr>
<td>Discovery Teaching</td>
<td>17</td>
<td>14.04</td>
</tr>
<tr>
<td>Research</td>
<td>14</td>
<td>11.57</td>
</tr>
<tr>
<td>Presentation</td>
<td>12</td>
<td>9.91</td>
</tr>
<tr>
<td>Brain storming</td>
<td>10</td>
<td>8.26</td>
</tr>
<tr>
<td>Use of evidence</td>
<td>9</td>
<td>7.43</td>
</tr>
<tr>
<td>Watching historical movies</td>
<td>8</td>
<td>6.61</td>
</tr>
<tr>
<td>Trips to historical places</td>
<td>8</td>
<td>6.61</td>
</tr>
<tr>
<td>Lecture</td>
<td>8</td>
<td>6.61</td>
</tr>
<tr>
<td>6 thinking hats</td>
<td>5</td>
<td>4.13</td>
</tr>
<tr>
<td>Historical stories and novels</td>
<td>5</td>
<td>4.13</td>
</tr>
<tr>
<td>Debate</td>
<td>4</td>
<td>3.30</td>
</tr>
<tr>
<td>Other</td>
<td>11</td>
<td>9.09</td>
</tr>
<tr>
<td>No idea- I don’t know- No response</td>
<td>27</td>
<td>22.31</td>
</tr>
</tbody>
</table>

comments about topics and recognizing objectivity.

Table 8 presents the responses provided by teacher candidates to the following question: “Which methods and techniques should be used in teaching historical thinking skills?”. 22.31% of social studies teacher candidates replied this question stating that they had no idea or they did not know or they simply left it unanswered. 27.22% selected question and answer, 19.00% drama and 18.18% discussion as the methods that can be used to teach historical thinking skills. The table in general shows that many candidates reported the need to use modern teaching method and techniques in teaching historical thinking skills. For instance;

TC. 3. When I become a teacher, I will definitely strive to provide my students with the skill of thinking about history instead of teaching them history per se. the methods and techniques that I will use to provide those skills will be conversation cycle, drama, discussion and 6 thinking hats.

TC.17. Historical thinking skills can be given to students through empathy because it can best be understood via empathy.

TC. 34. I believe oral history teaching will be beneficial during the acquisition of historical thinking skills. Examining photos that belong to the period, drama method, and historical filed trips can be implemented.

TC.17. “First of all past resources should be reviewed, and the root of the matter can be obtained this way. Later brainstorming can be implemented on what we could have done if we had lived at that period. Debate and discussion methods can also be used in this sense. The topic should be supported with chronological order and concept maps so that students do not get historical facts mixed.

Oral study of history, problem solving method, sample case study, concept maps, local historical studies, conversation cycle and teaching through fames are also mentioned by students in addition to the selections provided in the table. Table 9 cites the answers provided by social studies teacher candidates to the following question: “What can be the problems related to teaching historical thinking skills?”. 18.18% of social studies teacher candidates expressed that they did not know. The other answers included problems related to method (18.83%), lack or empathy (13.22%) and lack of student interest (12.39%). Therefore, teacher candidates believed that the biggest problem in providing historical thinking skills was related to the method used in teaching. For instance;

TC. 32. There are uninterested students and problems in the part of relaying our history. The topics can be relayed in a fun manner. Questions that lead to thinking can be asked instead of memorization methods and comparisons to the present can be used.

TC.30. More activities should be undertaken, lectures can be boring.

TC. 90 Problems related to the inability to take students to historical places

TC. 29. Problems related to the methods and techniques used with students

Problems related to resources and tools, time related problems and abundance of unrelated information in the curriculum were also mentioned by teacher candidates.
Table 9. Views related to problems in teaching historical thinking skills.

<table>
<thead>
<tr>
<th>What can be the problems related to teaching historical thinking skills?</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problems related to method</td>
<td>24</td>
<td>19.83</td>
</tr>
<tr>
<td>Lack of empathy</td>
<td>16</td>
<td>13.22</td>
</tr>
<tr>
<td>Disinterest on the part of the students</td>
<td>15</td>
<td>12.39</td>
</tr>
<tr>
<td>Bias</td>
<td>14</td>
<td>11.57</td>
</tr>
<tr>
<td>Lack of information</td>
<td>9</td>
<td>7.43</td>
</tr>
<tr>
<td>The fact that history is an abstract lesson</td>
<td>9</td>
<td>7.43</td>
</tr>
<tr>
<td>Incompetence of teachers</td>
<td>7</td>
<td>5.78</td>
</tr>
<tr>
<td>Boring classes</td>
<td>7</td>
<td>5.78</td>
</tr>
<tr>
<td>Problems related to finding resources</td>
<td>5</td>
<td>4.13</td>
</tr>
<tr>
<td>No idea- I don't know- No response</td>
<td>22</td>
<td>18.18</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>4.13</td>
</tr>
<tr>
<td>Problems related to method</td>
<td>24</td>
<td>19.83</td>
</tr>
</tbody>
</table>

**DISCUSSION**

The study undertaken to identify social studies teacher candidates' views on historical thinking skills provided the following results:

Based on study results, when teacher candidates were asked about what they understood from the term historical thinking skills, they answered that the concept was related to thinking in the lines of the circumstances and conditions of the events of a specific era. Also, considering the statements focusing on empathy and comprehension of historical events as well as the relationship between critical thinking and empathy (Ekinci and Aybek, 2010), it can be stated that the majority of teacher candidates perceived historical comprehension when historical thinking skills were in question.

The study shows that other dimensions and sub dimensions of historical thinking skills were not expressed much either. This can be explained with the fact that teacher candidates did not receive any or sufficient training, or did not read any or sufficient number of books/works about historical thinking skills as shown in Tables 3,4 and 5. The study also points to the finding that teachers were also as incompetent as teacher candidates regarding this matter (Demircioğlu, 2009). However, inability on the parts of teacher candidates to accurately express those skills does not mean full incompetence about historical thinking skills. The fact that majority of teachers mentioned thinking in lines of the circumstances of the past, realizing the change and continuity, connecting the past and present, empathizing and criticizing and questioning shows that candidates more or less know about historical thinking skills.

As can be seen from the statements provided in Table 3, the majority of teacher candidates did not receive any training on historical thinking skills.

This is also relevant for history teachers (Demircioğlu, 2009). It is also seen that teacher candidates have demands for training in the topic. As expressed in the study of Yılmaz and Koca, (2012), this fact is consistent with incompetence on the part of universities. Hence, instructors should spend more efforts to teach historical thinking skills to teacher candidates in history, an important discipline in social studies. Presenting historical thinking skills as a separate course will be able to solve the problem to a great extent.

The majority of teacher candidates neither received any training nor attended any educational activities (conference, seminar, symposium etc.) related to historical thinking skills throughout their learning. This finding is supported by Yılmaz and Koca's (2012) findings. Educational activities such as conferences, seminars, symposiums and field trips are important opportunities for students to develop themselves. Increasing these types of activities and promoting student participating in such activities may contribute the development of historical thinking skills. As mentioned by Yeşilbursa (2008), when educational trips are undertaken in line with the goals of the course, they will allow students to act like historians and develop their skills, analysis and assessment capabilities. Also other studies (Yılmaz and Şeker, 2011; Kale, 2011; Meydan and Akkuş, 2014) also emphasize the contribution of these types of activities in historical thinking skills and awareness of history.

According to research results, the majority of the teachers did not read any books on historical thinking skills. Not only teacher candidates, but also history teachers were found not to have read about the topic as specified in Demircioğlu’s (2009) study. Some of the teacher candidates mentioned reading historical novels, articles and historical texts about historical thinking skills. A small minority expressed that they read sections in textbooks related to the topic. As expressed by Şimşek (2011), historical novels cause students to like history and allow the development of historical thinking skills by providing a multi perspective on the events. Şimşek
(2006) also reported that students in social studies classes had positive attitudes and interest towards historical stories and demanded that more time should be allocated for historical stories. Hence, instructors should suggest materials for teacher candidate that can contribute to historical thinking skills and take actions to promote reading in the area to increase interest towards these types of work. Including historical novels and stories may also contribute to historical thinking skills of teacher candidates. Table 7 points that more than half of the participants mentioned thinking in line of the circumstances of the era in question and ability to emphasize as historical thinking skills. However, none of the teacher candidates were able to fully enumerate those skills. The fact that a large number of teacher candidates mentioned the skill of empathy cited among the historical comprehension skills and which should be regarded as a target for historical thinking (Güven et al., 2014; 88) may mean that historical thinking skills are considered as important in social studies teaching. A previous study by Demircioglu (2009) identified that a large part of history teachers did not know the historical thinking skills. Also, Yilmaz and Koca’s (2012) study determined that history teachers’ had very low perceptions of empathy; they mixed historical empathy with other historical thinking skills and experienced misconceptions. Therefore, even partial knowledge on the part of teacher candidates can be regarded as development. History teaching devoid of historical thinking skill cannot go beyond being a boring lesson that only lists events and concepts chronologically. Therefore, training social studies teacher candidates in this area is crucial for themselves and for their future students. Hence, education faculties and instructors who train social studies teacher candidates have a lot to do. Instructors’ teaching those classes by associating topics with historical thinking skills can solve the problems to a great extent.

Teacher candidates believe that historical thinking skills are required for secondary school students for effective teaching of history. Probably, what candidates mean here is historical comprehension and training individuals with those skills. Majority of teacher candidates stated that secondary school is the most appropriate period to teach historical thinking skills. Views of teacher candidates in this regard are consistent with other findings. Teaching historical thinking skills include children grades 5-12 as determined by The National Center for History in USA (URL. 2).

Teacher candidates reported that method was the biggest problem encountered in teaching historical thinking skills. When they mentioned teacher incompetence, they probably meant incompetence in using methods as well. Problems related to methods used in teaching history are at the core of student disinterest as well. As identified in the studies by Mutluer, (2013) and Bal (2011), lack of appropriate methods is a barrier for thinking skills. Demircioglu (2009) also regarded disinterest towards history classes and the use of memorization as barriers that faced historical thinking skills. Teacher candidates mentioned student disinterest as a problem which is also related to method issues. When classes are taught using interesting methods, students will be interested. The reason behind teacher incompetence is related to lack of effective methods and techniques. As observed in Table 9, the majority of teacher candidates support modern educational methods in teaching historical thinking skills. However, use of “I have no idea and I don’t know” as response or providing no response to the question is troubling. Teacher candidates’ statements regarding teaching strategies through presentation, discovery and research may mean attempts to express the need for these methods in teaching historical thinking classes.

In fact, methodological problems are among the biggest issues encountered during the teaching of any skill or topic. Several studies (Mutluer,2013; Demircioglu, 2009; Bal, 2011) reported that lack of appropriate methods is a crucial barrier for thinking skills. Also, Işik’s (2011) study identified that use of primary resources and activity based methods developed students’ historical thinking skills. Many studies stated that modern and student centered methods and techniques used in social studies or history teaching were interesting and crucial for historical thinking, critical thinking and awareness of history (Aybek, 2007; Dilek, 2011: 110; Şeker, 2010; Şimşek, 2006; Ata, 2011:115; Işik, 2011; Mutluer, 2013; Demircioglu, 2009; Bal, 2011). Study undertaken by Narin and Aybek (2010) identified that teachers with critical thinking skills selected their methods accordingly. Therefore, teacher candidates’ knowledge about modern teaching methods and techniques will play an important role in teaching historical thinking skills. Hence, it is crucial for instructors in faculties of education to teach applied methods and techniques that can be used in history and social studies classes.

Te majority of teacher candidates expressed that biases and lack of empathy were problems in teaching historical thinking skills. Empathy and ability to access history devoid of biases are included in the sub dimensions of historical thinking skills. Empathy skills are one of the most important targets for historical thinking (Güven et al., 2014; 88). Elder and Gorzycki, (2011: 2) reported that although everyone has ideas about the past, very few of them has critical thoughts about it. Individuals are under the influence of ideologies, societies and cultures when they evaluate historical events, approach history with the perspective created in their minds and observe only specific parts of the past, the parts they want to see. Cultural norms and habits are questioned rarely due to lack of empathy and biases. Getting rid of this will be possible through historical thinking skills. If teacher candidates have historical thinking skills, they will be able to train their future
The author have not declared any conflict of interests.

REFERENCES


Tarih Öğretmenlerinin Algı, Görüş ve Deneyimlerinin İncelenmesi.
(http://sbe.gantep.edu.tr)

CITATIONS

Full Length Research Paper

Computer education and instructional technology teacher trainees’ opinions about cloud computing technology

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This study aims to show the present conditions about the usage of cloud computing in the department of Computer Education and Instructional Technology (CEIT) amongst teacher trainees in School of Necatibey Education, Balikesir University, Turkey. In this study, a questionnaire with open-ended questions was used. 17 CEIT teacher trainees participated in the study. The aim of this qualitative study was to determine trends about cloud technology. The cloud technology under study included “Dropbox”, “SpiderOak”, “Google Drive”, “IDrive”, “pCloud”, “OpenDrive”, “Bitcasa”, “OneDrive”, “Tresorit”, “Box” and “Yandex.Disk. The CEIT teacher trainees’ opinions about cloud storage and its purposes; their opinions about types of cloud storage and the level of importance of cloud storage were investigated. The reliability and validity were taken. The advantages and disadvantages of cloud computing were examined. The study found that CEIT teacher trainees’ had used cloud storages such as Dropbox and Google Drive previously and they continue to use primarily Dropbox, followed by Google Drive and OneDrive respectively.

Key words: Cloud computing technology, Dropbox, Google drive, choices of cloud storage, computer education and instructional technology (CEIT)

INTRODUCTION

The introduction to cloud computer

Cloud computing is described as using IT services through a computer network created by sharing hardware and software services on a data pool (Menken, 2008). As Internet infrastructure is being enriched day-by-day, Internet output speed increases rapidly as well. Simultaneously, Internet access (especially mobile access) via various media like smart phones, tablets and personal computers becomes very important. Cloud computing has become a major point of interest in many fields, with its potential for providing enhanced service...
environments along with the advantages of scalability, flexibility, accessibility, reliability, and high performance while reducing IT-related operating costs (Armbrust et al., 2010; Jeong et al., 2013). The National Institute of Standards and Technology (NIST) described cloud computing as a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction (Mell and Grance, 2011). A model for enabling convenient, on-demand network access to a shared pool of configurable computing resources that can be rapidly provisioned and released with minimal management effort or service provider interaction (National Institute of Standards and Technology-NIST, 2014).

Cloud computing is computing that involves a large number of computers connected through a communication network such as the Internet, similar to utility computing. It can be further defined as the use of computer technology that harnesses the processing power of many inter-networked computers while covering the structure that is behind it (Menken, 2008). Cloud computing involves accessing software applications, data storage and processing power over the Internet (Barnatt, 2010). A report from the University of California Berkeley summarized the key characteristics of cloud computing as (Armbrust et al., 2009) the illusion of infinite computing resources; the elimination of an up-front commitment by cloud users; and the ability to pay for use as needed. According to Buyya et al. (2010) it is inclusive of pay-per-use flexible capacity and the illusion of endless resources; self-service interface; and resources that are abstracted or virtualized.

The concept of cloud computing was first stated in 1950s. In universities or in companies connected to the main computer terminal client computers to serve as many people sharing the CPU in terms of providing both today's cloud computing technology has been the basis of John McCarthy’s lecture in the 1961 that “computation may someday be organized as public service like electricity and water services”. John McCarthy, who was the first to form the concept of artificial intelligence and wrote the Lisp programming language has been acknowledged by the IT industry because of his contribution and was awarded the Turing Award in 1971 (Wikipedia, 2014). Cloud computing was first proposed by Christophe Bisciglia at Google in 2006, though more attention was paid to it after Google launched “Google Apps” in 2007, and it became more popular still after Apple launched iCloud in 2011 (Jeong et al, 2013). The Internet has been represented on network diagrams by a cloud symbol for many years. When, around 2008, a variety of new services started to emerge that permitted computing resources to be accessed over the Internet, the label ‘cloud computing’ started to be used as an umbrella term. As the cloud technologies are largely studied and mobile technologies are evolving, new directions for development of mobile learning tools deployed on cloud are proposed (Butoi et al., 2013).

The term ‘cloud computing’ is also useful because it classifies the kinds of things we have been undertaking online for a couple of decades from a totally new age of online software and processing power (Barnatt, 2010; Chung et al., 2012).

**LITERATURE REVIEW**

Gupta (2013) states the advantages of cloud computing are:

1. Economical: as the customers need not invest in infrastructure or equipment. IT resources are only provided depending on demand, so ‘Pay-as-you-go’ or subscription based payment method saves customers’ money in the long run.
2. Efficient: as resources are utilized to optimum capacity.
3. Scalable and elastic: as resources and bandwidth allocation can be increased or decreased depending upon demand.
4. Green, environment-friendly: resource efficiency facilitates energy efficiency, leading to lesser carbon percentage.
5. Encourages innovation: as virtual machines encourage automated testing, new innovative applications can be developed and tested quickly.

The capability provided to the consumer is to provision processing, storage, networks, and other fundamental computing resources where the consumer is able to deploy and run arbitrary software, which can include operating systems and applications.

Cloud computing has also attracted a great deal of attention in the field of education with its potential for delivering economical, secure, reliable, and sharable education services (Masud and Huang, 2012). More recently, the concept of cloud computing evolved from delivering, sharing, accessing, and storing applications to providing access to a variety of files, such as text documents, photos, videos, and music (Jeong et al., 2013).

With the introduction of cloud storage and cloud servers, it has become easier than ever to backup all important computer files online. Everyone has the flexibility of retrieving all files from anywhere in the world, with the benefit that all important pictures, videos, music, files, documents, as well as other programs and data are securely collected and available 24 hours a day 7 days a week. When choosing a cloud storage service, it should be given free trial offers; access files from anywhere; 100% automated online backup; secure and encrypted storage; unlimited online storage; synchronisation with
various computers. Cloud storage service provides advantages in terms of price, storage space, speed, and support parameters to users.

According to related literature review, there are no other studies in this field. Therefore, it is hoped that this study will inspire future research. The concept of cloud computing is also explored in this study alongside the concept of cloud storage.

**METHOD**

This study is a qualitative study and a questionnaire with open-ended questions was used (Miles and Huberman, 2002).

**Study group**

The research was conducted in Balikesir University with the participation of Computer Education and Instructional Technology of Necatibey Faculty of Education in Balikesir University-Turkey who took part in 2014-2015 fall semesters. The Delphi group size does not depend on statistical power, but rather on group dynamics for arriving at consensus among experts. Thus, the literature recommends 10 to 18 experts on a Delphi panel (Pawloski; 2004).

For this reason, in this present study, there were 17 participants. All participants wrote down their answer of the first and the second research questions of findings (CEIT) teacher trainees' opinions about the level of importance of cloud computing was coded from 1 to 11.

**Data collection tool**

In this stage, an open-ended questionnaire was developed to determine CEIT teacher trainees' opinions about the application of “Dropbox”, “SpiderOak”, “Google Drive”, “IDrive”, “pCloud”, “OpenDrive”, “Bitcasa”, “OneDrive”, “Tresorit”, “Box” and “Yandex.Disk”.

**Research questions**

In this study, the following research questions were investigated (it considered The Delphi study process):

1. “What are the Computer Education and Instructional Technology (CEIT) teacher trainees’ opinions about cloud storage and its usage purposes?”
2. “What are the Computer Education and Instructional Technology (CEIT) teacher trainees’ opinions about types of cloud storage?”
3. “What types of cloud storage are used by the Computer Education and Instructional Technology (CEIT) teacher trainees? 
4. “What are the Computer Education and Instructional Technology (CEIT) teacher trainees’ opinions about the level of importance of cloud storage?”

All participants wrote down their answer of the first and the second research questions. A table was constructed for third research question in Table 1. The table includes a) “have you got any knowledge or usage history about “Dropbox”, “SpiderOak”, “Google Drive”, “IDrive”, “pCloud”, “OpenDrive”, “Bitcasa”, “OneDrive”, “Tresorit”, “Box” and “Yandex.Disk”, b) which one do they use, c) Please grade which is better than the other. The importance level of cloud computing was coded from 1 to 11.

After piloting the questions in the questionnaire, some questions were revised by experts and the researchers.

**Data analysis**

All the questionnaire design issues of a survey also apply to a Delphi study. After the researchers design the questionnaire, they select an appropriate group of experts who are qualified to answer the questions. The researchers then administer the survey and analyse the responses. Next, they design another survey based on the responses to the first one and read ministers it, asking respondents to revise their original responses and/or answer other questions based on group feedback from the first survey. The researchers reiterate this process until the respondents reach a satisfactory degree of consensus. The respondents are kept anonymous to each other (though not to the researcher) throughout the process.

Participants’ responses to the open-ended questionnaire were carefully examined and then coded (Boyatzis, 1998; Patton, 2002). The reliability of the obtained data was analysed via an expert debriefing, colleague checks and inter-coder reliability (Boyatzis, 1998; Lincoln and Guba, 1985). Inter-coder reliability is a critical component in the content analysis of open-ended survey responses, without which the interpretation of the content cannot be considered objective and valid, although high inter-coder reliability is not the only criteria necessary to argue that coding is valid. This below formula was used for Inter-coder reliability and it was found to be .89.

\[
\alpha = 1 - \frac{(D_e - D_o)}{D_o}
\]

(D_e: measuring the observed disagreement; D_o: measuring the expected disagreement)

A peer person who is outside the context of the study, is not interested in the issue of the study but is knowledgeable about research methods and can also discuss the problems related to the study process (Lincoln & Guba, 1985). 10 interviewers and 7 peers repeated the new questionnaire. The researcher can discuss the data collection process, findings, and so on. The participants’ responses were studied and productive discussions were held regarding potential coding frameworks and themes. The researcher and the second coder separately examined the written answers, coded the responses and then categorized the data through coding. Examining the written responses of each category of data created the codes. These codes and the expressions of the participants were repeated at different times. Table 2 shows themes, sub-themes and definitions derived from open ended responses of the questionnaire. Examples have been presented to student number in the text S1 to S17. In short, internal validity and external validity were taken into consideration. The researcher and expert opinions were considered. The researcher and expert agreement percentage was 85%.

**FINDING AND DISCUSSION**

All open responses were categorized into sub-themes and themes (Table 2).

**The first and second research questions of findings**

The first two research questions were related to “whether they have information about cloud computing or not” and “whether they use any type of cloud computing or not”.

Figure 1 shows teacher trainees’ views about “whether
Table 1. Questionnaire of Cloud Computing.

Have you heard the concept of cloud computing?  Yes ☐  No ☐

What is the purpose of usage of Cloud computing?

<table>
<thead>
<tr>
<th>Themes</th>
<th>Sub-themes</th>
<th>Definitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive views</td>
<td>Collaboration-interactive</td>
<td>Online collaboration</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Group work</td>
</tr>
<tr>
<td></td>
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<td>Shareable</td>
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<td></td>
<td></td>
<td>Workable online</td>
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<td></td>
<td>Accessible</td>
<td>Easy to changes on files</td>
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<tr>
<td></td>
<td></td>
<td>Changes made at any time</td>
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<tr>
<td></td>
<td></td>
<td>Access via internet</td>
</tr>
<tr>
<td></td>
<td>Store</td>
<td>Request accessible</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Stored on the web</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Stored</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Can backup</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Safe storage</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Information can be added</td>
</tr>
<tr>
<td></td>
<td>Venue</td>
<td>Timeless</td>
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<tr>
<td></td>
<td></td>
<td>Independent venue</td>
</tr>
<tr>
<td>Negative views</td>
<td>Independent venue (+, -)</td>
<td>Independent venue</td>
</tr>
<tr>
<td></td>
<td>Accessed via internet (+, -)</td>
<td>Internet connection required</td>
</tr>
<tr>
<td></td>
<td>Safe storages (+, -)</td>
<td>Stored on the web</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Can backup</td>
</tr>
</tbody>
</table>
they have information about cloud computing or not” and “whether they use any type of cloud computing or not.

As seen in Figure 1, the most well-known cloud storages are Dropbox, Google Drive and the most used cloud storages are Dropbox, Google Drive and OneDrive. The least well known cloud storages are SpiderOak, Tresorit, IDrive and Bitcasa. The least used cloud storages are Bitcasa, Box, OpenDrive, pCloud, SpiderOak and Tresorit.

The third research questions of findings

The third research question was related to importance levels of cloud storages (“Dropbox”, “SpiderOak”, “Google Drive”, “IDrive”, “pCloud”, “OpenDrive”, Bitcasa”, “OneDrive”, “Tresorit”, “Box”; and “Yandex.Disk”) (Figure 2).

As seen in Figure 2, Google Drive, Dropbox, Yandex.Disk, one Drive and IDrive were compared. The most preferred first choices were Google Drive, Yandex.Disk. The second most popular choices were Dropbox, Google Drive and One Drive.

The fourth research questions of findings

Result and findings of open responses of questions of “Do you have any information about cloud storage?”; “The cloud storage is used for what purposes?”; “Do you have any information or have you heard about them?”.

As mentioned above, the most well-known cloud storages are Dropbox, Google Drive and the most used cloud storages are Dropbox, Google Drive and OneDrive (Casserly, 2015). The least preferences of using Bitcasa, Box, open Drive, pCloud, SpiderOak and Tresorit. Google Drive, Dropbox, Yandex.Disk, one Drive and IDrive were compared. The most preferred first choice Google Drive, Yandex.Disk. The second choice was Dropbox, Google Drive. One Drive is the same level. The positive four categories were Collaboration-interactive, Accessible, Store and Venue. The negative three categories were found as Independent venue, Accessed via Internet and Safe storages. Following data analysis, the obtained findings were collected under the themes of process and outputs. Themes were grouped as positive and negative opinions. The theme of positive opinions included four categories; Collaboration-interactive, Accessible, Store and Venue. The theme of negative opinions was three categories; Independent venue, Accessed via Internet and Safe storages. The participant responses were given above.

The key advantages of cloud computing

The theme of positive opinions was four categories; Collaboration-interactive, Accessible, Store and Venue.

Collaboration-interactive

The Cloud allows multiple users to work on and edit documents at the same time; it enables effortless sharing and transmission of ideas. With this feature, group projects and or collaborative lesson plans can be optimized for both teachers and students (Weaver, 2013).
"It allows me to work with my friends" (S5)
"It provides interactive study among my friends and sometimes tutor." (S1)
Cloud-based materials are easy to update in real time so that students always have access to the most current learning resources.
"It is so up-to dated learning materials."(S6)

**Accessible:**

Any data stored in the Cloud can easily be accessed from almost any device including mobile devices such as phones or tablets. - See more at (Weaver, 2013): 
"I reach from anywhere" (S4)
"I don't need to carry books and flash drive or hard disk." (S3)
"I can carry information without the need for tools" (S5)
"I can work on the internet" (S16)

Learners can access services rapidly, conveniently, and with flexibility (Bates, 2000; Osika, 2004; Moore and Kearsley, 2005; Khan, 2001; Thammametha, 2009). Cloud computing improves accessibility. An individual has access anytime, anywhere, making life so much easier i.e. Google Docs is an application of cloud computing that provide the best way to others without cost (Mansuri et al., 2014).

**Store and Venue**

Cloud-based materials are easy to update in real time so that students always have access to the most current learning resources.
"I store my information." (S14)
"I store my pictures." (S1)
"I keep my personal files." (S16)
"I can store on my computer." (S14)
"I make changes on my document and save." (S13)
"It is independent of the location; office, cafe, home, car..." (S12)

The theme of negative opinions were three categories; ***Independent venue, Accessed via Internet and Safe storages.***

**Independent venue,**
"It is independent of the location; office, cafe, home, car...but it needs electricity and Internet connection." (S4)
**Accessed via Internet**
"If there is no Internet connection, it is unnecessary." (S16)
Safe storages
“It is not always reliable.” (S1)
“A security problem can occur.” (S14)

Knowing how to use a technology was the most important factor in determining faculty adoption. Two other, similar factors were also rated as important in terms of adoption: difficulty in using the technology and difficulty in learning to use the technology. A never-ending issue will always be security in cloud computing related to multi-tenancy, concurrency, scale and distribution (Schubert et al., 2010). Moreover, in the study, respondents identified lack of time to learn as the most critical factor in adoption of Web-based instructional technology (Chizmar and Williams, 2001).

Conclusion
Technology is very important in our life. This paper proposed compared and scrutinized results according to their sharing and storing utilities of cloud computing (Butoi et al., 2013). Cloud computing has been increasingly and widely used in the field of education (Chung et al., 2012). Additionally, to find out which service tools are more effective to use in education system. Comparison between products features the free storage space taken into account, yet it was observed that the teachers chose the free products. This paper established a number of features for the deployment of cloud-based educational content services. However, we have not yet fully implemented and evaluated the proposed system. We need to develop secure access for users. We demand to criticize our educational system. Important concept in education with cloud computing gives opportunity for sharing, collaborating, any time, any device and anywhere. This study asserted to use Dropbox for personal and academic affairs.

Regarding the outcomes of the development of a cloud computing benchmark model for higher education institutes based on opinions of the experts, it was found that there were 3 main indicators: Independent venue, Accessed via Internet and Safe storages.

This study asserted that educational cloud computing and how the universities and institutions are already taking advantage of it, not only in terms of cost but also efficiency, security, reliability and portability. Several general examples of cloud computing in education such as Microsoft, Google App, IBM, Amazon and others were provided and a case study of the applications was presented and explored in more details (Indrasiri, 2010). Cloud computing has remarkable potential to benefit businesses, industries, and entire economies, but substantial challenges stand in the way. This study has taken the first step: defining potential actions for education in order to accelerate cloud adoption and generate benefits for all stakeholders – individuals, businesses, governments, and society as a whole. In education specially, Dropbox, SpiderOak, GoogleDrive, IDrive, pCloud, OpenDrive, Bitcaso, OneDrive, Tresorit and Box might be effectively used. Our slogan is any device, anytime, anywhere, from every type of device such as PC, Tablet, Smart Phone, web site and any kind of operating system e.g. Windows, IOS, Android.

The cloud computing in education will resolve not only from an academic point of view, but also particularly on a reduction of cost, effective communication, security, privacy, providing flexibility and accessibility.

Conflict of Interests
The author(s) have not declared any conflict of interests.

REFERENCES
Study of anxiety in parents and children with attention deficit with hyperactivity disorder

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The identification of factors that influence attention deficit/hyperactivity disorder (ADHD) will help to develop intervention strategies for the personal and social adjustment of these individuals. The goal of the study is to assess the perception of anxiety in a group of children and adolescents with ADHD and the anxiety that their parents believe their children have, through the Screen for Child Anxiety Related Emotional Disorder (SCARED). Participants were 76 children and 76 of their parents who attended a program for educational attention to students with ADHD. The SCARED was applied at the end of one of the sessions in separate spaces for children and parents. Concerning gender, 49.2% of the boys were above the SCARED cutoff point (≥25) compared with 57.1% of the girls. In the case of the parents' perception of their children's anxiety, 50% of the fathers scored above the cutoff point versus 72.5% of the mothers. The main findings of the study indicate that there is no significant difference between boys and girls. In the comparison of fathers and mothers, significant differences were only found in the factor of generalized anxiety, favoring the mothers. Lastly, significant differences between girls/boys and parents were found in the total anxiety score of the generalized anxiety factor in favor of the parents.

Key words: Attention deficit with hyperactivity disorder, anxiety in parents, anxiety in children, self-report.

INTRODUCTION

According to the Diagnostic and Statistical Manual of Mental Disorders, 5th edition (American Psychiatric Association [APA], 2013), attention deficit/hyperactivity disorder (ADHD) is a heterogeneous disorder characterized by excessive levels of inattention, hyperactivity, and impulsivity. In addition, social problems are a serious obstacle, due to the levels of conflict produced in the family and at school. Poor academic outcomes are also habitual, with global learning difficulties reaching 70% (Mayes et al., 2000).

The Council of Education of the Canary Islands, Spain (2013) has been developing the "Program for educational attention to students with ADHD" since the 2005-2006 academic course. The behavioral diagnostic approach to ADHD starts in the school and family contexts through the psychopedagogical assessment carried out by the

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orientation services of the Council of Education. The public health services of the area will confirm the diagnosis of ADHD, making clinical reports.

The purpose of this program is to: (a) meet the demands of families for the improvement of the educational attention to students with ADHD; (b) improve teacher training and effectiveness of teachers, orientation teams, and Education Inspection teams; (c) implement strategies and resources to adapt the educational proposal to the students' needs; (d) channel all investigations or actions carried out, which requires the supervision of the Council of Education or the Council of Health; (e) facilitate coordination with the Council of Health to determine procedures and instruments for the detection, identification, and intervention; and, finally, (f) identify these students and their interventions, using specific norms, and specify the actions of Council of Education and Health of the Government of the Canary Islands (Spain).

In order to design, implement, evaluate, and model programs and materials for intervention with students with ADHD, we propose to carry out experimental workshops for these students. The following workshops are planned: (a) development of executive functions: stimulation of attention, working memory, planning, etc.; (b) stimulation of intellectual skills: logical, mathematical, and verbal reasoning contextualized in the curricular areas; (c) development of skills for independent learning: study techniques (study environment, well organized study, underlining, summarizing, outlining, memorizing) and planning; and (d) development of social competence: basic social skills, interpersonal problems, assertiveness, etc.

Within this program of comprehensive care for students with ADHD and their families developed by technicians of the Government, it was considered appropriate to study the anxiety level perceived by the children and by their parents, because numerous studies of children and adolescents with ADHD show that their functioning is similar in many domains, including comorbidities with behavioral disorders, anxiety, and school problems (Colomer-Diago et al., 2012). Children with ADHD have a higher rate of symptoms of anxiety and depression than typically developing children or children with learning difficulties (Biederman et al., 1996). The comorbidity of ADHD with anxiety is estimated between 20-25% on average (Barkley et al., 1997; Michanie, 2000). In the study carried out by Shea et al. (2014), this percentage is 27.5, and of these, more than 50% presents comorbidity with oppositional defiant disorder or conduct disorder.

The key conclusion in the study of Colomer-Diago et al. (2012) confirms the importance of children's stressful characteristics as a risk factor, showing the relationship between psychopathology and personal characteristics such as high negative emotionality or low control of effort (Muris and Ollendick, 2005). In the study of López-Villalobos et al. (2004), the results show that children with ADHD present alterations in academic, relational, family, and clinical dimensions.

The anxious child tends to display a permanent state of worry or apprehension that is difficult to control, and, sometimes, parents do not perceive their child's anxious feelings (Artigäs-Pallarés, 2003).

Abad-Más et al. (2013) propose that psychopedagogical interventions should consider individualized treatment within a multidisciplinary methodology, always taking into account the children's context, their academic performance, and the appropriate pharmacological interventions for each case. There are also programs aimed at minimizing aggressiveness, improving self-esteem and social problems, as well as for anxiety and depression. These intervention strategies should be combined with training in executive functions (Abad-Más et al., 2011; Miranda et al., 1997) or curricular adaptations (if necessary) to improve children's cognitive and academic skills.

On the other hand, Tai et al. (2012) conclude that the sooner ADHD is identified and treated, the greater the possibility of controlling subsequent anxiety. Comorbidity between ADHD and other disorders, including anxiety, mainly affects the family and risk activities in adulthood (dangerous driving, illegal behaviors, substance abuse, and inappropriate sexual behavior). Therefore, the results obtained by Miranda et al. (2014) illustrate the importance of developing a multimodal approach to help adults with ADHD to deal with the associated comorbid disorders, offering them support in the organization of daily activities, and incorporating the family in the treatment plan.

**METHOD**

**Participants**

Participants were 76 students enrolled in primary education or compulsory secondary education, 62 boys and 14 girls (Table 1). Mean age is 11.15 years (SD = 1.79; age range 8 to 15 years). One parent of each child participated, 76 in total, 33 fathers and 43 mothers. The parents' mean age was 43.54 years (SD = 6.74; age range 30 to 59 years). The sample was extracted from the population of students participating in the above-mentioned “Program for educational attention to students with ADHD” (Table 1).

**Instrument**

The SCARED in its 41-item version (Birmaher et al., 1999) is a self-report developed to assess a wide range of symptoms of anxiety in children from the general population according to the DSM-IV-TR (APA, 2000). It was adapted to the Spanish population by Domènech-Llaberia (2002). In most adaptations, an internal five-factor structure was found, as in the original version (Birmaher et al., 1999): Panic/Somatic (PN), Generalized Anxiety (GD), Separation Anxiety (SP), Social Phobia (SC), and School Phobia (SH). In all the studies, the psychometric properties of the four scales related to the anxiety disorders of the DSM-IV-TR are high (Hale et al., 2011) but School Phobia provides controversial results (Doval et al., 2011). Each item rates each symptom frequency over
Table 1. Distribution of participants.

<table>
<thead>
<tr>
<th>Participants</th>
<th>Mean age (SD)</th>
<th>Gender</th>
<th>N</th>
<th>%</th>
</tr>
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<tbody>
<tr>
<td>Boys/girls</td>
<td>11.15 (1.79)</td>
<td>Boys</td>
<td>62</td>
<td>81.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Girls</td>
<td>14</td>
<td>18.4</td>
</tr>
<tr>
<td>Parents</td>
<td>43.54 (6.74)</td>
<td>Fathers</td>
<td>33</td>
<td>42.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mothers</td>
<td>43</td>
<td>57.1</td>
</tr>
</tbody>
</table>

The students received a copy of the questionnaire and precise session of the 2013/2014 course of the above-mentioned program. The questionnaires were applied by the researchers in the closing countries. Participation of parents and students was voluntary. Received a formal written invitation to participate in the study. The questionnaire in another classroom. Previously, the parents had day and time, their parents completed the version for parents of the instructions on how to complete it in the workrooms. On the same day, their parents completed the version for parents of the questionnaire in another classroom. Previously, the parents had received a formal written invitation to participate in the study. The participation of parents and students was voluntary.

**Design and procedure**

The questionnaires were applied by the researchers in the closing session of the 2013/2014 course of the above-mentioned program. The students received a copy of the questionnaire and precise instructions on how to complete it in the workrooms. On the same day and time, their parents completed the version for parents of the questionnaire in another classroom. Previously, the parents had received a formal written invitation to participate in the study. The participation of parents and students was voluntary.

**RESULTS**

Figure 1 presents the mean scores (standardized on a scale from 0 to 2) of each of the factors of the SCARED separated by gender. It can be seen that the perception of anxiety was always higher in mothers than in fathers. Likewise, girls' scores tended to be higher than boys' scores in all the factors except for Panic/somatic.

Symptom prevalence was calculated from the cutoff points of the SCARED (≥25). Thus, it was observed that 49.2% of the boys were above this cutoff point compared with 57.1% of the girls. In the case of the parents, their perception of their children's anxiety shows that 50% of the fathers scored higher than the cutoff point of the SCARED (≥25) compared to 72.5% of the mothers.

No significant differences between boys' and girls' means were found either in the total score or in any of the factors (Table 2). However, the girls' mean in all the factors, including the total score, was higher, except for the Panic/Somatic Factor, where the boys' mean score was higher.

Significant differences between mothers and fathers were only found in Generalized Anxiety ($p < .015$). In this case, the mothers' perception of anxiety was higher, with a mean of 10.23 versus the fathers' mean of 7.97 (Table 3). In all the factors, including the total factor, the mother's mean score was always higher than that of the fathers.

The mean difference between boys/girls and parents in the total anxiety score was significant ($p < .011$). The parents obtained a total mean score of 30.71 versus the children's total mean score of 25.37 (Table 4). There was also a significant mean difference between the children and the parents in Generalized Anxiety ($p < .000$), where the children reached a mean score of 9.25 versus the children's mean score of 7.03. In the remaining factors, no significant differences were found, although the parents' perception of anxiety was always higher than that of the children.

Analysis of the correlations between factors (Table 5) revealed differences in the number of significant correlations depending on the type of participant (children or parents) and on their gender (boy or girl, father or mother).

The Panic/Somatic Factor had significant correlations with the rest of the factors, especially in the boys, fathers, and mothers. In particular, in the boys, the correlation varied between $r = .706$ with Separation Anxiety and $r = .449$ with Social Phobia. In the fathers, the correlation ranged from $r = .779$ with School Phobia to $r = .370$ with Social Phobia. In the case of mothers, the correlation varied from $r = .675$ with School Phobia to $r = .367$ with Social Phobia. Lastly, in the case of the girls, significant correlations were only found with the factors of Generalized Anxiety ($r = .681$) and Separation Anxiety ($r = .552$).

The Generalized Anxiety Factor also showed significant correlations with the remaining factors in boys and mothers, but not with Social Phobia in fathers, and only with School Phobia in girls ($r = .601$) in addition to the above-mentioned correlation with Somatic/Panic ($r = $.

Table 2. Mean difference between boys and girls by factors

<table>
<thead>
<tr>
<th>Scared factors</th>
<th>Boys</th>
<th>Girls</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panic/somatic (PN)</td>
<td>6.13</td>
<td>5.07</td>
<td>.696</td>
<td>.489</td>
</tr>
<tr>
<td>Generalized anxiety (GD)</td>
<td>6.98</td>
<td>7.21</td>
<td>-.181</td>
<td>.857</td>
</tr>
<tr>
<td>Separation anxiety (SP)</td>
<td>5.39</td>
<td>6.00</td>
<td>-.556</td>
<td>.580</td>
</tr>
<tr>
<td>Social phobia (SC)</td>
<td>5.07</td>
<td>6.93</td>
<td>1.654</td>
<td>.102</td>
</tr>
<tr>
<td>School phobia (SH)</td>
<td>1.52</td>
<td>1.71</td>
<td>-.393</td>
<td>.696</td>
</tr>
<tr>
<td>Total</td>
<td>25.02</td>
<td>26.93</td>
<td>-.437</td>
<td>.663</td>
</tr>
</tbody>
</table>
In the case of the girls, the mothers</p><p>the other hand, in the parents, there was a small positive</p><p>Mean difference between children and parents by factors</p><p>Table 3. Mean difference between fathers and mothers by factors</p><p>Table 4. Mean difference between children and parents by factors</p><p>.681). In the case of the boys, the correlation ranged from</p><p>.626 with Social Phobia. There was no significant correlation with Social Phobia.</p><p>The Separation Anxiety factor had significant correlations with Social Phobia and School Phobia in boys and mothers but only with School Phobia in fathers ($r = .578$), in addition to the above-mentioned correlations with the Panic/Somatic ($r = .726$) and Generalized Anxiety factors ($r = .626$). No significant correlations were observed in girls, except for the above-mentioned correlation with the Panic/Somatic factor ($r = .552$). In the specific case of the boys, the correlation varied between $r = .706$ with Panic/Somatic and $r = .387$ with School Phobia. In the case of the mothers, the correlation ranged between $r = .578$ with Panic/Somatic and $r = .372$ with Social Phobia.</p><p>Lastly, Social Phobia only had significant correlations with School Phobia in boys ($r = .398$), in addition to the above-mentioned correlations with Panic/Somatic ($r = .631$), Generalized Anxiety ($r = .387$), and Separation Anxiety ($r = .539$). In the case of the girls, the mothers and the fathers, no significant correlations between this factor and School Phobia were found.</p><p>Table 6 shows the correlations between the factors assessed by the SCARED and the participants' age. Although no correlation was significant, it can be observed that both in girls and boys, the scores on the different factors have a small negative correlation with age: the older the children, the less anxiety, and vice versa. On the other hand, in the parents, there was a small positive correlation between the SCARED factors and parents'
Table 5. Correlations between the SCARED factors by participants and gender

<table>
<thead>
<tr>
<th></th>
<th>Generalized Anxiety (GD)</th>
<th>Separation Anxiety (SP)</th>
<th>Social Phobia (SC)</th>
<th>School Phobia (SH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boy</td>
<td>.624 **</td>
<td>.706 **</td>
<td>.449 **</td>
<td>.631 **</td>
</tr>
<tr>
<td>Girl</td>
<td>.681 **</td>
<td>.552 *</td>
<td>.290</td>
<td>.408</td>
</tr>
<tr>
<td>Father</td>
<td>.549 **</td>
<td>.726 **</td>
<td>.370 *</td>
<td>.779 **</td>
</tr>
<tr>
<td>Mother</td>
<td>.485 **</td>
<td>.578 **</td>
<td>.367 *</td>
<td>.675 **</td>
</tr>
<tr>
<td>Boy</td>
<td></td>
<td>.705 **</td>
<td>.506 **</td>
<td>.387 **</td>
</tr>
<tr>
<td>Girl</td>
<td></td>
<td>.394</td>
<td>.108</td>
<td>.601 *</td>
</tr>
<tr>
<td>Father</td>
<td></td>
<td>.626 **</td>
<td>.299</td>
<td>.472 **</td>
</tr>
<tr>
<td>Mother</td>
<td></td>
<td>.542 **</td>
<td>.372 *</td>
<td>.521 **</td>
</tr>
<tr>
<td>Boy</td>
<td></td>
<td>.440 **</td>
<td>.539 **</td>
<td>.222</td>
</tr>
<tr>
<td>Girl</td>
<td></td>
<td>.343</td>
<td>.185</td>
<td>.578 **</td>
</tr>
<tr>
<td>Father</td>
<td></td>
<td>.401 *</td>
<td>.457 **</td>
<td></td>
</tr>
<tr>
<td>Mother</td>
<td></td>
<td>.398**</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
|                  | * The correlation is significant at the .05 level (two-tailed). **The correlation is significant at the .01 level (two-tailed).

Table 6. Correlations between SCARED factors and the participants' age and gender.

<table>
<thead>
<tr>
<th></th>
<th>Panic/Somatic (PN)</th>
<th>Generalized Anxiety (GD)</th>
<th>Separation Anxiety (SP)</th>
<th>Social Phobia (SC)</th>
<th>School Phobia (SH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boy</td>
<td>-.228</td>
<td>-.143</td>
<td>-.383</td>
<td>-.142</td>
<td>-.149</td>
</tr>
<tr>
<td>Girl</td>
<td>-.253</td>
<td>-.295</td>
<td>-.369</td>
<td>.043</td>
<td>-.199</td>
</tr>
<tr>
<td>Father</td>
<td>.174</td>
<td>.078</td>
<td>.043</td>
<td>.131</td>
<td>.239</td>
</tr>
<tr>
<td>Mother</td>
<td>.211</td>
<td>.067</td>
<td>.045</td>
<td>.160</td>
<td>.237</td>
</tr>
</tbody>
</table>

age, indicating that the older the parents, the more anxiety they perceived, and vice versa. This relationship is more evident in the factor of School Phobia.

DISCUSSION AND CONCLUSION

In accordance with several authors (Muris et al., 2002; Romero et al., 2010; Sandoval et al., 2006; Wren et al., 2004), in our study, the girls present more symptoms of anxiety on the SCARED than the boys, although these differences were nonsignificant. The lack of significant differences found in our study in this respect may be due to the sample size (only 14 girls versus 62 boys). If the number of girls were increased, the mean differences would probably be significant in favor of the girls in all the factors of the SCARED except for the Panic/Somatic Factor, the only factor where the boys’ mean score was higher than that of the girls.

Similarly, the mothers perceive higher values of anxiety than the fathers in all the SCARED factors, but this difference was only significant in the Generalized Anxiety Factor. However, in the Global Anxiety score, there were more than 20 points difference between mothers and fathers. Compared to 50% of the fathers who exceeded the cutoff point of the SCARED (>25), 72.5% of the mothers exceeded this point.

In all the factors, the children's anxiety levels as perceived by their parents were higher than the children's own perceptions, although these differences were only significant in the global SCARED score and in the Generalized Anxiety Factor.

Regarding the differences between boys, girls, mothers, and fathers, it can be concluded that the SCARED cutoff point (>25) was exceeded by 49.2% of the boys, 50% of the fathers, 57.1% of the girls, and 72.5% of the mothers,
indicating considerable similarity between the boys and the fathers, with moderate values, higher levels of anxiety in the girls, but above all, a greater perception of anxiety in the mothers.

Although anxiety disorders are characterized by homotypal (prediction of the disorder by the same disorder) and heterotypal continuity (prediction of the disorder by another disorder), certain anxiety disorders appear to covary more than others (Gregory et al., 2007). The Panic/Somatic and Separation Anxiety Factors show a close developmental relationship, called the separation anxiety hypothesis (Klein, 1964; Silove et al., 1996). The two factors share common physiological disturbances, such as somatic symptoms (Pine et al., 2005; Slattery et al., 2002).

In our study, we found multiple significant correlations between all the factors of the SCARED in the boys. In the case of the girls, there were fewer significant correlations between the SCARED factors: only between the Panic/Somatic Factor and the Generalized Anxiety and the Separation Anxiety Factors, as well as the correlation between the Generalized Anxiety Factor and the School Phobia Factor.

In the case of the fathers, the number of significant correlations between factors was notable, although not generalizable to all the factors. The Social Phobia Factor had the fewest interactions with the other factors.

Lastly, in the case of the mothers, the number of significant correlations was also fairly remarkable but again, not generalizable to all the factors. There was no correlation between the Social Phobia Factor and the School Phobia Factor.

It can therefore be concluded that there is a trend towards multiple significant interactions among factors in the boys. Also, in the case of the fathers and mothers, multiple significant interactions among factors emerged, with a few exceptions related to the School Phobia and Social Phobia Factors. The girls show a lower number of interactions between the SCARED factors; again, the sample size (only 14 girls) may be an explanation for this difference with the remaining participants.

In terms of age, although not significant, the correlations between age and the different factors measured by the SCARED indicate that, as the boys’ and girls’ age increases, the values of anxiety decrease. Conversely, the older the parents, the higher the levels of perceived anxiety in all the factors, especially in School Phobia. Similarly, other authors (Birmaher et al., 1997; Compton et al., 2000; Essau et al., 2002; Hale et al., 2005; Ogliari et al., 2006; Su, Wang et al., 2008) point out that, regarding age differences, the results indicate that although separation anxiety decreases as the adolescent matures, other anxiety disorders increase with age.

The results of our study should be interpreted in the light of its limitations. One of them is the small sample size (N = 76), made up only of children and adolescents who voluntarily attend the "Program for educational attention to students with ADHD” of the Council of Education of the Government of the Canary Islands, although most of those diagnosed by the psychopedagogical orientation services of the public centers attend this program. Another limitation was that, to diagnose anxiety, we did not carry out a structured interview, but instead, it was measured by means of the self-reports performed by the children and adolescents and their fathers and/or mothers through the SCARED.

Few studies have used the information gathered by parents' self-reports about the anxiety that their children suffer. Thus, Magiati et al. (2014), using the Spence Children's Anxiety Scale Parent Version (SCAS-P) and the Child Self-report (SCAS-C), found that there was agreement between caregivers and children about the anxiety symptoms shown by the latter. Similar results were found in several studies (Li et al., 2011; Nauta et al., 2004; Whiteside and Brown, 2008) performed in Australia, Hong Kong, and the United States, respectively, using the same instrument, with normally developing youngsters with and without anxiety disorders.

Early identification of the possible comorbidities between ADHD and anxiety disorders is very important for the quality of life of adults with ADHD, in order to treat and reduce their negative effects, as various cited studies have proposed (Miranda et al., 2014; Tai et al., 2012).

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Conflict of Interests

The authors have not declared any conflict of interests.

REFERENCES


Educational Research and Reviews

Related Journals Published by Academic Journals

- African Journal of History and Culture
- Journal of Media and Communication Studies
- Journal of African Studies and Development
- Journal of Fine and Studio Art
- Journal of Languages and Culture
- Journal of Music and Dance