Educational Research and Reviews

About ERR

Educational Research and Reviews (ERR) is a peer reviewed open access journal. The journal commenced publication in April 2006. Educational Research and Reviews covers all areas of education such as comparative education, early childhood education, adult education, special education, teachers' training, vocational education, educational technology, educational administration and management, curriculum development, education policies and management.

Indexing

ERIC - Education Resources Information Center, Google Scholar, CNKI Scholar
ResearchGate

Open Access Policy

Open Access is a publication model that enables the dissemination of research articles to the global community without any form of restriction. All articles published under open access can be accessed by anyone with internet connection.

Educational Research and Reviews is an Open Access journal. Abstracts and full texts of all articles published in this journal are freely accessible to everyone immediately after publication without any form of restriction.

Article License

All articles published by Educational Research and Reviews are licensed under the Creative Commons Attribution 4.0 International License. This permits anyone to copy, redistribute, remix, transmit and adapt the work provided the original work and source is appropriately cited. Citation should include the article DOI. The article license is displayed on the abstract page the following statement:

Article Copyright

When an article is published by in the Educational Research and Reviews, the author(s) of the article retain the copyright of article. Author(s) may republish the article as part of a book or other materials. When reusing a published article, author(s) should; Cite the original source of the publication when reusing the article. i.e. cite that the article was originally published in the African Journal of Biotechnology. Include the article DOI Accept that the article remains published by the African Journal of Biotechnology (except in occasion of a retraction of the article). The article is licensed under the Creative Commons Attribution 4.0 International License.

A copyright statement is stated in the abstract page of each article. The following statement is an example of a copyright statement on an abstract page.
Copyright ©2016 Author(s) retains the copyright of this article.

Self-Archiving Policy

The journal permits and encourage authors to archive any version of their article they find most suitable, including the published version on their institutional repository and any other suitable website.

Digital Archiving Policy

Educational Research and Reviews is committed to the long-term preservation of its content. All articles published by the journal are preserved by Portico. In addition, the journal encourages authors to archive the published version of their articles on their institutional repositories and as well as other appropriate websites.

Metadata Harvesting

Educational Research and Reviews encourages metadata harvesting of all its content. The journal fully supports the Open Archives Initiative.

Memberships and Standards

OPEN ACCESS

Academic Journals strongly supports the Open Access initiative. Abstracts and full texts of all articles published by Academic Journals are freely accessible to everyone immediately after publication.

creative commons

All articles published by Academic Journals are licensed under the Creative Commons Attribution 4.0 International License (CC BY 4.0). This permits anyone to copy, redistribute, remix, transmit and adapt the work provided the original work and source is appropriately cited.

Crossref

Crossref is an association of scholarly publishers that developed Digital Object Identification (DOI) system for the unique identification published materials. Academic Journals is a member of Crossref and uses the DOI system. All articles published by Academic Journals are issued DOI.

Similarity Check powered by iThenticate is an initiative started by CrossRef to help its members actively engage in efforts to prevent scholarly and professional plagiarism. Academic Journals is a member of Similarity Check.

CrossRef Cited-by Linking (formerly Forward Linking) is a service that allows you to discover how your publications are being cited and to incorporate that information into your online publication platform. Academic Journals is a member of CrossRef Cited-by.

<idpf>

Academic Journals is a member of the International Digital Publishing Forum (IDPF).
The IDPF is the global trade and standards organization dedicated to the development and promotion of electronic publishing and content consumption.

Contact

Editorial Office: err@academicjournals.org

Help Desk: helpdesk@academicjournals.org

Website: http://www.academicjournals.org/journal/ERR

Submit manuscript online   http://ms.academicjournals.org

Table of Content

ACADEMIC JOURNALS
expand your knowledge

Educational Research and Reviews

Full Length Research Paper

Evaluation of impact of fine arts high school music department program on students' piano playing skills

Jale Deniz

Department of Fine Arts Education, Atatürk Faculty of Education, Marmara University, Turkey.

The research is aimed to evaluate the impact of fine arts high school music department program on the piano playing skills of students. In this context, it was determined to what degree fine arts high school students thought the school program contributed to their piano playing skills and differentiation of student opinions as per their gender and class was also examined. A cross sectional descriptive design was conducted. The sample of the research consists of 356 students attending five different Music Departments of Fine Art High Schools. A questionnaire, consisting of 23 items, was formed by the researcher to collect the data. The results showed that majority of students considered that the program was insufficient to contribute to development of their piano playing skills. For example, almost half of the students thought that the school program did not adequately develop their sills which include production and performance of musical ideas, transposition and composition skills in relation to piano playing skills. On the other hand, most of the students think that the program developed their independent instrument learning skills and their skills to evaluate the pieces which they played.

Key words: Music education, high school, piano education, student evaluation, piano playing skills.

INTRODUCTION

Different musical skills are involved in developing each of the visual (sight-reading, performing rehearsed music from notation), aural (that is, playing from memory and by ear) and creative (that is, improvising) aspects of music performance. There is no automatic transfer between the three orientations, and each need to be developed separetely (Mc Pherson, 1993, 1996, as cited in McPherson and Hallam, 2011: 259-260).

Learning to play an instrument involves the acquisition of musical knowledge, musical skills and metacognitive skills (Hallam, 1998: 254). When one learns to play a musical instrument one acquires knowledge. This knowledge is of different types: knowledge of something or knowledge about how to do something. For instance, if an individual is learning to read music, s/he acquires knowledge that a particular mark on the stave stands for the note G. S/he then needs to know how to turn that into sound. Over time, a connection will be made between the mark seen on the page and the means of turning it into sound. Initially this will take time, thought and effort but

E-mail: jdeniz@marmara.edu.tr.

gradually, with increasing practice, the process will become quicker. Eventually, the simple task will be performed automatically with the learner free to concentrate on the higher level processes involved in playing music, for instance playing expressively. The knowledge is built up hierarchically. Declarative knowledge initially determines action. It is then proceduralized. Procedural knowledge can be directly executed without the pupil having to think about it. When a task is proceduralized, knowledge of what to do becomes knowledge of how to do it. However learning does not finish there. There is a final stage in the transformation and use of knowledge. For instance, the performance of single notes will be grouped into frequently recurring patterns which can be run off automatically, as in playing scales. This type of knowledge or skill is only achieved after many hours of practice (Hallam, 1998: 114-116).

In the development of musical skills there is an interplay beetween declarative (knowing something) and procedural (knowing how) knowledge (Hallam, 2008: 94). Playing an instrument involves the development of aural, cognitive, technical, musicianship and performance skills (Hallam, 1998: 116). Skill acquisition proceeds through three stages: cognitive, associative and autonomous (Hallam, 1998: 133). In the cognitive stage, learning is largely under cognitive, conscious control. In the associative stage, the learner put together a sequence of responses that become more fluent over time. In the autonomous stage, the skill becomes automated, is carried out without conscious effort and continues to develop each time it is used, becoming more fluent and quicker (Hallam, 2008: 94).

The technical skills of playing an instrument form the basis of instrumental teaching and learning. However, technique needs to underpin and support the development of other essential musical skills- listening and appraising, performing, improvising and composing (Ley, 2004a: 45). The key elements of technique are warm-ups, posture, producing good sound, intonation, and articulation. Correct posture, finger positioning, articulation, breathing technique, special fingering, embouchure, and so on are taught and reinforced by the teacher (Ley, 2004b: 25).

Metacognition includes a range of skills concerned with the self-awareness of learning processes. These include awareness of one's own strengths and weaknesses, strategies for approaching particular tasks, how to assess task requirements, planning skills, problem solving skills, monitoring skills, evaluating skills, and reflective skills. These skills must be acquired for musicians to be able to learn independently. However, to be used appropriately they need to be embedded within a musical knowledge base. It is, for instance, impossible to evaluate progress in learning to play a piece of music unless you have considerable knowledge about the nature of the end product which you wish to achieve. This requires a substantial knowledge base. The teacher has a role to play in assisting in the development of the knowledge base and metacognition (Hallam, 1998: 124).

These skills being mentioned in relation to learning to play an instrument overlap with purposes of piano lesson that is part of fine arts high school music department program. At the fine arts high school music department, piano lesson is given as obligatory in 9th, 10th and 11th classes for one hour and as optional one in 12th class for one hour. In the piano lesson teaching program at fine arts high schools (MoNE, 2016a) aim for students to: (a) acquire the basic skills of piano education, (b) use the technical terminology related to the piano correctly and on-site, (c) grasp and apply the basic or intermediate vocal techniques that can be encountered during the piano education process, (d) grasp and apply the basic nuance terms, (e) grasp and use measurement forms, (f) grasp and use basic articulation and decoration terms, (g) vocalize the works in accordance with the period characteristics, (h) vocalize the works with musical sensitivity, (i) create a vocabulary from Turkish and world music works, (j) developing a sense of responsibility in their individual work. In order for an education program to be successful, it is required of all students to achieve the targets aimed with the program. In order to determine whether there are any insufficient particulars or any reverse processing issues as a result of application of program and to specify from which factors of program these interruptions are originating and to make necessary corrections, it is required for the program to be evaluated (Demirel, 2010: 193). Program evaluation model presented by Demirel (2010:204) is based on two fundamental issues. First dimension is the program itself and program analysis is recommended. In accordance, fundamental philosophy on which the program is based, centralized theories, objective-content-process-evaluation dimensions being the program elements and the relations in between them should be examined in order. In the second dimension of model it is recommended for the opinions of stakeholders who will implement this program to be separately evaluated; taking the opinions of the field experts, program development specialists, teachers, students, managers, inspectors, parents and non-governmental organizations about the program, respectively, will inform about the adequacy of the program. Self-evaluation of fine arts high school students in relation to piano playing skills will provide information about sufficiency of program or relevant deficiencies. In this respect, not knowing the impact of program on piano playing skills with respect to student opinions constitutes the problem of research.

The research aims to evaluate the impact of fine arts high school music department program on the piano playing skills in line with student opinions. In this respect to this, the level at which fine arts high school students considered the school program contributed to their piano playing skills has been determined and differences as per

gender and class have also been revealed.

METHODOLOGY

Research design

In this research survey design has been used to evaluate the impact of fine arts high school music department program on the piano playing skills of students in line with the opinions of students. Creswell (2009: 145) defines survey design as quantitative description of opininons of a population by studying a sample to generalize about the population. As the differences were investigated about the evaluation of student based on their genders and grade levels this research can also be accepted as a comparative survey.

Population and sample

The population of this research consists of students in music departments of fine arts high schools in Turkey. There are 82 fine arts high schools in 2018 (MoNE, 2019) and almost 7.000 students attend music departments. The sample of the research consists of 358 students attending five different music departments of fine arts high schools (Table 1).

Data collection instrument

A questionnaire was formed by the researcher to collect students' evaluations toward the impact of their school curriculum on their piano playing skills. The questionnaire involves 23 items which were produced based on the musical skills indicated by Hallam (1998) such as aural, cognitive, technical, musical, performance and learning skills, on instrument playing processes. Students were asked to rate the impact of the curriculum on their piano playing skills responding to each item on a 4-point Likert type scale ranging from '1' (no improvement), '2' (little improvement), '3' (enough improvement) and '4' (high improvement). Students were asked "How much improvement does your curriculum provide to you for the development of piano playing skills?" for their ratings to each item.

Data collection and analysis

Frequency distribition and percentage analysis were performed for each item to analyze the student evaluation toward the impact of the curriculum for their piano playing skills. Besides, chi square test was also performed to find out whether there is a statistically significant difference between student evaluations and their grade levels and genders.

FINDINGS

Table 2 shows that, students think that the curriculum has a positive impact on the improvement of aural skills in general except improvisational skills. The percentage of the students who think the curriculum has no impact on the improvement of improvisational skills is 13.4%, whereas 30.4% of students think the curriculum has limited impact. 43.8% of the students think that the curriculum has not improved the improvisational skills enough. Students also think that the curriculum is insufficient to improve the skill of 'knowing how music will sound without playing' compare to other skills, except improvisation, in aural skills. In this aspect 8.7% of students think that the curriculum has no impact on improving this skill, whereas 33.5% of the students think that the curriculum has little impact.

Statistically significant differences are indicated in rhythmic accuracy and sense of pulse skills ($x^2_{(3)}$=7.93; p<0.05) and improvisational skills ($x^2_{(3)}$=13.63; p<0.01) among students' genders. Accordingly, higher percentages of female students think that the curriculum has more impact to improve rhythmic accuracy and sense of pulse skills than male students. On the other hand, higher percentages of male students think that the curriculum has more impact to improve their improvisational skills compare to female students. Based on the class levels only significant difference ($x^2_{(9)}$=18.79; p<0.05) is found in 'knowing how music will sound without playing' skill. Accordingly, students in higher class levels think that the curriculum has higher impact improving their particular aural skill than the students in lower classes.

As seen in Table 3, remarkably higher percentages of students think that the curriculum has no impact on the improvement of three particular skills under cognitive skills. These skills are composing (18.2%), transposition (17.6%) and understanding different musical styles & their cultural/historic context (13.7%) skills. When the percentages of students who think that the curriculum has limited impact to improve these particular skills summed up to no improvement group it is clearly seen that almost half of the students are not satisfied with the curriculum. On the other hand, students sorted memorizing music (35.5%), reading music (34.4%) and reading clefs (33.5%) skills in higher percentages to be improved by the curriculum. The sum percentages of the students who think that the curriculum contributes enough and high improvement in these skills are above 75%.

Statistically meaningful differences are found only in reading clef ($x^2_{(3)}$=9.10; p<0.05) and composing ($x^2_{(3)}$=9.09; p<0.05) skills among male and female students. Accordingly, higher percentages of female students think that the curriculum has more impact for the improvement of reading clef skill than male students. On the other hand, higher percentages of male students think that the curriculum has more impact for the improvement of their composing skills than female students. The only statistically meaningful difference is found in reading clef skill among class levels ($x^2_{(9)}$=27.55; p<0.05). Accordingly, the students in higher class levels think that the curriculum has more impact improving clef skills than the students in lower class levels.

As seen in Table 4, 14.8% of students reported that the curriculum has no impact on the improvement of their articulation skills. This percentage is seen as the highest score among other skills in no improvement level. When the percentages of students who think that the curriculum

Table 1. Frequency and percentage distrubition of the sample.

Gender	f	%
Male	157	44.1
Female	199	55.9
Total	356	100

Grade	f	%
1st. grade	95	26.6
2nd grade	94	26.3
3rd grade	88	24.6
4th grade	80	22.2
Total	357	100

Students in Fine Art High Schools (FAHS)	f	%
FAHS1	15	4,18
FAHS2	82	22,90
FAHS3	114	31,84
FAHS4	108	30,16
FAHS5	39	10,89

Table 2. The impact of the curriculum on students' aural skills improvement.

Aural skills	Frequency (%)			
	No improvement	Little improvement	Enough improvement	High improvement
1. Knowing how music will sound without playing	31 (8.7)	120 (33.5)	153 (42.7)	54 (15.1)
2. Developing rhythmic accuracy and sense of pulse	15 (4.2)	74 (20.7)	183 (51.1)	86 (24.0)
3. Developing good intonation	14 (3.9)	73 (20.4)	181 (50.6)	90 (25.1)
4. Improvising: generating musical ideas internally and turning them into sound	48 (13.4)	109 (30.4)	121 (33.8)	80 (22.3)

Table 3. The impact of the curriculum on students' cognitive skills improvement.

Cognitive skills	Frequency (%)			
	No improvement	Little improvement	Enough improvement	High improvement
5. Reading music	13 (3.6)	53 (14.8)	169 (47.2)	123 (34.4)
6. Transpositon	63 (17.6)	126 (35.2)	121 (33.8)	48 (13.4)
7. Reading clefs (treble and bass)	14 (3.9)	70 (19.6)	154 (43.0)	120 (33.5)
8. Understanding different musical styles and their cultural/historic context	49 (13.7)	135 (37.7)	130 (36.3)	44 (12.3)
9. Understanding the structure of music	30 (8.4)	112 (31.3)	159 (44.4)	57 (15.9)
10. Memorizing music	21 (5.9)	61 (17.0)	149 (41.6)	127 (35.5)
11. Composing	65 (18.2)	124 (34.6)	104 (29.1)	65 (18.2)

has limited impact to improve articulation skills summed up to no improvement group it is clearly seen 44.4% of the students are not satisfied with the curriculum. On the other hand, almost 70% of students (enough and high improvement) reported that the curriculum has positive impacts on improving expressive tone quality. No statistically meaningful differences are found in technical skills of students depending on their genders and class

Table 4. The impact of the curriculum on students' technical skills improvement.

Technical skills	Frequency (%)			
	No improvement	Little improvement	Enough improvement	High improvement
12. Technical agility	33 (9.2)	104 (29.1)	151 (42.2)	70 (19.6)
13. Articulation	53 (14.8)	106 (29.6)	124 (34.6)	75 (20.9)
14. Expressive tone quality	24 (6.7)	84 (23.5)	184 (51.4)	66 (18.4)

Table 5. The impact of the curriculum on students' musical skills improvement.

Musical skills	Frequency (%)			
	No improvement	Little improvement	Enough improvement	High improvement
15. Expressive playing	30 (8.4)	103 (28.8)	162 (45.3)	63 (17.6)
16. Projection of sound	38 (10.6)	129 (36.0)	144 (40.2)	47 (13.1)
17. Controlling sound	27 (7.5)	93 (26.0)	167 (46.6)	71 (19.8)

levels.

As seen in Table 5, 10.6% of the students think that the curriculum has no impact on the improvement of projection of sound skill, whereas 36.0% of them think little improvement. Basing on these percentages it is clearly seen that students reported highest percentages of dissatisfaction for the impact of the curriculum on the improvement of projection of sound skill. Students think that the highest positive impact of the curriculum is on the improvement of controlling sound skill. Almost 66% percent of the students (46.6% enough improvement; 19.8% high improvement) reported that the curriculum has positive impact on the improvement of controlling sound skill. No statistically meaningful differences are found in musical skills of students depending on their genders and class levels.

As seen in Table 6, almost 70% of students think that the curriculum has positive impact to improve three performance skills; the skills of communicating with an audience, performers and coordinating with other performers. Only presenting to an audience skill seems to unsatisfactory to students that 13.1% of students think that the curriculum has no impact to improve this particular skill, 25.4% of them think limited impact (little improvement). There are no statistically meaningful differences in students' presentations skills depending on their genders. On the other hand, depending on the class level of the students statistically meaningful differences were found in both coordinating with other performers ($x^2_{(9)}$=22.79; p<0.01) and presenting to an audience ($x^2_{(9)}$=19.33; p<.05) skills. Accordingly, students in higher class levels think more positive about the impact of the curriculum to improve the above mentioned skills than the students in lower class levels.

As seen in Table 7, almost 70% of students think that the curriculum has positive impact to improve the learning skills. The only statistically meaningful difference is found

in evaluating pieces that students perform based on their genders ($x^2_{(3)}$=12.26; p<0.01). Accordingly, female students think that the curriculum has more impact to improve their self evaluation skills toward the pieces they perform than the male students. No statistically meaningful differences are found in learning skills of students depending on their class levels.

RESULTS AND DISCUSSION

The studies being conducted with the aim to evaluate fine arts high school programs in line with teacher and student opinions (Afacan, 2016; Apaydınlı, 2009; Aşık Gökçe and Özdemir, 2020; İzgi Topalak and Yazıcı, 2014; Öztürk and Durak, 2015) reveal that many particulars relating to the program (gains, lesson books, physical space etc.) are insufficient. When this study is evaluated as a whole, it is understood that significant number of students did not think that program contributed to improve their piano playing skills.

Almost half of the students consider that school program did not adequately develop their improvising (43.8%), transposition (52.8%) and composition skills (52.8%) including production and performance of musical ideas, in relation to their piano playing skills. Hallam (1998: 223) indicates that composing, arranging and improvising provide excellent opportunities for young people to develop their creativity. They require a framework of musical knowledge for their creativity. They can be promoted by the provision of an appropriate supportive environment, stimulating materials, constructive evaluation and discussion of ideas. In sum, creativity develops over time and requires considerable effort. Therefore, based on the research outcomes it is possible to state that almost half of the students thought that their creativity is not developed adequately. Today's

Table 6. The impact of the curriculum on students' performance skills improvement.

Performance skills	Frequency (%)			
	No improvement	Little improvement	Enough improvement	High improvement
18. Communicating with an audience	31 (8.7)	73 (20.4)	151 (42.2)	103 (28.8)
19. Communicating with other performers	29 (8.1)	79 (22.1)	146 (40.8)	104 (29.1)
20. Coordinating with other performers	33 (9.2)	73 (20.4)	146 (40.8)	106 (29.6)
21. Presenting to an audience	47 (13.1)	91 (25.4)	136 (38.0)	84 (23.5)

Table 7. The impact of the curriculum on students' learning skills improvement.

Learning skills	Frequency (%)			
	No improvement	Little improvement	Enough improvement	High improvement
22. Learning my instrument independently	25 (7.0)	79 (22.1)	145 (40.5)	109 (30.4)
23. Evaluating pieces I performed	26 (7.3)	82 (22.9)	147 (41.1)	103 (28.8)

education programs make emphasis on creative thinking skills as part of competencies of 21th century (Battelle for Kids, 2019; MoNE, 2018; Official Gazette, 2013). When it is considered specifically, it is seen that creative thinking skills are among fine arts high school teaching programs (Piano, Western music theory and application, instrument group lessons etc.) (MoNE, 2016b, c). Development of students' composition, arrangement and improvising skills by means of teaching programs bears importance with respect to development of musical creativity.

Composing has enormous educational benefits. Active composing increases pupils' interest in music gives them an opportunity to control what they are doing and gives them a greater understanding of sound, structure and emotional expression (Hallam, 1998: 209). Introduction to composition can be provided with arranging. The principles involved in learning to arrange are similar to those of composition. Arranging can be very simple, for instance transposing melodies for diffrent instruments, or very complex, for instance making sophisticated elaborations on a theme. In the process of arranging, pupils will develop and enhance a range of cognitive skills, for instance transposition, understanding of keys, understanding the range and capabilities of different instruments (Hallam, 1998: 217-8). Improvisation may be used to develop aural skills and generate ideas for composition. It enables pupils to explore musical patterns and processes to their musical imagination (Glover and Scaife, 2004, s.82). Improvisation is a very significant aspect of childrens' musical development and an important avenue of creavity (Webster, 1987, 2002, as cited in Ashley, 2009: 418).

It can be stated that their musical creativity will not be adequately developed, considering that significant number of students do not think the program makes enough contribution to their piano playing with respect to their transposition, improvising and composition skills.

Researches that were carried out in this context reveal that fine arts high school students did not consider themselves to the sufficiently competent with respect to musical hearing, reading and writing dimensions (Afacan, 2016; Öztürk and Durak, 2015). It can be stated that musical hearing, reading and writing skills will constitute a basis for development of musical creativity. These outcomes revealed with previous researches overlap with the opinion of students that program did not support piano lessons with respect to their improvising, transposition and composition skills in the current study. The situation where creative thinking skills are not developed as being aimed in fine arts high school piano lesson program (MoNE, 2016a) comes in front of us as a learning gap of program that needs to be considered.

Opinions of students in relation to contribution of program to their transposition, improvising and composition skills in piano lessons vary per classes. Therefore, even if class level gets higher, the students think that program does not make more contribution to develop these skills. However, what should be expected from the program as years passed from first class to fourth (last) class would be to make students think that they benefit more from the program in relation to their transposition, improvising and composition skills.

The studies being conducted show that there are certain rules relating to improvising and that these rules contain complex cognitive skills, creativity and that there is need for time and efforts to improve these (Ashley, 2009; Berkowitz, 2009; Biasutti, 2015; McPherson, 1997; Tafuri, 2006). It is understood that fine arts high school program does not make effective use of the time for developing improvising skills. Based on the fact that students think that the program does not provide sufficient contribution to these skills and that there is no differentiation with respect to classes, it can be stated that program is not sufficient at these dimensions.

However, majority of students in advanced classes think that program developed skills of hearing the music seen in the notes and reading clefs (treble and bass). However when all these skills that can be obtained within scope of musical creativity are considered, it is difficult to state that program is effective. Besides having no differences between classes with respect to other skills are thought-provoking with respect to the effectiveness of program.

When the mentioned skills are evaluated with respect to student genders, certain differences are determined. It is seen that male students consider that program is more effective in developing improvising, production and performance of musical ideas and composition skills with respect to female students. On the other hand, female students consider that program is more effective in developing rhythmic accuracy and sense of pulse skills, reading clefs (treble and bass) skills to evaluate the works being played with respect to male students.

In the study it is seen that half of the students (51.4%) opine that school program did not sufficiently develop skills to understand the musical styles and historic context of the works. Students' being able to recognize and evaluate the music works they hear as per their periods and types in fine arts high school program are among the objectives of Turkish and Western Music History lesson (MoNE, 2016d). Say (2010: 17) has stated that musical history is the history of music production awareness, composition techniques, musical forms, music eras or styles, instruments, and musical writings. According to Reimer (1970), in order for students to understand music and to improve the value they attach to music, it is required for them to understand how music is written (composed) better and to see how the elements contained are combined in order to create an emotional perception. This development will originate from students' experiencing the enthusiasm of music (as cited in Hunsaker, 2007: 28). Therefore, students' expressing that they are not developed enough with respect to musical history and styles, makes one consider that they have deficiencies relating to musical understanding skills and valuation skills.

In the research, most of the students think that the program improved their rhythmic accuracy and sense of pulse skills, the ability to play with the right sounds, note reading skills, the ability to read clefs (treble and bass), the ability to memorize music, their ability to acquire speed technically, skills to have an expressive tone (sound) quality while playing, their ability to express meaning, and improve their ability to provide control on sound. These skills overlap with objectives relating to fine arts high school piano lesson. Therefore, it can be stated that students consider that fine arts high school program improved their basic piano playing skills.

Most of the students think that program developed communication skills with spectators, communicating with those in the group while playing instruments and collaboration skills. In this respect, it can be stated that

piano lesson that is part of fine arts high school program aiming to improve communication and collaboration skills reaches its purpose with respect to the students. Besides, as the class level increases, it is seen that while playing with other instruments, skills of collaborating with those in the group and skills of performing in relation to auditions are developed. With the passing years, it can be thought that this outcome is revealed as students take part in collective musical works such as chorus and chamber music and as they take more part in auditions etc. Hence, it can be stated that program is effective in developing skills of students to communicate with spectators, to communicate with others in the group while playing instruments and skills to collaborate.

Most of the students think that program developed their skills to learn how to play instruments independently and their skills to evaluate the works they played. Based on this result it can be stated that piano lesson that is part of fine arts high school program aiming to improve individual working skills reaches its purpose in relation to the students.

Conclusion

Based on all the results obtained within context of this study, the weak and strong aspects of fine arts high school program for developing piano playing skills has been revealed. Further studies can be done for more indepth examination using qualitative approaches such as observations and discussions especially in relation to dimensions where students do not consider the program as adequatly contributing to development of their piano playing skills.

CONFLICT OF INTERESTS

The author has not declared any conflict of interests.

REFERENCES

Afacan Ş (2016). An analysis of fine arts high school music department students' fundamental skills in musical reading and writing. The Journal of Academic Social Science Studies 52(1):453-471.

Ashley R (2009). Musical improvisation. S. Hallam, I. Cross, M. Thaut (Eds.), The Oxford Handbook of Music Psychology, pp. 413-420. Oxford: Oxford University Press.

Aşık Gökçe HN, Özdemir G (2020). Teacher opinions on Turkish art music theory and practice course in fine arts high school. Kastamonu Education Journal 28(1):295-308.

Battelle for Kids (2019). Framework for 21st century learning definitions, partnership for 21st century learning (P21), retrieved from https://battelleforkids.org/networks/ p21/frameworks-resources.

Berkowitz AL (2009). Cognition in improvisation: The art and science of spontaneous musical performance (Order No. 3365197). Available from ProQuest Dissertations and Theses Global. (304892209).

Biasutti M (2015). Pedagogical applications of cognitive research on musical improvisation. Frontiers in Psychology 6(614):1-12.

Creswe JW (2009). Research design: Qualitative, quantitative, and mixed method approaches (3rd Ed.), Thousand Oaks, California: SAGE.

Demirel Ö (2010). Kuramdan uygulamaya eğitimde program geliştirme, Pegem Akademi, Ankara.

Glover J, Scaife N (2004). Improvising and composing for groups in all together: Teaching music in groups, A. Marks (Ed.), pp. 79-95, The Associated Board of the Royal Schools of Music, UK.

Hallam S (1998). Instrumental teaching: A practical guide to better teaching and learning. Oxford: Heinemann.

Hallam S (2008). Music psychology in education. London: Bedford Way Papers.

Hunsaker TC (2007). Processes and criteria of nationally recognized high school choral directors for the selection of performance literature. Unpublished doctoral dissertation, University of Florida, USA.

Ley B (2004a). Devoleping musical skills in All together: Teaching music in groups, A. Marks (Ed.), pp. 35-45, The Associated Board of the Royal Schools of Music, UK.

Ley B (2004b). Developing technical skills in all together: Teaching music in groups, A. Marks (Ed.), pp. 23-34, The Associated Board of the Royal Schools of Music, UK.

McPherson G, Hallam S (2011). Musical potential in The Oxford Handbook of Music Psychology, S Hallam, I Cross, M Thaut (Eds.), pp. 256-264, Oxford: Oxford University Press.

McPherson G (1997). Cognitive Strategies and Skill Acquisition in Musical Performance. Bulletin of the Council for Research in Music Education (133):64-71.

MoNE (2016a). Güzel sanatlar lisesi piyano dersi öğretim programı: 9, 10, 11. sınıflar [Fine Arts High School Piano Lesson Curriculum: Grades 9, 10, 11]. Ankara: Republic of Turkey Ministry of Education. Retrieved from http://cankiriguzelsanatlar.meb.k12.tr/meb_iys_dosyalar/18/01/325216/dosyalar/2016_08/15071057_piyano_0911.pdf

MoNE (2016b). Güzel sanatlar lisesi batı müziği teori ve uygulaması dersi öğretim programı: 9, 10, 11. sınıflar [Fine Arts High School Western Classical Theory And Practice Lesson Curriculum: Grades 9, 10, 11]. Ankara: Republic of Turkey Ministry of Education. Retrieved from http://mufredat.meb.gov.tr/Dosyalar/201992685233771-Bat%C4%B1%20m%C3%BCzi%C4%9Fi%20teor%C4%B1%20uygulamalar%C4%B1%209-10-11-12.pdf

MoNE (2016c). Güzel sanatlar lisesi çalgı toplulukları dersi öğretim programı: 9, 10, 11. sınıflar [Fine Arts High School Ensemble Lesson Curriculum: Grades 9, 10, 11]. Ankara: Republic of Turkey Ministry of Education. Retrieved from http://mufredat.meb.gov.tr/Dosyalar/2019926104014424%C3%87ALI%20TOPLULUKLARI%20TSM%2010-11-12.pdf

MoNE (2016d). Güzel sanatlar lisesi Türk ve batı müziği tarihi dersi öğretim programı: 9, 10, 11. sınıflar [Fine Arts High School Turkish And Western History Of Music Lesson Curriculum: Grades 9, 10, 11], Ankara: Republic of Turkey Ministry of Education. Retrieved from http://mufredat.meb.gov.tr/Dosyalar/201992695016337-T%C3%9CRK%20VE%20BATI%20M%C3%9CZ%C4%B0%C4%9E%C4%B0%20TAR%C4%B0H%C4%B0.pdf

MoNE (2018). Turkey's education vision 2023, Ankara: Republic of Turkey Ministry of Education. Retrieved from http://2023vizyonu.meb.gov.tr/doc/2023_VIZYON _ENG.pdf

MoNE (2019). National Education Statistics: Formal Education 2018/'19. Ankara: Republic of Turkey Ministry of Education. Retrieved from https://sgb.meb.gov.tr/meb_iys_dosyalar/2019_09/30102730_meb_istatistikleri_orgun_egitim_2018_2019.pdf

Official Gazette (2013). Millî Eğitim Bakanlığı ortaöğretim kurumları yönetmeliği [Ministry of Education high school regulation]. Presidency of the Republic of Turkey, Official Gazette Number: 28758. Retrieved from https://www.resmigazete.gov.tr/eskiler/2013/09/20130907-4.htm

Öztürk G, Durak Y (2015). The evaluation of high school of fine arts graduates' prior knowledge on field of ear training: Case of Abant İzzet Baysal University. The Journal of Academic Social Science Studies 39(3):189-200.

Reimer B (1970). A philosophy of music education. Englewood Cliffs, NJ: Prentice Hall.

Say A (2010). Müzik Tarihi, Ankara: Müzik Ansiklopedisi Yayınları.

Tafuri J (2006). Processes and teaching strategies in musical improvisation with children, in Musical Creativity: Multidisciplinary Research in Theory and Practice, I Deliege, GA Wiggins (Eds.), pp.138-158. New York: Pscyhology Press.

Topalak Ş, Yazıcı T (2014). Evaluation of problems in the fine arts high school music education from the teachers' point of view. Journal of Computer and Educational Research 2(3):114-135.

ACADEMIC JOURNALS
expand your knowledge

Educational Research and Reviews

Full Length Research Paper

Impact of teaching topics of equality and equation with scenarios on 7th graders' mathematical achievement and mathematical motivation

Neslihan USTA* and Büşra ÇAĞAN

[1]Mathematics Education, Faculty of Education, Bartın University, Bartın, Turkey.
[2]Mathematics and Science, Institute of Education Sciences, Bartin University, Bartın, Turkey.

In the current study, effects of teaching equality and equation with scenarios on students' mathematical achievement and mathematical motivation were analyzed. In addition, students' views on using scenarios for teaching equality and equation were included. A pre-posttest quasi-experimental design with Control Group (CG) was employed as the design of the research. The study group of the current research consisted of sixty 7th graders studying at a secondary school located in a province of the Western Black Sea Region in Turkey. Mann Whitney U test and Wilcoxon signed rank test– nonparametric tests were employed for data analysis. When findings of the research were analyzed, it was found that there was a significant difference in mathematics achievement of the students in the Experimental Group (EG) on whom the scenario-based instructional approach was conducted compared to the students in the CG. It was found in this study that scenario-based instructional approach did not have a significant effect on mathematical motivations of the EG and CG students. In addition, correlation analysis conducted between Mathematics Achievement Test (MAT) and Mathematical Motivation Scale (MMS) scores showed that there were not any significant differences between the scores received from both tests by the EG and CG students.

Key words: Mathematical achievement, mathematical motivation, teaching with scenarios, equality, equation, secondary school students.

INTRODUCTION

In this world where change and development are constant, creative and entrepreneurial individuals who are able to perceive innovations and developments and to use them by creating new knowledge are required. As

Glasser (1993) expressed, a 21st century individual ought to be the one who creates knowledge instead of storing it. Accordingly, the most important task is on schools to help individuals gain these characteristics. Today, the most

significant task of schools is raising individuals who learn to learn and to think (Özden, 2013). When it is regarded as the first step to know how an individual learns and constructs knowledge in his/her mind, creating appropriate learning environments is the second step. Studies conducted in cognitive field revealed that students participating in learning process actively learn better (Harris et al., 2001). Thus, students ought to be taught the source of knowledge, how to reach this knowledge, how to evaluate it and how to use it for solving the problem (Van Til et al., 1997).

According to Özden (2013), learning is as personal as fingerprint. Therefore, each student has a different learning style, speed and capacity. Hence, students can do more than they know when they are provided suitable learning environments. In this context, student-centered learning settings in which individual differences are regarded and speaking and discussion opportunities are given ought to be preferred rather than teacher-centered learning settings in which there is a one-way information flow (Lampert, 1989 as cited by Brown et al., 1989). Scenario-based learning is also described as one of the student-centered methods that fosters active learning (Cerrah-Özsevgeç and Kocadağ, 2014). Scenario-based learning method means using scenarios to reveal target learning and instructional scenarios are used in this method to achieve certain educational aims (Errington, 2003; 2010).

In scenario-based learning, students are given the opportunity to think a problem over, to put what they have learnt into practice, to realize their lack of knowledge and to investigate ways of eliminating this. Students working on scenarios apply several higher-order thinking skills such as analyzing, synthesizing, evaluating and deciding (Açıkgöz, 2014). In the studies, in which this method is used, it is tried to teach students how to behave and to think like an expert in efficient learning settings, and they are encouraged to practice knowledge and skills they have obtained in environments that are created in a realistic and safe way (Schank and Weis, 2000). According to Özden (2013), things that are learned ought to go beyond classroom walls. For making things that are learned meaningful in real life, school subjects need to be connected to real life, and value of things learned by students need to be expressed. If students can apply what they learned in solving real life problems, it means that learning has gone beyond walls of the classroom. Scenario-based learning method (SBLM) is a method focusing on students by using real life problems and situations to promote students' learning. In this method, studies are generally conducted through small group discussions, and solution offers regarding the problem are obtained by discussing (Chen, 2008).

Scenario-based instructional approach was used in the following studies: Kocadağ (2010) used it for eliminating students' misconceptions and lacks of knowledge; Yaman (2005) used it for analyzing possible impact of it

on students' reading comprehension skills, and Alptekin (2012) used it for determining effects of it on social skills of the students with mental disabilities. In other studies, Ersoy and Başer (2011) revealed that instruction with scenarios improved sustainability of learning of pre-service teachers; Haynes et al. (2009) concluded that scenario-based instructional approach helped students' understanding of the whole problem, their building a connection with real life and their multi-dimensional thinking; additionally, Siddiqui et al. (2008) found that this method developed students' achievement. While mathematics is one of the courses that makes most students' life miserable, it is regarded as a way of understanding and loving life for some (Sertöz, 2002). The most efficient science for mental and intellectual development is mathematics. However, low achievement in this course is a known fact. Within this context, methods used in mathematics course and teacher behaviors are regarded among reasons of failure in this course (Akın and Cancan, 2007).

The fact that students' mathematics achievement levels have been low has prompted educators both in Turkey and in the world to investigate factors affecting student achievement (Kiamanesh, 2004; Papanastasiou, 2000; Wang, 2004; Yayan and Berberoğlu, 2004). Reasons of students' academic failure have been expressed as follows: *Teacher behaviors, teaching methods, lack of study, problems about learning environment, content of the subject (instructional programs), students' psychological problems, dissatisfaction in family, effect of department being studied on career and work life and problems about using time* (Aysan et al., 1996, as cited by Çetin and Bulut, 2014). Therefore, scenario-based instructional approach which fosters active learning in increasing mathematics achievement is regarded to be efficient. Students' affective features such as interest, attitude, anxiety, motivation, self, personality and value judgment are as significant as their cognitive features in learning and teaching mathematics (Uluçay and Güven, 2017). One of the important factors in enabling and developing sustainability of student achievement is student motivation (Orhan-Özen, 2017, Robinson, 2017, as cited by Sürücü and Ünal (2018). Student motivation is a basic element necessary for quality education. Motivation is generally described as the degree of an individual's taking action and of continuity in his/her goal-oriented attempts (Adler et al., 2001). Williams and Williams (2011) explained the factors affecting student motivation as student, teacher, content, method-process and learning setting. Method and process which is a way of presenting mathematical content ought to promote student motivation. In addition, environments in which situations based on students' real-life experiences are applied, students are academically productive and critical thinking is supported should be created (Mueller et al., 2011; Williams and Williams, 2011).

In general, students tend to learn topics they are

interested in faster, and they succeed as long as they are motivated (Akbaba, 2006). Students' active participation in learning process raises their motivation, and their participation in decision-making affects their value systems, mental structures and motivations positively (Baltaş, 2002, as cited by Akbaba (2006). When it is considered that there is a positive and significant relationship between motivation and achievement (Akbaba, 2006; Herges et al., 2017; Moenikia and Zahed-Babelon, 2010), it becomes crucial to provide student motivation towards mathematics in the process of learning mathematics. In this context, mathematical motivation is described as being eager to learn mathematics and taking part in mathematical activities actively (İspir et al., 2011). Martin (2001) defined motivation as a driving force for students to be successful, to work hard at school and to learn (Yaman and Dede, 2007). This reveals that motivation affects learning considerably (Glynn et al., 2005; Lumsden, 1994; Martin, 2001). Motivated students are careful, start to work on their tasks, ask questions, give answers voluntarily and seem to be happy and eager (Palmer, 2007). For understanding students' behaviors in the classroom, knowledge and tendency of teachers/educators about what motivation is and how it is organized are needed to be increased (Hannula, 2006). That is because of the fact that students have cognitive and upper cognitive difficulties while learning mathematics, and they tend to have negative feelings that prevent their efforts and to have weak motivation (Kramarski et al., 2010; Tzohar-Rozen and Kramarski, 2014). Teachers' duty is not only knowing what makes students motivated, but also helping them raise and develop their motivational levels and preparing motivational situations. Thusi teachers' effort for this can be a beginning to lead a quality conceptual learning for students (Rifandi, 2013). If teachers design an effective learning instrument for students and use in-class activities with appropriate strategies and methods, students' interests in learning will rise (Rifandi, 2013). In general; however, affective factor is neglected in educational studies, and cognitive factor is given more prominence (Seah and Bishop, 2000; Tuan et al., 2005).

In the relevant literature, conclusions of studies on learning mathematics and on mathematical motivation are often positive. Waege (2010) described motivation as a potential to direct a behavior. This potential is constructed through student's needs and goals. In this context, Waege (2010) suggested a theoretical frame in which primary and secondary school students' motivations in the course of mathematics were analyzed. Accordingly, he stated in his study that students are impressed by changes in instructional approaches although they have motivation to learn, and that their mathematical motivation improved in a short time. At this point, what important is conducting studies that fulfill students' learning goals with activities, methods and techniques which would trigger their needs to learn. In their study in which they analyzed high school students' motivations of mathematics learning via survey and interview, Fuqoha et al. (2018) found that their motivations were high. Additionally, students expressed during interviews conducted with them that a fun and enjoyable learning environment, in which there are some technological materials that have certain features, which teaches not to give up easily and where there are difficulties, increased their motivations towards learning mathematics. Abramovich et al. (2019) claimed that when mathematics courses are conducted with daily life practices arousing students' curiosity, it becomes possible that motivations of students from all levels towards mathematics course can improve. Thus, it has a great potential for student achievement. The other studies on mathematics course and mathematical motivation were generally about impact of pre-service teachers' technology use on their motivations towards learning mathematics (Halat and Peker, 2011), relationship among secondary school students' motivations and their mathematics achievements, mathematical attitudes, academic motivations and intelligence quotients (Moenikia and Zahed-Babelon, 2010), their academic achievements, classroom levels, parents' educational backgrounds (Uluçay and Güven, 2017), impact of solving mathematical verbal problems through individual instruction on motivation (Awofala, 2016), relationship between metacognition and motivation in mathematics learning (Karaali, 2015), impact of perceptions regarding mathematics achievement on motivational attitudes (Middleton and Spanias, 1999), correlation between intrinsic and extrinsic motivation (Dede and Argün, 2004). Herges, Duffueld et al. (2017) concluded in their study conducted with secondary school students that there was a strong positive correlation between intrinsic motivation and achievement, yet extrinsic motivation had a mediocre effect size. Accordingly, students' confidence in mathematics and its practicability caused them to enjoy mathematics, and thus to become successful. Equation has been one of the significant mathematical structures used as a tool to make several measurements and calculations in daily life since the ancient times. Any open condition including equality relation is described as an equation. Lexical meaning of equation is "equality, equation provided only when a suitable value is given to some quantities included in it" (Argün et al., 2014).

In Turkey, topics of equality and equation were involved in sub-learning area of equality and equation in learning domain of algebra in Mathematics Course Curriculum for Secondary Schools (MoNE, 2018) Equations help students solve their daily problems more systematically and orderly. Besides, they give them the opportunity to solve problems of mathematics (Köroğlu et al., 2004). There are several studies about equality and equation in Turkey and in the world. Studies were generally

conducted with secondary school students (Ceylan, 2014; Çakmak-Gürel and Okur, 2017; Eski, 2011; Tekay and Doğan, 2015; Işıtan and Doğan, 2011; Nas, 2008; Zengin, 2019), high school students (Yahya and Shahrill, 2015), pre-service mathematics teachers (Sert-Çelik, 2018) and mathematics teachers (Attorps, 2004). As conclusions of these studies are important for evaluating results of the current study, they are given with their results. Tekay and Doğan (2015) expressed that the 7th graders had difficulty in solving questions related to graphics of linear equations. Furthermore, Işıtan and Doğan (2011) concluded that 8th graders often had weak equating skills, and they solved the questions where equations were given in advance with random arithmetic operations. Nas (2008) stated that 6th graders' using computer software in learning a topic contributed to their achievement, and that students in the EG had less misconceptions; Zengin (2019) found that computer-aided instruction influenced 7th graders' achievement positively; Ceylan (2014) revealed that drama reduced 6th graders' anxieties towards mathematics, increased their love and interest and helped them have positive attitude towards it. While Yahya and Shahrill (2015) found that 11th graders had some difficulties about second-degree equations, Çakmak-Gürel and Okur (2015) indicated that the 7th graders had more misconceptions compared to the 8th graders. Sert-Çelik (2018) stated that 7th graders had misconceptions about equality and equation and understanding difficulties, and their teachers were aware of these difficulties, yet they expressed superficial reasons regarding this. Eski (2011) implemented the approach of problem-based learning in teaching 7th graders the topic of equality and equation. He claimed as a result of the implementation that there were not any significant differences between the EG and CG; however, students' participation in mathematics lessons increased positively.

One of the reasons that most students do not understand equality and equation is that they regard it as out of real life and do not associate it with real life (Dede, 2005). It can be seen in the literature that students have difficulties in equating and solving equations and they often make common mistakes (Akkan et al., 2009; Dede and Peker, 2007). A study about equations with one unknown was carried out on high school first grade students by Erbaş et al. (2009). It was revealed in this study that students made various mistakes on arithmetic mistakes, concept of equality, substitution and unidentified arithmetic mistakes. The fact that students had fallacies on division of both sides of equality to coefficient of an unknown makes us think that they do not quite understand the concept of equality. It was understood that the rule of gathering the knowns in one side and the unknowns in the other side for solving equation was misunderstood. On the other side, meaning students assigned to the equals sign has been a subject of several studies. Generally, students regard the equals

sign as "do the operation and find the result" rather than an equality indicator between expressions in right and left sides. Another fallacy is that they regard it as a sign on right of which result of equality is written (Oktaç, 2010). Therefore, the concept of equality ought to be constructed well to understand equations. Comprehending meaning of the equals sign has a critical significance in terms of creation of mathematical thinking and of thinking about mathematical relations (Carpenter et al., 2005). The logic of equality and writing equality should be taught before teaching the concept of equation (Altun, 2014). The studies conducted have showed that students from all classroom levels have various difficulties regarding equality and equation.

In the explanations made, it was emphasized that students' individual characteristics, learning environments and especially their motivations had critical importance for mathematics achievement. Researchers/educators argue that learning settings need to be reorganized by giving up traditional understanding. Hence, using new methods such as scenario-based learning in mathematics teaching is important. Scenario-based learning method contributes to development of communicative and linguistic skills which are basic skills along with interaction and meaningful. Environments where instruction is carried out with scenario that promotes active learning give students the opportunity to take over learning responsibility and to learn effectively. In the current study, it is supposed that students can be motivated to learn mathematics and take part in the activities more eagerly and more efficiently in such learning settings. As explained above, motivated students are careful; they ask questions and give answers voluntarily. Moreover, they seem happy and eager. Therefore, impact of this method on students' mathematical motivations was investigated in the present study. It is believed that scenario-based learning method can be effective in raising students' mathematics achievement. In the relevant literature, two outweighing reasons of students' failure in mathematics course are teachers and methods used. No studies have been found about effect of teaching "equality and equation" with scenario-based learning method to 7th graders on their mathematics achievement and mathematical motivation. Therefore, it is suggested that the current study would remarkably contribute to the literature.

Aim of the research

In the current study, effects of teaching equality and equation with scenarios on students' mathematical achievement and mathematical motivation were analyzed. In addition, students' views on using scenarios for teaching equality and equation were included. Accordingly, answers for the following sub-problems were investigated:

1. Are there any statistically significant differences between MAT pre-test scores of the EG students on whom teaching was held with scenarios and of the CG students on whom current instructional program was employed?
2. Are there any statistically significant differences between MAT post-test scores of the EG students on whom teaching was held with scenarios and of the CG students on whom current instructional program was employed?
3. Are there any statistically significant differences between motivation pre-test scores of the EG students on whom teaching was held with scenarios and of the CG students on whom current instructional program was employed?
4. Are there any statistically significant differences between motivation post-test scores of the EG students on whom teaching was held with scenarios and of the CG students on whom current instructional program was employed?
5. Are there any statistically significant differences between MAT pre-test and post-test scores of the CG students on whom current instructional program was employed?
6. Are there any statistically significant differences between MAT pre-test and post-test scores of the EG students on whom teaching was held with scenarios?
7. Are there any significant correlations between the scores the EG and CG students received from the MMS and the scores they received from MAT?
8. What are the EG students' views on teaching equality and equation with scenarios?

METHODOLOGY

Research design

In the current study, experimental method-one of the quantitavie research methods–was employed in the phase of problem evaluation. A pret-posttest quasi-experimental design with control group was employed as the design of the research (Büyüköztürk et al., 2013). The findings obtained through quantitative data analysis were supported with qualitative data. 2×2 mixed design was employed to evaluate quantitative data of the research. The mixed design was preferred since measurements were conducted both within (pre-posttest) and between groups (experimental-control). Mathematics achievements and mathematical motivations of the groups were gauged twice using the same tools before and after the implementation. A case study based on qualitative research approach was employed in qualitative data analysis (McMillian and Schumacher, 2010). The data obtained from the EG students' views on scenario-based learning method were analyzed by content analysis-one of qualitative data analysis techniques (Yıldırım and Şimşek, 2008). Table 1 give pretest and posttest measurement of the EG and CG.

The study group

The study group of the current research consisted of sixty 7th graders (23 girls and 37 boys) studying at a secondary school located in a province of the Western Black Sea Region in Turkey. One of the two classes which were equal was randomly selected as the EG, while the other was selected as the CG. There were 30 students, 12 of whom were girls and 18 of whom were boys in the EG, and there were 30 students, 11 of whom were girls and 19 of whom were boys in the CG. Scenarios about equality and equation were implemented by the researchers and the teacher of the lesson during 20 class hours. At the end of the implementation, the students were asked to write their opinions about usage of scenarios. Codes such as S1, S2, … were used instead of the students' real names.

Data collection tools

Equivalency test (ET), mathematics achievement test (MAT), mathematical motivation scale (MMS), semi-structured student interview form (SSSIF), and scenarios and activities to be used with the EG were employed as data collection tools.

The equivalency test (ET)

An equivalency test which contained 20 multiple-choice questions was prepared by the researchers to test equivalency of the groups by asking experts' opinions. The test was prepared in compliance with the learning outcomes required in 5th, 6th and 7th grades in the Secondary School Mathematics Course Curriculum (2018). A pilot study was conducted with sixty 8th grade students studying at a state school and a private school located in a province of the Western Black Sea Region in Turkey. As a result of the pilot study, item analysis was performed; distinctiveness and difficulty of the items were analyzed. Since the distinctiveness level was found above 0.20, the 20 question-test was not edited and used as the equivalency test. Cronbach's Alpha reliability coefficient of the test was found as 0.873. One of the two groups between which there were not any statistically significant differences was selected as the EG, and the other was assigned as the CG by lot. As the distribution was normal, the EG and CG were regarded as equal to each other since there were not any statistically significant differences between the groups as a result of independent samples t-test.

Mathematics achievement test (MAT)

Learning outcomes and concepts regarding equality and equation learning domain in Secondary School Mathematics Course Curriculum (MoNE, 2013, 2017) were examined to prepare MAT. The items included in the test were prepared by benefitting from Secondary School Mathematics Course Curriculum (MoNE, 2013, 2017), mathematics teaching books (Altun, 2014; Baykul, 2014; Van de Walle et al., 2013) and relevant literature. A test consisting of 25 items were prepared in a way to cover all learning outcomes of the topic of equality and equation. A pilot study was carried out with sixty 8th graders studying in the same region to provide validity and reliability. As a result of the pilot study, two items were removed from the test as their distinctiveness levels were below 0.20. Cronbach's Alpha reliability coefficient of the final form of the MAT containing 23 items was found as 0.704.

Mathematical motivation scale (MMS)

In the current study, "Scale of Motivation towards Mathematics Course", which was developed by Üzel et al. (2018) and whose Cronbach's Alpha reliability coefficient was 0.88 was employed in order to gauge students' motivations towards mathematics course.

Table 1. Experimental design of the research.

| | Pretest | | | Posttest | |
	MAT	MMS	Operation	MAT	MMS
EG	O_1	O_3	Implementation with scenario-based instruction	O_7	O_5
CG	O_2	O_4	Implementation with current instructional method	O_8	O_6

The scale consisted of 26 items 18 of which were positive and the other 8 of which were negative. The highest score to be received from the scale was 98, and the lowest score to be received was 58. A high score to be received from the scale would mean that students had high motivation towards mathematics course. The scale was implemented twice in both groups before and after the implementation.

Semi-structured interview form (SSIF) and scenarios-activities

Qualitative data of the research were obtained through a semi-structured interview form including 10 questions to get students' opinions about the implementation. The students were asked to write their thoughts for the questions. Following implementation of the form, 10 students were randomly selected, and an interview was made with each of them. The researchers created codes by looking at students' responses, and content analysis was performed. Scenarios about equality and equation were prepared by the researchers by asking experts' opinions. Five scenarios and five activities for each learning outcome, explained in equality and equation learning domain of Secondary School Mathematics Course Curriculum (2018) as able to comprehend conservation of equality, to recognize a first-degree equation with one unknown and to equate and to solve a first-degree equation with one unknown for the real life situations given and to solve problems that require to equate a first-degree equation with one, were created.

The process of experimental study

The EG in which scenario-based instruction was employed was divided into 5 heterogeneous groups each of which included 6 students. 30 students took part in the implementation in total. The classroom setting was reorganized in order to facilitate interaction of the group members and to help them study more comfortably. Before starting the lesson, the students had been informed about the method to be employed, and they explained what they were required to do by the researchers and the teacher during the implementation. The implementation of 20 hours of lessons was conducted for over two months. Five scenarios and five activities were used in the implementation with the EG. 4 students in the EG did not attend the classes regularly and did not participate in the posttests. Therefore, the data obtained from these students were not included in the analyses. On the other hand, current instructional program (MoNE, 2018) was employed in the classes in the CG.

Data analysis

The quantitative data of the current study were analyzed via SPSS 22.0 statistical package. As the data showed normal distribution, dependent samples t-test and independent samples t-test were conducted to reveal if the students' mathematics achievements differed with regard to the method employed. However, Mann Whitney U-test and Wilcoxon signed rank test-onparametric tests were performed to reveal if the students' mathematical motivations

differed with regard to the method employed since the data were not distributed normally. Impact of scenario-based instruction on students' views was obtained through semi-structured interview form prepared by the researchers. The data obtained from views of the students in the EG on scenario-based instructional approach were analyzed via content analysis (Yıldırım and Şimşek, 2008). This method was employed as the 7th grade students' views on teaching equality and equation with scenarios were scrutinized. Apart from the students' written explanations in the forms, 10 students were interviewed.

RESULTS

Aim of the current research was to reveal possible impact of using scenario-based instructional approach to teach 7th graders equality and equation on students' mathematics achievement and on their mathematical motivation. The research was conducted with 56 students 26 of whom were assigned to the EG and 30 of whom were assigned to the CG in a state school located in Western Black Sea Region of Turkey. The scenario-based instructional approach was employed in the EG, and current instructional method was implemented without any intervention. The study was carried out according to a pretest-posttest CG design. Some results were obtained through statistical analyses of the data. These results were examined in three sections.

One of the sub-problems of the current research was investigating if teaching with scenarios affected students' mathematics achievement. When findings of the research were analyzed, it was found that there was a significant difference in mathematics achievement of the students in the EG on whom the scenario-based instructional approach was conducted compared to the students in the CG. This finding showed that teaching with scenarios was effective in increasing students' mathematics achievement. Scenario-based instruction encourages students to participate actively in the learning process and to take over responsibility of their own learning.

The second sub-problem of the study was analyzing impact of teaching with scenarios on students' mathematical motivation. It was found in this study that scenario-based instructional approach did not have a significant effect on mathematical motivations of the EG and CG students. In addition, correlation analysis conducted between MAT and MMS scores showed that there were not any significant differences between the scores received from both tests by the EG and CG students. When these two results are taken into account, it is understood that factors affecting students'

mathematical motivation ought to be investigated in further studies. However, impressions caught from the EG and qualitative analyses regarding EG students' views on the study made us think that positive interpretations about scenario-based instructional approach can be made. That is because most of the students in the EG expressed positive opinions about the method employed. The students expressed that with the method used, the lessons became funnier, more enjoyable, more instructive and clearer; learning got more permanent; their problem-solving skills got improved and teaching by associating topic with daily life via scenarios made their learning easier. Furthermore, students stated that their interests and motivations towards the course improved, and they attended lessons willingly although there were not any statistically significant differences between the groups regarding their scores MMS. When within-group mathematics achievements of both groups were evaluated, a statistically significant difference was found, but a significant difference was observed in favor of the EG as a result of between-groups analyses of mathematics achievement. Contrarily, when analyses with regard to the scores received from MMS by both groups were scrutinized, there were not any statistically significant differences between the groups.

Results of the ET

T-test results regarding the scores that the EG and CG students received from the ET are given in Table 2.

The ET mean score of the students in the EG was found ($\overline{X}_{EG}$ =60.00), while the ET mean score of the ones in the CG was found ($\overline{X}_{CG}$ =54.26) before any intervention. No significant difference was observed between the scores received from the ET by the students in the EG and CG as a result of the independent samples t-test performed $[t_{(54)} = 1.00, p > .05]$. This ensured that the EG and the CG were equal to each other before the intervention.

Comparison of MAT pretest scores of the EG and CG

The first sub-problem of the research was "Are there any statistically significant differences between MAT pre-test scores of the EG students on whom teaching was held with scenarios and of the CG students on whom current instructional program was employed?" For the solution of this problem, independent samples t-test was employed to reveal if there were any significant differences between the scores that the students in the EG and in the CG received from MAT pretest. Finding regarding this problem was presented in Table 3.

It can be seen in Table 3 that there were not any significant differences between the EG and CG students regarding the pretest scores that they received from

MAT $[t_{(54)} = 1.90, p > .05]$.

Comparison of MAT posttest scores of the EG and CG

The second sub-problem of the research was "Are there any statistically significant differences between mathematics achievement post-test scores of the EG students on whom teaching was held with scenarios and of the CG students on whom current instructional program was employed?" Independent samples t-test was employed to reveal if there were any significant differences between the scores that the students in the EG and in the CG received from MAT posttest. Finding regarding this problem was presented in Table 4.

Following the implementation of scenario-based instruction in the EG and of current instructional program in the CG, it was seen that MAT posttest mean scores of the EG students ($\overline{X}_{EG}$ =19.50) were higher than their pretest mean scores ($\overline{X}_{EG}$ =9.67), and MAT posttest mean scores of the CG students ($\overline{X}_{CG}$ =12.93) were higher than their pretest mean scores ($\overline{X}_{CG}$ =11.96), thus the increase in the EG was higher. In Table 3, it is clear that a significant difference was found between MAT posttest scores of the two groups as a result of independent samples t-test conducted for posttest scores of the EG and CG students $[t_{(54)} = 5.17, p < .05]$. In this context, it was understood that MAT of the EG students was more than of the CG students. This situation revealed that scenario-based instructional approach was effective on mathematics achievement.

U-test results regarding MMS pretest scores by groups

The third sub-problem of the research was "Are there any statistically significant differences between motivation pre-test scores of the EG students on whom teaching was held with scenarios and of the CG students on whom current instructional program was employed?". Mann Whitney U-test was employed to reveal if there were any significant differences between the scores that the students in the EG and in the CG received from MMS before the intervention. Finding regarding this problem was given in Table 5.

It was understood from Table 5 that there were not any significant differences between MMS pretest scores of the EG and CG (U=319.000, p>0.05).

U-test results regarding mms posttest scores by groups

The fourth sub-problem of the research was "Are there any statistically significant differences between motivation

Table 2. t-test results regarding ET Scores of the EG and CG.

Group	N	$\bar{X}$	sd	t	p
EG	26	60.00	20.18	-1.00	.320
CG	30	54.26	18.48		

Table 3. t-test results regarding MAT pretest by groups.

Groups	N	$\bar{X}$	sd	t	p
EG	26	9.67	5.390	1.903	.062
CG	30	11.96	3.168		

Table 4. t-test results regarding MAT posttest by groups.

Groups	N	$\bar{X}$	sd	t	p
EG	26	19.50	3.723	5.172	0.000
CG	30	12.93	5.464		

Table 5. U-test results regarding mms pretest scores by groups.

Groups	N	Mean rank	Rank sum	U	p
EG	26	25.77	670.00	319.000	.243
CG	30	30.87	926.00		

Table 6. U-test results regarding MMS posttest scores by groups.

Group	N	Mean rank	Rank sum	U	p
EG	26	28.21	733.50	382.500	0.902
CG	30	28.75	862.50		

post-test scores of the EG students on whom teaching was held with scenarios and of the CG students on whom current instructional program was employed?". Finding revealing if there was a significant difference between MMS posttest scores of the EG and CG students based on the methods implemented was presented in Table 6.

Mann Whitney U-test results regarding MMS posttest scores of the students in the EG and CG were given in Table 6. Accordingly, there were not any significant differences between the MMS scores of the students on whom scenario-based instruction was conducted and of the ones on whom current instructional method was implemented (U=382.500, p>0.05).

Dependent samples t-test results regarding MAT pretest and posttest scores of the CG students

The fifth sub-problem of the research was "Are there any statistically significant differences between MAT pre-test

and post-test scores of the CG students on whom current instructional program was employed?". Dependent samples t-test results with regard to MAT pretest and posttest scores of the CG students were given in Table 7.

It was seen that posttest scores that the CG students received from MAT ($\bar{X}_{CG}$ =12.93) were higher than their pretest scores ($\bar{X}_{CG}$ =9.67). At the end of the intervention, a significant difference was found between MAT pretest and posttest scores of the CG students. This finding showed that students' mathematics achievement improved when current instructional program was conducted efficiently.

Dependent samples t-test results regarding MAT pretest and posttest scores of the EG students

The sixth sub-problem of the research was "Are there any statistically significant differences between MAT pre-test

Table 7. Comparison of MAT pretest and posttest scores of the CG.

Tests	N	$\overline{X}$	sd	t	p
MAT-pretest	30	9.67	5.390	-2.710	0.011
MAT-posttest		12.93	5.464		

Table 8. Comparison of MAT pretest-posttest scores of the EG.

Tests	N	$\overline{X}$	sd	t	p
MAT-pretest	26	11.96	3.168	-8.118	0.000
MAT-posttest		19.50	3.723		

Table 9. Wilcoxon signed rank test results regarding MMS pretest and posttest scores of CG.

Pretest - Posttest	N	Mean rank	Rank sum	z	p
Negative rank	9	14.38	133.00	1.828*	.068
Pozitive rank	20	15.10	302.00		
Equal	1	-	-		

*Based on positive ranks.

and post-test scores of the EG students on whom teaching was held with scenarios?" Dependent samples t-test results conducted to determine whether there was a significant difference between MAT pretest and posttest scores of the EG students were given in Table 8.

After implementation of MAT to the EG, it was observed that students' mathematics achievement posttest mean scores ($\overline{X}_{EG}$=19.50) were higher than their pretest scores ($\overline{X}_{EG}$ =11.96). It can be deduced from Table 8 that mathematics achievement mean scores of the EG were higher than of the CG. The results of the analysis revealed that there was a significant difference between before-intervention and after-intervention scores of the EG students. With reference to this finding, it can be suggested that scenario-based instructional approach had a significant effect on EG students' improvement of mathematics achievement.

Wilcoxon signed rank test results regarding MMS pretest and posttest scores of the CG students

Wilcoxon signed rank test was employed to reveal if there were any significant differences between the scores that the students in the CG received from MMS before and after the intervention. The results were given in Table 9. Table 9 indicated that there were not any significant differences between MMS pretest and posttest scores of the CG students (z=1.828; p>0.05).

Wilcoxon signed rank test results regarding MMS pretest and posttest scores of the EG students

Wilcoxon Signed Rank Test was employed to reveal if

there were any significant differences between the scores that the students in the EG received from MMS before and after the intervention. The results were given in Table 10. In Table 10, it was seen that there were not any significant differences between MMS pretest and posttest scores of the EG students (z = 1.575, p >0.05).

Correlation analysis of the scores received from MAT and MMS

In Table 11, correlation analysis results with regard to the posttest scores received from MAT test and MMS by the EG and CG students. Accordingly, Spearman Brown Rank Correlation analysis (Can, 2013; Kalaycı, 2010) was used as the variables were dichotomously far away from normal distribution (Can, 2013; Kalaycı, 2010).

Spearman Brown Rank Correlation analysis was performed to test if there was a statistically significant difference between the students' MAT and MMS scores [r_d (26) = 0.023, p≥0.05; r_k (30) = -0.038, p ≥0.05]. On the basis of this result, it was concluded that there were not any significant differences between MAT and MMS scores of the EG and CG students.

The EG students' views on teaching with scenarios

Here, qualitative findings regarding the eighth sub problem of the research which was "What are the EG students' views on teaching equality and equation with scenarios?" were given.

In Table 12 and Figure 1, the EG students' views on teaching equality and equation with scenarios were

Table 10. Wilcoxon signed rank test results regarding MMS pretest and posttest scores of the EG.

Pretest – posttest	N	Mean rank	Rank sum	z	p
Negative rank	11	10.32	113.50	1.575*	0.115
Pozitive rank	15	15.83	237.50		
Equal	0	-	-		

*Based on positive ranks.

Table 11. Correlation analysis between MAT and MMS of the EG and CG.

	Correlation			MAT	MMS
EG		MAT	Correlation coefficient	1.000	0.023
			Sig (2-tailed)	0.0	0.912
			N	26	26
	Spearman's rho	MMS	Correlaiton coefficient	0.023	1.000
			Sig(2-tailed)	0.912	0.0
			N	26	26
CG		MAT	Correlation coefficient	1.000	-0.038
			Sig(2-tailed)	0.0	0.840
			N	30	30
	Spearman's rho	MMS	Correlation coefficient	-0.038	1.000
			Sig(2-tailed)	0.840	0.0
			N	30	30

$p < .05$, correlation is significant at the 0.05 level (2-tailed).

Table 12. Frequency and percentages regarding the EG students' views on teaching equality and equation with scenarios.

Category	Codes	f	%
Positive views	Teaching with scenarios and its contribution to learning the topic	26	36.11
	Design of scenarios and activities	9	12.50
	Its contribution to affective learning / socialization / group work	18	25
	Comparison of two methods	15	20.83
Negative views	Design of scenarios	1	1.38
	Group work	3	4.16
Sum		**72**	**100**

included. Figure 1 also shows the categories and sub-categories of student views. The students' views were categorized into codes of positive and negative views, and of "teaching with scenarios and its contribution to learning the topic", "design of scenarios", "its contribution to affective learning/socialization/group work", "comparison of the current instructional method and scenario-based instruction". Frequency and percentage distribution of each code were given in Table 12.

According to the Table 12, the most attractive positive views of the students 94% of whom had positive views were about teaching with scenarios, its contribution to permanent learning and comparison of scenario-based instruction and current instructional method. The students expressed that with the method used, the lessons became funnier, more enjoyable, more instructive and clearer; learning got more permanent; their problem-solving skills got improved, and teaching by associating

Teaching with scenarious and its contribution to learning the topic (f)

- The course's being fun, enjoyable and nice (3)
- Memorability of the things learned (6)
- Its help to understand the topic (7)
- Teaching the topic by associating it by real-life (2)
- Teaching the topic with storification (1)
- Its promoting problem-solving skill (4)
- Non-existence of the problem of seeing the board (1)
- The teacher's having a good approach and teaching (2)

Design of scenarious and activities (f)

- Its being informative (1)
- Scenarios' being associated with real-life (2)
- Its being sensible (1)
- Its being illustrated (1)
- Its memorability and clarity (4)

Its contribution to affective learning/socialization/group work (f)

- Its strengthening relationship among groupmates (4)
- Its being better than previous teaching programs (2)
- Group work's help to teach helping each other (2)
- Its promoting motivation-interest towards the course (5)
- Its help to learn by discussion (2)
- Learning to study (2)
- Attending lessons eagerly (2)
- Learning to be patient (1)

Comparison of two methods (f)

- Providing groups to learn from each other (1)
- Its being nicer to learn with examples (3)
- Its being more explanatory than previous teaching method (2)
- Its being funnier than previous method (3)
- Existence of group interaction (1)
- Solving more questions (3)
- Noticing the mistakes made and making corrections (2)

Design of scenarios (f)

- The scenarios could have been funnier (1)

Comparison of two methods (f)

- Group members' not struggling (1)
- Sometimes having conflicts within group (1)
- Demandingness of forming a group (1)

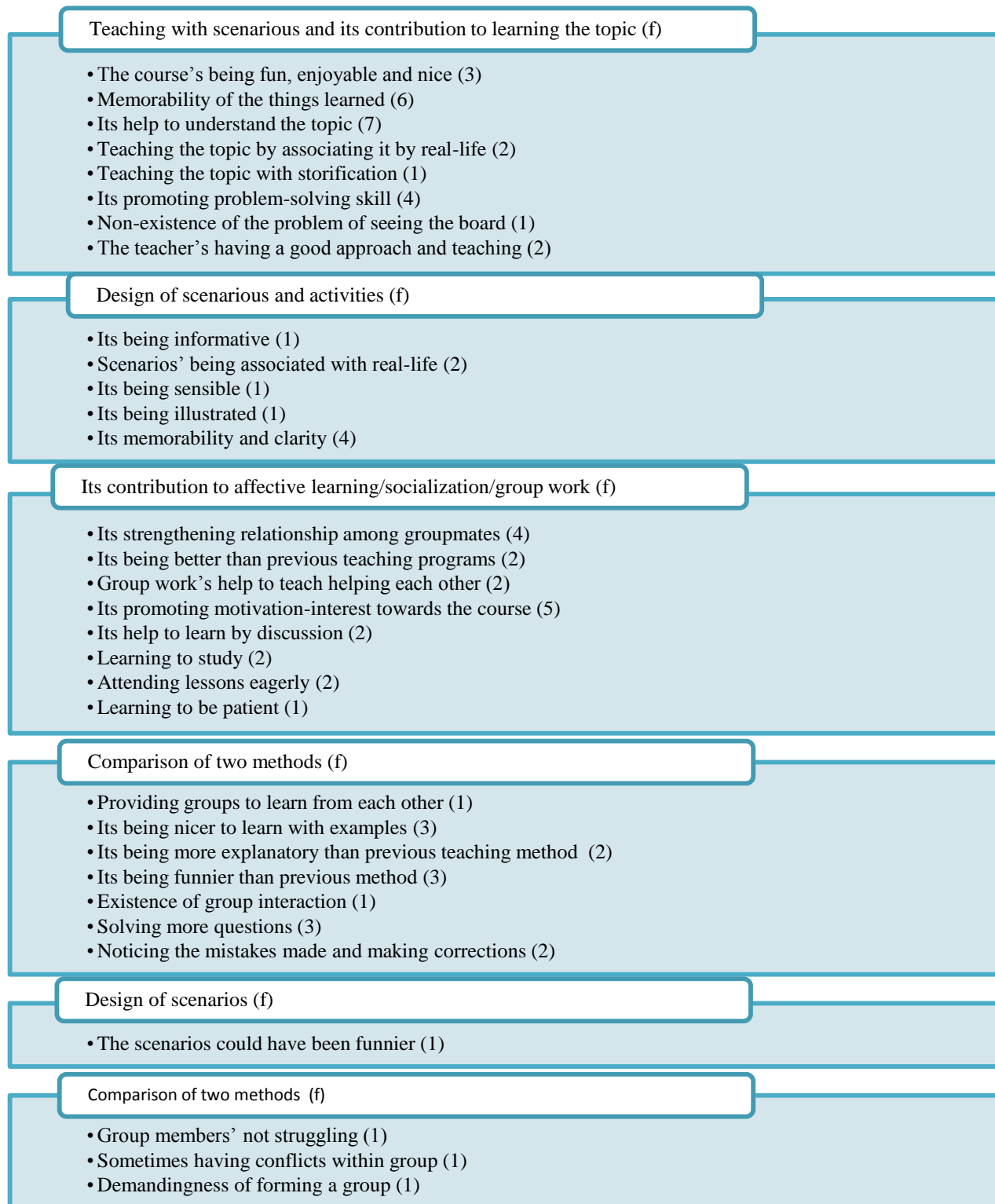**Figure 1.** Categories, sub-categories and frequencies of student views.

and storifying topic with daily life via scenarios made their learning easier. Furthermore, the students who regarded the teacher's approach positive stated that they learned to be patient, attended the lessons more willingly, their interest and motivation towards the course increased, they learned to help each other within groups and their

| I love this method because I can find correct answer by sharing my mistake. The method should be continued. Its benefits developed my problem-solving skill. **S6** | It's a good method. We can go on like this. It is funny and we can ask the group if we don't understand a question. Continuing the course in this was can be nice. **S11** |

Figure 2. Positive views of S6 and S11 on teaching of the course with scenarios.

| This kind of teaching is pretty good for me because we can understand anything that we cannot do better by discussing it with our groupmates. In my opinion, it is catchier in this way. Thus, let's go on our lessons in this way. **S10** |

Figure 3. Positive views of S10 on teaching of the course with scenarios.

| I liked and enjoyed it because I am able to understand the questions that I don't understand by discussion. It's better than our previous teaching program. It's more enjoyable, and I have started to attend lessons more willingly. **S3** | I think this teaching is very good because we've learned to work in groups, and I like it. However, it has some disadvantages such as discussions within groups. This is not nice, yet I like this kind of teaching. Let all our lessons be taught in this way. **S7** |

Figure 4. Views of S3 and S7 on teaching of the course with scenarios.

| Positive Sides
If lessons are taught in this way, it is better. We can learn to help each other, and lessons become better. We don't experience the problem of not seeing the board.
Negative Sides
In forepart of the classroom, students whose backs are facing the board have the problem of turning and of neck pain. **S19** |

Figure 5. Views of S19 on teaching of the course with scenarios.

bond of friendsip developed with the help of this method. Examples of these views taken from S6, S10 and S11 were given in Figures 2 and Figure 3.

The students expressed that continuing use of this method would be better for them, learning was more enjoyable with this method, it provided convenience in understanding the topic, they were able to find the correct answers via group discussions, their knowledge became permanent and their problem-solving skills were developed with this method.

The students who thought that the scenario-based instruction was more advantageous than the current instructional method mentioned that especially learning with examples was better, learning through this method was more explanatory and permanent, it provided more opportunity for solving questions, groups could learn from each other via group interaction and they were able to notice and correct the mistakes they made. While students with negative views mostly expressed the problems about group work they experienced, one

student suggested that scenarios could be prepared in a more enjoyable way. Examples of these views taken from S3, S7 and S19 were given in Figures 4 and 5.

S3, S7 and S19 expressed that instruction with scenarios was more fruitful compared to the current instructional method, and it would be better if teaching is carried on with scenarios. The views of the students with their own handwriting are given in Annex 1.

DISCUSSION

Scenario-based instruction encourages students to participate actively in the learning process and to take over responsibility of their own learning. The studies conducted revealed that students who actively participate in learning process learn better (Harris et al., 2001; Cantürk-Günhan, 2006). This is because of the fact that in scenario-based instruction, students are taught how to use their knowledge to solve a problem (Van till et al.,

1997; Vaughan and Garrison, 2008), and they are given the opportunity to talk and to discuss freely (Lampert, 1989, as cited by Brown et al., 1989). Students are aware of what and how they do in teaching with scenarios (Cerrah-Özsevgeç and Kocadağ, 2014). In this context, results of several studies in which scenario-based instruction was employed (Ersoy and Başer, 2011; Haynes et al., 2009; Özsoy et al., 2007; Siddiqui et al., 2008) are consistent with the results of the present study. Ersoy and Başer (2011) expressed in their study which was conducted with pre-service teachers that teaching with scenarios increased permanence of learning; Haynes et al. (2009) claimed that it helped understanding a problem as a whole, associating it with real life and thinking multidimensionally; Siddiqui et al. (2008) suggested that it fostered student achievement. Özsoy et al. (2007) used scenarios in teaching "special triangle" to secondary school and high school students. Pre-service teachers who supported this study stated that two of the factors affecting students' academic achievement were problems about teaching methods and learning environment (Aysan et al., 1996, as cited by Çetin and Bulut, 2014). In the present study, teaching with scenarios which is a different instructional approach was employed, and it was revealed that this approach was effective in improving students' mathematics achievement.

The result of the current study conflicts with the studies in which student motivation in mathematics course was examined (Abramovich et al., 2019; Awofala, 2016; Fuqoha et al., 2018; Halat and Peker, 2011; Waege, 2010), however, in a study conducted with 7th grade students by Dede (2003), no significant differences were found between mathematical motivations of the EG and CG. Therefore, results of the current study are compatible with the results of the study carried out by Dede (2003).

Another problem of the current study was to reveal if there was a significant difference between mathematics achievement and mathematical motivation. Correlation analysis made between MAT and MMS scores showed that there were not any significant differences between the scores received from both tests by the EG and CG students. The results of the current study are inconsistent with the studies suggesting that students' perceptions of mathematics achievement influenced their motivational attitudes (Middleton and Spanias, 1999) and that there was a strong positive relationship between intrinsic motivation and achievement, yet extrinsic motivation had mediocre impact (Herges et al., 2017).

Several implications can be suggested from this study. It is a known fact that motivation is of great importance for academic achievement. However, it was concluded in this study that scenario-based instructional approach was not effective on improvement of mathematical motivation, while it was effective on increasing mathematics achievement. In this context, it can be suggested that factors affecting mathematical motivation should be

scrutinized with qualitative data in further studies. This study is limited to a total of 56 7th grade students in the Experimental and Control Groups, equality and equation topics and 20 h of lessons conducted for over two months.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

REFERENCES

Abramovich S, Grinshpan AZ, Milligan, DL (2019). Teaching mathematics through concept motivation and action learning. Hindawi Education Research International 1-13. Article ID 3745406 https://doi.org/10.1155/2019/3745406

Açıkgöz KÜ (2014). Active Learning, (13. edition) [Aktif Öğrenme]. İzmir: Biliş Yayıncılık.

Adler RW, Milne M, Stablein R (2001). Situated motivation: An empirical test in an accounting course. Canadian Journal of Administrative Sciences 18(2): 101-115.

Akbaba S (2006). Eğitimde motivasyon. Journal of Kazım Karabekir Education Faculty 13:343-361.

Akın Y, Cancan M (2007). Student approach directed of problem solvable in teaching of mathematics [Matematik öğretiminde çözülebilen problem yönelik öğrenci yaklaşımı görüşleri analizi]. Journal of Kazım Karabekir Education Faculty 16:374-390.

Akkan Y, Çakıroğlu Ü, Güven B (2009). İlköğretim 6. ve 7. sınıf öğrencilerinin denklem oluşturma ve problem kurma yeterlilikleri. Mehmet Akif Ersoy Üniversitesi Eğitim Fakültesi Dergisi 9(17): 41-55.

Alptekin S (2012). Sosyal becerilerin zihinsel engelli öğrencilere doğrudan öğretim yaklaşımıyla öğretimi. Ondokuz Mayıs Üniversitesi Eğitim Fakültesi Dergisi 31(1): 1-19.

Altun M (2014). Eğitim fakülteleri ve ilköğretim öğretmenleri için matematik öğretimi. İstanbul: Alfa Yayınları.

Argün Z, Arıkan A, Bulut S, Halıcıoğlu S (2014). Basic of Basic Mathematics Concepts [Temel Matematik Kavramların Künyesi]. Ankara: Gazi Kitabevi.

Attorps I (2004). Teachers' ımages of the 'equatıon' concept. In: Mariotti, M. A. (Ed.). (2004). Proceedings of the Third Conference of the European Society for Research in Mathematics Education (CERME 3, February 28 – March 3, 2003) (pp. TWG 1) . Bellaria, Italy: University of Pisa and ERME.

Awofala AO (2016). Effect of Personalisation of Instruction on Students' Motivation to learn Mathematics Word Problems in Nigeria. Turkish Journal of Computer and Mathematics Education 7(3):486-509.

Baykul Y (2014). Ortaokulda matematik öğretimi (5-8. Sınıflar). Ankara: Pegem Akademi Yayınları.

Brown JS, Collins A, Duguid P (1989). Situated cognition and the culture of learning. Educaional Researcher 18(1):32-42.

Büyüköztürk Ş, Kılıç-Çakmak E, Akgün ÖE, Karadeniz Ş, Demirel F (2013). Scientific research methods [Bilimsel araştırma yöntemleri.]. (15. Baskı). Ankara: Pegem Akademi.

Can A (2013). SPSS ile bilimsel araştırma sürecinde nicel very analizi. Ankara: Pegem Akademi.

Cantürk-Günhan B (2006). An investigation on applicability of problem based learning in the mathematics lesson at the second stage in the elementary education [İlköğretimde ikinci aşamada matematik dersinde probleme dayalı öğrenmenin uygulanabilirliği üzerine bir araştırma]. (Unpublished doctoral dissertation). Dokuz Eylul University Institute of Educational Sciences, İzmir.

Carpenter TP, Franke ML, Levi L, Zeringue JK (2005). Algebra in Elementary School: Developing Relation Thinking. ZDM 37(1):53-59.

Cerrah-Özsevgeç L, Kocadağ Y (2014). Scenario based learning-teaching approach [Senaryo temelli öğrenme-öğretme yaklaşımı]. In: G. Ekici. (Ed.), Current learning-teaching approaches with examples of activities I (1st edition), [Etkinlik örnekleri ile güncel öğrenme-

öğretme yaklaşımları (1. Baskı)] (pp. 439-469). Ankara: Pegem Akademi.

Ceylan, H. (2014). The effect of using creative drama method in lecturing the 6th grade maths course "equality and equation" to students' attitudes [6. sınıf matematik dersi eşitlik ve denklem konusunun drama yöntemi kullanılarak anlatılmasının öğrenci tutumlarına etkisi.]. (Unpublished master thesis). Gazi University Institute of Education Sciences, Ankara.

Chen NC (2008). An educational approach to problem-based learning. The Kaohsiung Journal of Medical Sciences 24(3): 23-30.

Çakmak-Gürel Z, Okur M (2017). A glance at the equation and equality of 7th grade students in terms of student knowledge [7. ve 8. sınıf öğrencilerinin eşitlik ve denklem konusundaki kavram yanılgıları]. Cumhuriyet International Journal of Education 6(4):479-507.

Çetin Ö, Bulut H (2014). Awareness of teachers of mathematics about effects of mathematics success or failure of math [Matematik öğretmenlerinin matematik başarı ya da başarısızlığının etkileri hakkındaki farkındalıkları]. Erzincan University Journal of Education Faculty 15 (2):226-250.

Dede Y (2003). The effect of ARCS motivational model on motivational level, attitudes and academic success of the students [ARCS motivasyon modelinin öğrencilerin matematiğe olan motivasyonu üzerine etkisi]. Pamukkale University Journal of Education 14(2):173-182.

Dede Y (2005). Birinci dereceden denklemlerin yorumlanması: Eğitim Fakültesi 1. sınıf öğrencileri üzerine bir çalışma. Cumhuriyet Üniversitesi Sosyal Bilimler Dergisi 29(2):197-205.

Dede Y, Argün Z (2004). Identification of students' intrinsic and extrinsic motivation towards mathematics [Öğrencilerin matematiğe yönelik içsel ve dışsal motivasyonlarının belirlenmesi]. Education and Science 29(134): 49-54.

Dede Y, Peker M (2007). Öğrencilerin cebire yönelik hata ve yanlış anlamları: Matematik öğretmen adaylarının bunlar tahmin beceriler ve çözüm önerileri. Ilköğretim Online 6(1):35-49.

Erbaş AK, Çetinkaya B, Ersoy Y (2009). Student difficulties and misconceptions in solving simple linear equations [Oğrencilerin basit doğrusal denklemlerin cozumunde karşılaştıkları guclukler ve kavram yanılgıları]. Eğitim ve Bilim 34(152):44-59.

Errington E (Ed.) (2003). Developing scenario-based learning: A practical guide for tertiary educators. Palmerston North, New Zealand: Dunmore Press.

Errington E (Ed.) (2010). Preparing graduates for the professions using scenario-based learning. Mount Gravatt, Queensland: Post Pressed.

Ersoy E, Başer N (2011). The effect on retention of applied scenarios in the problem-based learning method [Probleme dayalı öğrenme yönteminde uygulanan senaryoların kalıcılığa etkisi]. Journal of Uludağ University Faculty of Education 24(2):355-366.

Eski M (2011). The effect of problem based learning method to the teaching algebraic expositions and equations in 7th classes of primary education. (Unpublished master thesis: 284176.pdf). Kastamonu University Institute of Science, Kastamonu. https://tez.yok.gov.tr

Fuqoha AAN, Budiyono, Indriati D (2018). Motivation in mathematics learning. Pancaran Pendidikan 7(1):202-209.

Glasser W (1993). The quality school teacher. New York: Harper-Collins Publishers.

Glynn SM, Aultman LP, Owens, AM (2005). Motivation to learn in general education programs. The Journal of General Education 54(2):150-170.

Halat E, Peker M (2011). The impacts of mathematical representations developed Through webquest and spreadsheet activities on the Motivation of pre-service elementary school teachers. The Turkish Online Journal of Educational Technology 10(2):259-267.

Hannula M S (2006). Motivation in Mathematics: Goals Reflected in Emotion. Educational Studies in Mathematics 63(2):165-178.

Haynes SR, Spence L, Lenze L (2009). Scenario-based Assessment of Learning Experiences. 39th IEEE Frontiers in Education Conference. 1-8, San Antonio, TX.

Herges RM, Duffield S, Martin W, Wageman J (2017). Motivation and achievement of middle school mathematics students. The Mathematics Educator 26(1):83-106.

Harris K, Marcus R, Mclaren K, Fey J (2001). Curriculum Materials Supporting Problem-Based Teaching. School Science and Mathematics 101 (6): 310-318.

Işıtan H, Doğan M (2011l). İlköğretim 8. sınıf öğrencilerinin iki bilinmeyenli denklem sistemlerinin çözümüne ilişkin güçlükleri. 10. Matematik Sempozyumu Işık Üniversitesi.

İspir OA, Ay ZS, Saygı E (2011). High achiever students' self regulated learning strategies, motivation towards mathematics, and their thinking styles. Education and Science 36(162):235-246.

Kalaycı Ş (2010). SPSS uygulamalı çok değişkenli istatistik teknikleri. (5. Baskı). Ankara: Asil Yayın Dağıtım.

Karaali G (2015). Metacognition in the Classroom: Motivation and Self-Awareness of Mathematics Learners. PRIMUS 25(5):439-452.

Kiamanesh AR (2004). Factors affecting Iranian students' achievement in mathematics. Paper presented in the First IEA International Research Conference, Cyprus.

Kramarski B, Weiss I, Kololshi-Minsker I (2010). How can self-regulated learning (SRL) support problem solving of third-grade students with mathematics anxiety? ZDM-The International Journal on Mathematics Education 42(2): 179-193.

Kocadağ Y (2010). The effect of cased-based learning approach on the elimination of misconceptions about the subject of genetic. Karadeniz University Graduate Institute of Natural and Applied Sciences, (Unpublished master thesis). Trabzon.

Köroğlu H, Geçer Z, Taşçı Ö, Ay HG (2004). Processing and evaluating the subject of primary education 7th grade equations with different learning activities. 6th National Science and Mathematics Education Congress Proceedings Book 2:573-578. Marmara Üniversitesi, İstanbul.

Lumsden L (1994). Student motivation to learn. ERIC Digest 92:1-7.

Martin AJ (2001). The Student Motivation Scale: A tool for measuring and enhancing motivation. Australian Journal of Guidance and Counselling 11:1-20.

McMillian HJ, Schumacher S (2010). Research in education. Boston USA: Pearson Education.

MoNE (2013). Ortaokul matematik dersi (5, 6, 7 ve 8. Sınıflar) öğretim programı ve kılavuzu. Ankara: Talim ve Terbiye Kurulu Başkanlığı

MoNE (2017). Matematik dersi öğretim programı (1,2,3,4,5,6,7 ve 8. sınıflar). Ankara: Talim Terbiye kurulu Başkanlığı.

MoNE (2018). Matematik dersi (1, 2, 3, 4, 5, 6, 7 ve 8. Sınıflar) öğretim programı. Ankara: Talim ve Terbiye Kurulu Başkanlığı

Middleton J, Spanias P (1999). Motivation for achievement in mathematics: Findings, generalizations, and criticisms of the research. Journal for Research in Mathematics Education 30(1):65-88.

Moenikia M, Zahed-Babelan (2010). A study of simple and multiple relations between mathematics attitude, academic motivation and intelligence quotient with mathematics achievement. Procedia Social and Behavioral Sciences 2:1537-1542.

Mueller M, Yankelewitz D, Maher, C (2011). Sense making as motivation in doing mathematics: Results from two studies. The Mathematics Educator 20(2):33-43.

Nas H (2008). The effect of using aplusix software for teaching of equations on students success and misconceptions. (Unpublished master thesis). Karadeniz University Graduate Institute of Natural and Applied Sciences, Trabzon.

Oktaç A (2010). First order unknowns and related misconceptions. E. Bingölbali, M. F Özmantar, (Ed.), Mathematical difficulties and solution suggestions encountered in primary education, (2th edition) in (241-262). Ankara: Pegem Akademi.

Özden Y (2013). Eğitimde yeni değerler eğitimde dönüşüm (9. Baskı). Ankara: PegemA

Özsoy N, Fidan-Koçak Z, Engin İ, Engin A (2007). Special triangles. IX. Oral presentation presented at the Academic Informatics Conference, Kütahya.

Palmer D (2007). What is the best way to motivate students in science? Teaching Science: The Journal of the Australian Science Teachers 53(1):38-45.

Papanastasiou C (2000). School, effects of attitudes and beliefs on mathematics achievement. Studies in Educational Evaluation 26:27-42.

Rifandi R (2013). Improving students' motivation in learning mathematics by using contextual teaching strategies.1-9. It was reached on 6.9.2019 from the address of

https://www.researchgate.net/publication/236271785

Seah WT, Bishop AJ (2000). Values in mathematics textbooks: A view through two Australasian regions. Paper Presented at the Annual Meeting of the American Educational Research Association, New Orleans, LA.

Sert-Çelik H (2018). Investigation of primary mathematics teachers' pedagogical content knowledge about equality and equation in terms of student knowledge. (Unpublished master thesis). Sakarya University Institute of Educational Science, Sakarya.

Sertöz S (2002). Matematiğin aydınlık dünyası. Ankara: Semih Ofset.

Schank MJ, Weis D (2000). Exploring commonality of professional values among nurse educators in the United States and England. Journal of Nursing Education 39(1): 41-44.

Siddiqui A, Khan M, Akhtar S (2008). Supply chain simulator: A scenario-based educational tool to enhance student learning. Computers and Education 51:252- 261.

Sürücü A, Ünal A (2018). Investigation of teacher behavior increasing and reducing student motivation. OPUS–International Journal of Society Researches 8(14): 253-295.

Tekay T, Doğan M (2015). İlköğretim 7. sınıf öğrencilerinin doğrusal denklemlerin grafikleri ile ilgili soruları çözme becerilerinin değerlendirilmesi. MATDER Matematik Eğitimi Dergisi 2(1): 1-10.

Tuan HL, Chin CC, Shieh SH (2005). The development of a questionnaire to measure students' motivation towards science learning. International Journal of Science Education 27(6):639-654.

Tzohar-Rosen M, Kramarski B (2014). Metacognition, motivation and emotions: Contribution of self-regulated learning to solving mathematical problems. Global Education Review 1(4):76-95.

Uluçay B, Güven S (2017). The relationship between mathematical motivation and perceived teacher closeness of secondary school students. Journal of Research in Education and Teaching 6(3): 252-266.

Üzel D, Uyangör N, Hasar B, Çakır Ö (2018). Developing the motivation scale for the math class. Journal of Social and Humanities Sciences Research 5(18):378-386.

Van de Walle JA, Karp KS, Bay-Williams JM (2013). İlkokul ve ortaokul matematiği gelişimsel yaklaşımla öğretim. (Çev. Ed.: S. Durmuş). Ankara: Nobel Akademi Yayıncılık.

Van Til CT, van der Vleuten CPM, van Berkel HJ M (1997). Problem-based learning behavior: the impact of differences in problem-based learning style and activity on students' achievement. Educational Resources Information Center 1-13. paper presented at the annual meeting of the american educational research association, Chicago.

Vaughan N, Garrison DR (2008). How blended learning can support a faculty development community of inquiry. Journal of Asynchronous Learning Networks 10(4):139-152.

Waege K (2010). Motivation for learning mathematics in terms of needs and goals. Proceedings of CERME 84-93 Lyon France. www.inrp.fr/editions/cerme6

Wang DB (2004). Family background factors and mathematics success: A comparison of Chinese and US students. International Journal of Educational Research 41:40-54.

Williams KC, Williams CC (2011). Five key ingredients for improving motivation. Research in Higher Education Journal 11:1-23. http://aabri.com/manuscripts/11834.pdf

Yahya N, Shahrill M (2015). The strategies used in solving algebra by secondary school repeating students. 5th World Conference on Learning, Teaching and Educational Leadership, WCLTA 2014, Procedia - Social and Behavioral Sciences 186:1192-1200.

Yaman S, Dede Y (2007). Examination of motivation level of studens towards science and mathematics by some variables. Educational Administration: Theory and Practice 52:615-638.

Yaman B (2005). Senaryo tabanlı öğrenme yaklaşımına (stöy) dayalı eğitimde drama yönteminin, ilköğretim beşinci sınıf öğrencilerinin okuduğunu anlama başarılarına etkisi. Journal of Çukurova University Institutu of Social Sciences 14(2):465-482.

Yayan B, Berberoğlu G (2004). A re-analysis of the TIMSS 1999 mathematics assessment data of the Turkish students. Studies in Educational Evaluation 30(1):87-104.

Yıldırım A, Şimsek H (2008). Sosyal Bilimlerde Nitel Araştırma Yöntemleri. Ankara: Seçkin Yayıncılık.

Zengin D (2019). Academic success effect in computer aided teaching software in equality and equation teaching. (Unpublished master thesis). Atatürk University, Graduate School of Natural and Applied Sciences, Erzurum.

Annex 1

Ben beğendim hoşuma gitti. **Ö3** Çünkü anlamadığım soruları tartışarak anlayabiliyorum. Önceki ders işleme programımızdan daha iyi. Daha eğlenceli ve derse istekli gelmeye başladım.

Bu anlatış bence çok güzel böyle grup olarak çalışmayı öğrendik ve bu anlatış tarzını sevdim ama eksi yönleride var mesela grup içinde tartışmalar çıkabiliyor bu da iyi olmuyor. Ama ben yinede bu anlatış tarzını çok sevdim dersleri hep böyle işleyelim. **Ö7**

Views of S3 and S7 on Teaching of the Course with Scenarios

Olumlu yönleri: **Ö19** Dersimiz böyle işlenirse daha iyi olur Çünkü dersimiz iyi olur yardımlaşmayı ve dersleri daha iyi öğrene biliriz. Tahtayı görme sıkıntısı olmaz önümüzde açık olur.
Olumsuz yönleri:
Bir tarafta tahtaya ters oturanların dönme ve Boyun ağrısı, sıkıntıları olur.

Views of S19 on Teaching of the Course with Scenarios

Bu yöntemi sevdim çünkü arkadaşlarımla yanlışımı paylaşarak doğruyu buluyorum. Yöntem devam etmeli. Bana faydaları problem becerimi arttırdı. **Ö6**

Güzel bir yöntem. Böyle devam edebiliriz hem eğlenceli oluyor hemde anlamadığımın bir soru aynısı grubu sorabiliriz. Derse böyle devam etmesi güzel olabilir. **Ö11**

Positive Views of S6 and S11 on Teaching of the Course with Scenarios

Bu işleniş şekli benim için çok iyi. Çünkü yapamadığımız bir şeyi grup arkadaşlarımızla tartışarak daha iyi anlayabiliyoruz. Bana göre akılda daha kalıcı oluyor bu şekilde ders işlemeye devam edelim **Ö10**

Positive Views of S10 on Teaching of the Course with Scenarios

ACADEMIC JOURNALS
expand your knowledge

Educational Research and Reviews

Full Length Research Paper

Investigation of the relationship between critical thinking levels and academic achievement levels of students in Faculty of Sports Science

Mihriay MUSA

Department of Coach, Faculty of Sport Science, Usak University, Turkey.

This study aims to investigate the relationship between critical thinking levels and academic achievement levels of the students in faculty of sports science. The research population consists of 1170 students studying at the Usak University, Faculty of Sport Sciences in the fall semester of 20192020. The sample group consisted of 334 students selected from the university by random sampling method through voluntary participation. In the research, California Critical Thinking Disposition Inventory (CCTDI-R) which was originally developed by Facione et al. and whose Turkish validityreliability study was conducted by Kokdemir was shortened. The Turkish version of it (CCTDI- R) was used. The academic achievement levels of the students were obtained through Usak University Student Information System (SIS). Frequency, percentage, and arithmetic average was used to evaluate academic grade point average and the data obtained with critical thinking tendency scale. Correlation analysis was used to determine the relationship between variables and regression analysis was used to determine the effect of independent variable on dependent variable. According to the results, it is revealed that there is a positive relationship between students' critical thinking levels and their academic achievement levels. it is observed that besides, a positive correlation was observed between students' academic achievements and their tendency to be careful about potentially problematic situations in their critical thinking skills sub-dimensions and to use objective evidence even in the face of difficult problems.

Key words: Sports science, students, critical thinking, academic achievement.

INTRODUCTION

People think intrinsically. However, the thought that has not been given a certain norm, it can usually be pre-convicted, distorted, biased, ignorant and reductionist. Our quality of life, our production is exactly about the level of our thought quality. A regular and purposeful education system is required for purification of thought and for the thought to reach perfection. Critical thinking is a process in which individuals manage the structures in their thought systems skillfully and bring intellectual standards to those structures, to improve the quality of their thinking methods. Individuals with critical thinking have the following characteristics; they develop crucial

questions and problems. They obtain and interpret relevant data to analyze qualitative ideas effectively. They test the information with the relevant criteria and standards and go near correct results and solutions. By thinking impartially on different thought systems, they think about the assumptions that these systems contain, considering their possible effects and outcomes, and can communicate effectively with other individuals in solving intricate issues. The essence of critical thinking is the autonomous orientation, discipline, monitoring, and verification of the individual's thoughts.

In this study, critical thinking is discussed. In this context, the concepts of thinking skills and critical thinking have been clarified first, and then the interest between the critical thinking levels of the students of the sports sciences and their academic success levels has been revealed through various variables. In the study, a descriptive survey method was used to determine the critical thinking levels of the students of the Faculty of Sport Sciences. The opinions of the students studying at the Faculty of Sports Sciences about their critical thoughts were determined by following the quantitative research methodology.

Critical thought in conceptual dimensions

It is observed that various studies have been carried out recently both in Turkey and abroad regarding critical thinking ability. The main reason for this occurrence is due to the place of critical thinking in educational programs. This is because when the education programs are examined, it is accepted that the students who receive an education are "critical thinkers" (Smith, 2003: 27). Critical thinking, which is an output in the Education Program needs to be explained with its conceptual dimensions. According to Kalayci (2001: 7), critical thinking is "the systematic way of thinking, where the problem is evaluated with the criteria put forward, the judgment is made after reaching all data". According to Doğanay (2007: 301), it is explained as "important high-level thinking involving the process of extracting meaning from them by questioning the accuracy of the information". On the other hand, Paul and Elder (2006, p. 3) explained that "it is a process in which the thinking method improves the quality of the method by mastering the structures in the thought system of the person and bringing intellectual standards to these structures". According to Pirozzi (2003: 197), it is "thinking very carefully and logically about any situation, issue, decision, problem or event". According to Patrick (1986), "it is necessary to be a good intellectual citizen in a free society". For this purpose, he emphasized that it is important to study the truth in the format, where criticism and asking questions are encouraged. According to Nosich (2015), critical thinking consists of a three-dimensional structure. The first dimension is to ask

questions, the second dimension is to try to solve the questions by understanding the logic, and the last dimension is to believe in the results of critical thinking.

It is seen that the researchers who think about critical thinking have various differences of opinion about the concept and the scope of the concept. When the boundaries of the concept of critical thinking and the common points of its features are examined; it is a logical systematic way of thinking; It is necessary to ask questions and criticize in order to make sense of knowledge in mind; It evolves towards an opinion that it is a high level of thinking. On the other hand, Kökdemir (2012), made a contribution to the characteristics of critical thinking, in his study, where he investigated the problem statement about whether critical thinking was teachable.The results he achieved were as follows: critical thinking is both a skill that determines academic performance and that this skill is a cognitive process that can be gained with effective methods.

Research to date shows that critical thinking can be taught. When the studies on critical thinking in the literature are analyzed, it is seen that they are divided into two main groups. Studies on the features of the concept and studies on the concept of the concept. Studies on the features of the concept are studies in which critical thinking abilities, tendencies, levels, understandings, and attitudes are revealed according to different variables. These studies are the ones that investigate the effect of this education on the critical thinking skills, attitudes and variables determined according to the research problem after a critical thinking-based education and training process. In these studies, primary school, middle school, high school students, teacher candidates, teachers or academicians were chosen as sample mass. The second group, on the other hand, is theoretical studies targeting critical thinking abilities regarding the concept.

It is likely to encounter both national and international studies in literature where tendency, attitude, and skill levels are analyzed according to different variables. There are sample mass investigated related to this topic (Al-degether, 2009, 2012; Coffman, 2013; Çevik, 2013; Deniz, 2009; Derrick-Telemaque, 2014; Gülveren, 2007; Karakoç, 2011; Karali, 2012; Kasimoğlu, 2013; Korur, 2014; Özen, 2013; Öztürk, 2006; Tufan, 2008). After a critical thinking-based education-training process, the studies examining the effect of this education on the variables determined according to critical thinking skills, attitudes and research problem are examined in details according to the sample groups; as well as studies with prospective teachers and university students (Aybek, 2006; Bayram, 2015; Coşkun, 2011; Güner, 2015; Kalelioğlu, 2011; Kanbay, 2013; Kökdemir, 2003; Obay, 2009; Özdemir, 2005; Schreglmann, 2011; Valdes-Corbeil, 2005; Yeh, 1997; Yildirim, 2010; Yücel, 2008); and studies with teachers (Adams, 2013; Dağli, 2008; Dolapci, 2009; Moreyra, 1991; Ünlü, 2017) were found.

After these studies, there are two issues that researchers especially emphasize. The development of critical thinking skills can only be achieved by implementing a program based on critical thinking. Within the education system, these skills can be gained by students through methods and techniques to be arranged in line with the intelligence and abilities of students at all levels of education (Yağci, 2008, p.37). In order to teach critical thinking, students must be actively involved in various activities. Critical thinking cannot be taught only by explaining what critical thinking is, its importance and how to apply should be taught too (Van Gelder, 2005). The purpose of this study is to reveal the interest between the critical thinking levels of the faculty of sports science students and their academic success levels through various variables. The independent variables for the study are the conditions of doing sports under license and the branches of sports they do. The sub-dimensions of critical thinking are open-mindedness sub-dimension, academic success analyticalness sub-dimension, truth-seeking sub-dimension, curiosity sub-dimension, self-confidence sub-dimension, and systematic sub-dimension.

METHODOLOGY

This research is in a relational screening model. The scanning models are research approaches that aim to describe a situation that exists in the past or still exists. In the screening model researches, the opinions of the participants about a topic or event, interest, skill, ability, and attitude were defined.

Study group

The universe of the research consists of 1170 students studying at Uşak University, Faculty of Sport Sciences in the fall semester of 2019-2020. The sample group consisted of 334 students selected from this population by random sampling method through voluntary participation.

Data collection tools

To determine the critical thinking skills of prospective teachers, the California Critical Thinking Trends Scale (CCTDI), which was developed as a result of the Delphi project organized by the American Philosophy Association in 1990 was used. Unlike similar critical thinking scales, CCTDI was prepared not to measure skill, but to evaluate a person's critical thinking disposition or, more specifically, a level of critical thinking (Kökdemir, 2003). The scale was translated into Turkish (CCTDI) by Kökdemir (2003), and factor, validity and reliability analyses were performed. The total variance explained by the new scale, consisting of a total of 51 sub-dimensions and 51 items, 29 positive and 22 negatives, is 36.13%. Internal consistency coefficients of each dimension Analyticalness Scale and Open-Mindedness Scale, 0.75; Curiosity Subscale, 0.78; Self Confidence Scale, 0.77; The Right Search Scale, 0.61; and Systematics Subscale, 0.63. In the Likert type and six-interval scale, after the negative items were scored in the opposite direction, the answers (1 = Strongly disagree, 2 = Disagree, 3 = Partially disagree, 4 = Partially agree, 5 = Agree, 6 = Strongly agree) given to the scale were added and the raw scores were calculated for each subscale, and these raw scores were converted into a standard score after being divided by the number of questions and multiplied by 10 to a standard score that received the lowest value as 6 and the highest 60. The lowest and highest possible values for all subscales are fixed. Facione et al. (1998) and Akt. Kökdemir (2003) opine that individuals with a score of less than 40 for each subscale have low critical thinking tendencies and those with a score of 50 or higher have a critical thinking tendency. Therefore, when CCTDI is evaluated as a whole, it can be said that the people who have less than 240 (40 x 6) general tendency to think critically, and those who have a score of more than 300 (50 x 6) are high (Kökdemir, 2003).

Analysis of the data

By using SPSS for Windows 17.0 packaged program, correlation analysis was performed at the frequency, percentage, arithmetic mean and ($p < 0.05$), ($p < 0.01$) significance level to evaluate the data collected with the critical thinking disposition scale and academic grade averages. Regression analysis was carried out at the significance level ($p < 0.01$) to determine the effect of variables independent of the variables that were associated with them on the dependent variable (Table 1). There is a weak positive relationship between students' critical thinking levels and academic achievement levels ($p < 0.05$). There is no relationship between students' critical thinking levels and sports branches ($p > 0.05$). There is no relationship between students' critical thinking levels and being licensed athletes ($p > 0.05$) (Table 2).

There is a positive weak relationship between students' analyticalness sub-dimensions and academic achievement levels ($p < 0.05$). There is a positive weak relationship between students' curiosity sub-dimensions and academic achievement levels ($p < 0.01$). There is a positive weak relationship between students' self-confidence sub-level and academic achievement levels ($p < 0.01$). There is no strong relationship between students' open-mindedness sub-dimension and academic achievement levels ($p > 0.05$). There is no relationship between students' truth-seeking sub-dimension and academic achievement levels ($p > 0.05$). There is no relationship between students' systematicity sub-dimension and academic achievement levels ($p > 0.05$) (Table 3). There is a negatively weak relationship between students' comprehension of truth sub-dimension levels and sports branches ($p < 0.05$). There is a negatively weak relationship between the students' self-confidence subscale levels and sports branches ($p < 0.05$). There is a negatively weak relationship between students' systematicity sub-dimension levels and sports branches ($p < 0.05$).

There is no relationship between students' open-mindedness sub-dimension and sports branches ($p > 0.05$). There is no relationship between students' analyticalness sub-dimension levels and sports branches ($p > 0.05$). There is no relationship between students' curiosity sub-dimension levels and sports branches ($p > 0.05$) (Table 4). There is no relation between the open-mindedness sub-dimension of students and whether they do sports licensed ($p > 0.05$). There is no relationship between students' levels of analyticalness sub-dimension and whether they do sports licensed ($p > 0.05$). There is no relationship between students' level of searching for truth sub-dimension and whether they are doing licensed sports ($p > 0.05$). There is no relationship between students' curiosity sub-dimension and whether they do sports licensed ($p > 0.05$). There is no relationship between students' self-confidence sub-level and whether they do sports licensed ($p > 0.05$). There is no relationship between the systematicity sub-dimension of students and whether they do sports licensed ($p > 0.05$) (Tables 5 to 7).

Table 1. Correlation analysis for the relationship between students' critical thinking levels and academic achievement levels, sports branches and being licensed athletes.

Variable	N	r	p
Critical thinking level - academic achievement	334	0.116	0.034*
Critical thinking level-sports branches	334	-0.064	0.806
Critical thinking level- being a licensed athlete	334	0.014	0.806

Table 2. Correlation analysis for the relationship between students' critical thinking levels sub-dimensions and academic achievement levels.

Variable	N	r	p
Open mindedness dimension- academic achievement	334	-0.061	0.267
Analyticalness sub-dimension- academic achievemet	334	1.107	0.050*
The truth- seeking sub dimension- academic achievement	334	-0.026	0.616
Curiosity sub dimension- academic achievement	334	0.148	0.007**
Self confidence dimension- academic achievement	334	0.205	0.000**
Systematicity sub-dimension- academic achievement	334	-0.077	0.620

Table 3. Correlation analysis for the relationship between students' critical thinking levels sub-dimensions and their sports branches.

Variable	N	r	p
Open mindedness dimension- sports branches	334	-0.051	0.353
Analyticalness sub-dimension- sports branches	334	-0.054	0.326
The truth-seeking sub dimension -sports branches	334	-0.136	0.013*
Curiosity sub dimension- sports branches	334	-0.030	0.539
Confidence sub-dimension- sports branches	334	-0.112	0.040*
Systematicity sub dimension- sports branches	334	-0.123	0.025*

Table 4. Correlation analysis for the relationship between students' critical thinking levels sub-dimensions and being licensed athletes.

Variable	N	r	p
Open mindedness dimension- being a licensed athlete	334	-0.016	0.773
Analyticalness sub-dimension- being a licensed athlete	334	0.024	0.658
The truth-seeking sub dimension - being a licensed athlete	334	-0.001	0.988
Curiosity sub dimension- being a licensed athlete	334	0.002	0.973
Confidence sub-dimension- being a licensed athlete	334	0.043	0.434
Systematicity sub dimension- being a licensed athlete	334	0.028	0.604

Table 5. Correlation analysis for the effect of students' sports branches on "Systematicity", A sub-dimension of critical thinking levels.

Sports branches	Non-standardized coefficient		Standard coefficient	t	p
	Beta	Std error	Beta		
Systematicity	-0.097	0.043	-0.123	-2.249	0.000
R^2: -0.015	Corrected R^2: 0.012	F: 5.058	(p<0.001)		

The sports branches that students do have a 1.2% negative impact on their systematicity (p <0.01).

Table 6. Correlation analysis for the effects of the sports branches students do on the seekingthe truth, a sub-dimension of critical thinking levels.

Sports branches	Non-Standardized Coefficient		Standard coefficient	t	p
	Beta	Std Hata	Beta		
Seeking the truth	-0.146	0.053	-0.136	-2.493	0.000
R^2: -0.018	Corrected R^2: 0.015	F: 6.217	(p<0.001)		

Sports branches of students have 1.5% negative impact on their tendency to seeking the truth (p <0.01).

Table 7. Correlation analysis for the effect of sports branches students perform on "self-confidence", a sub-dimension of critical thinking levels.

Sports branches	Non-standardized coefficient		Standard coefficient	t	p
	Beta	Std Hata	Beta		
Self-confidence	-0.098	0.048	-,112	-2.060	0.000
R^2: -0.013	Corrected R^2: 0.010	F: 4.425	(p<0.001)		

Sports branches of students have a 1% negative impact on their self-confidence (p <0.01).

RESULTS AND DISCUSSION

In this study, it was revealed that there is a relationship between students' critical thinking levels and academic success levels. In his study, Kökdemir (2003) concluded that as the students' critical thinking score increases, their academic performance increases, and more importantly, this increase is independent of the lesson type.

Kökdemir (2003) emphasizes that critical thinking can be gained through education, therefore, the necessity of an education model that is open to innovation, based on inquiry and where students act as active participants rather than passive receivers is very important for university education. Ip et al. (2000) and Shin (1998) show that critical thinking skills are effective in academic and clinical achievement, and nursing students with higher critical thinking scores are more successful in academic and clinical aspects. These results match THIS research findings.

In another study, Girot (2000) did not find a significant relationship between academic levels and critical thinking in his study, where he measured critical thinking at different academic levels. The result does not match this research findings.

In his book, "The Way Back to University: Thoughts and Expectations on Undergraduate Education at American Universities", Derek Bok, ex-president of Harvard University, said, "The goal of undergraduate education is not unique," If you need to include all aspects of student development in a comprehensive goal, then it does not matter whether these goals are narrow, very wide or practical to cover specific goals. "This statement draws attention to the key issues in the discussion process about the purpose of undergraduate education. He believes that the university is a critical period for students to develop extremely important qualifications. University education has many objectives. The objectives of the chosen university education should include: "Thinking ability, moral reasoning ability; citizenship awareness; Multicultural literacy; Global literacy; Broad interest; Preparation for employment Bok (2008).

The most striking result of the study is that there is a relationship between doing sports and critical thinking sub-dimensions. Bahadir et al. (2014), in a study they conducted on students, stated that the scores obtained from the act of critical thinking were higher in students engaged in active sports activities. This result overlaps with this research finding. Students' sports branches, their alternatives or tendency to evaluate different thoughts, and the possibility of asking questions are less likely to act objectively even when data are contrary to their thinking. Again, some branches of sports reduce students' confidence in their reasoning processes. Besides, the sports branches do reduce their organized, planned and careful research tendencies, albeit small.

Besides this, open-mindedness, does not affect the student's tolerance towards different approaches and sensitivity to his own mistakes, and curiosity, that is, the tendency of the student to acquire knowledge and learn new things without any expectation of gain and interest. Another situation to be discussed is the fact that students do any sports branch under a license does not have a positive or negative effect on their critical thinking structures. There is no relationship between students' truth-seeking sub-dimension levels, on the relationship between critical thinking sub-dimensions and academic achievement levels, as well as academic achievement levels.

Facione et al. (1995) found that students scored low on

the truth-seeking subscale in their studies investigating critical thinking tendencies of 587 university students. As it is known, this sub-dimension aims to find the best and correct information, to be honest, and objective.

McBride et al. (2002) state that teacher candidates with a low tendency to seek the truth will teach the way they learn. In this context, tending to seek the truth for a teacher is important in terms of objectively evaluating different thoughts. It can be said that teacher candidates could not improve themselves sufficiently in this dimension or could not benefit from university education sufficiently.

There is a negative weak relationship between students' understanding of the truth on the relationship between critical thinking levels sub-dimensions and their sports branches, self-confidence, systematicity sub-dimension levels, and their sports branches. There is no relationship between students' sub-level of open-mindedness, analyticity, curiosity and their sports branches.

Some researcher argue that knowing the concepts of a field, understanding how to form a good question and knowing that field will not be considered sufficiently critical, some general strategies can be applied to many fields, and critical thinking will be taught independent of content (Paul and Elder, 2002).

Under the light of the data obtained from the study, according to the evaluations of the students of Harvard University by Hua Haiyan about evaluating teachers in the curriculum, the first step to training critical thinkers in universities is to select and hire teachers who have the knowledge and skills to compare critical thinking with the faculty in the academic field. The appointment of top-level teachers requires a high level of scientific research, provided that general teachers have post-doctoral research experience. It is believed that high-level scientific research results are based on teachers' own good critical thinking abilities. In addition to the teacher selection and recruitment system, the teacher evaluation system will usually play a larger role in staff training. İt is known that the dimensions of evaluating a teacher are versatile and that the weights of the various dimensions are different. If the scientific research level of the teacher is taken as an important standard and if more teachers will focus on training students, it will be difficult to achieve the goal due to conflicts of interest. In some developed countries, university teachers devote more time to teaching and teaching methods. According to the statistics of the US Department of Education, an average teacher spends more than half of his time on teaching-related topics. And the time spent on scientific research is less than 20%; more than 75% of the students are satisfied with the opportunity to discuss the subject between the undergraduate students and teachers (Haiyan, 2007). It is revealed that teachers are also important in university students' gaining critical thinking ability. Therefore, both in the school where sample

individuals are identified, the fact that all the individuals are settled with the central system and the results obtained due to the absence of aptitude tests should be expanded and applied to include only other school students who take students with the aptitude test. Further studies should be conducted on students' evaluations of teachers in the curriculum. Closer estimates of the truth can be made by analyzing the data obtained from these studies.

CONFLICT OF INTERESTS

The author have not declared any conflict of interests.

REFERENCES

Aybek B (2006). Konu ve beceri temelli eleştirel düşünme öğretiminin öğretmen adaylarinin eleştirel düşünme eğilimi ve düzeyine etkisi (Doktora tezi, Tez No. 205450).

Bayram D (2015). The effects of WebQuest- supported critical thinking instruction on the critical thinking disposition level and L2 writing performance of Turkish pre-service EFL teachers (Yüksek lisans tezi, Tez No. 414401).

Bok D (2008). Üniversiteye Dönüş Yolu: Amerikan Üniversitelerinde Lisans Eğitiminin Yansimasi ve Beklentisi [M] Şanghay: Doğu Çin Normal Üniversitesi Yayinlari, 2008.

Coffman DM (2013). Thinking about thinking: An exploration of preservice teachers' views about higher order thinking skills (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses Global. (UMI No. 3567248).

Coşkun G (2011). Eleştirel düşünme eğitiminin müzik eğitiminde performansa etkisi (Doktora tezi, Tez No. 290728).

Çevik S (2013). An investigation of the critical thinking dispositions of pre-service teachers at a private non-profit university (Yüksek lisans tezi ,Tez No. 356212).

Deniz E (2009). Öğretmen Adaylarinin Eleştirel Düşünme Beceri Düzeyleri Üzerine Bir İnceleme (Yüksek lisans tezi, Tez No. 258353).

Derrick-Telemaque E (2014). The relationship of academic achievement between critical thinking and associated dispositions: A canonical correlation analysis (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses Global. (UMI No. 361297).

Doğanay A (2007). Üst düzey düşünme becerilerinin öğretimi. A. Doğanay (Ed.), Öğretim İlke ve Yöntemleri içinde (ss.279-331) Ankara: Pegem Akademi.

Dolapci OC (2009). Öğretmenleri eleştirel düşünme konusunda bilgilendirmeye yönelik seminer çalişmasinin değerlendirilmesi (Yüksek lisans tezi). Yükseköğretim Kurulu Ulusal Tez Merkezi'nden edinilmiştir. (Tez No. 227467).

Facione PA, Facione NC, Giancarlo CA (1998). The California critical thinking disposition inventory test manual (revised). Millbrae, CA: California Academic Press.

Facione PA, Sanchez CA, Facione NC, Gainen J (1995). The disposition toward critical thinking. The Journal of General Education 44(1):1-25.

Girot EA(2000). Graduate nurses: Critical thinkers or better decision makers? Journal of Advanced Nursing 31:288-97.

Gülveren H (2007). Eğitim Fakültesi Öğrencilerinin Eleştirel Düşünme Becerileri Ve Bu Becerileri Etkileyen Eleştirel Düşünme Faktörleri (Doktora tezi, Tez No. 211603).

Güner C (2015). The Effects of critical- thinking based instruction on pre-service EFL teachers' critical thinking disposition level, English reading self- efficacy level, and English writing performance (Yüksek lisans tezi, Tez No. 414400).

Haiyan H (2007). Harvard Üniversitesi öğrencilerinin ders programlarindaki öğretmenleri ve değerlendirmeleri hakkindaki değerlendirmeleri [J] Yüksek Öğrenim Geliştirme ve Değerlendirme 1.

Ip WY, Lee DTF, Lee IFK, Chau JPC.(2000). Disposition towards critical thinking: A study of chinese undergraduate nursing students. Journal of Advanced Nursing 32(1):84-90.

Kalayci N (2001). Sosyal bilgilerde problem çözme ve uygulamalar. Ankara: Gazi Kitabevi.

Kalelioğlu F (2011). Çevrimiçi tartişma yapisinin öğretmen adaylarinin eleştirel düşünme eğilimleri ile gerçek ve yansiyan eleştirel düşünme performanslarina etkisi (Doktora tezi, Tez No. 302030).

Kanbay Y (2013). Hemşirelik öğrencilerine verilen eleştirel düşünme eğitiminin problem çözme becerisi üzerine etkisi (Doktora tezi, Tez No. 384485).

Karakoç M (2011). The Critical Thinking Dispositions And Tendencies of Turkish EFL university students (Yüksek lisans tezi, Tez No. 302966).

Karali Y (2012). Eğitim Fakültesi Öğrencilerinin Eleştirel Düşünme Eğilimleri: İnönü Üniversitesi Örneği (Yüksek lisans tezi, Tez No. 314200).

Kasimoğlu T (2013). Öğretmen Adaylarinda Eleştirel Düşünme, Mantiksal Düşünme Ve Problem Çözme Becerilerinin Çeşitli Değişkenler Açisindan Değerlendirilmesi (Yüksek lisans tezi, Tez No. 333418).

Korur EN (2014). Beden Eğitimi Öğretmeni Adaylarinin Eleştirel Düşünme Ve Empatik Eğilimleri (Yüksek lisans tezi, Tez No. 381050).

Kökdemir D (2003). Belirsizlik durumlarinda karar verme ve problem çözme (Doktora tezi,Tez No. 127649).

Kökdemir D (2012). Üniversite eğitimi ve eleştirel düşünme. Pivolka 21:16-19.

McBride RE, Xiang P, Wittenburg D (2002). Dispositions toward critical thinking: The Preservice. teacher's perspective. Teachers and Teaching: Theory and practice 8(1):29-40.

Moreyra AA (1991). The role of thinking fram es in developing teachers' critical thinking skills and dispositions (Doctoral dissertation). Retrieved from ProQuest Dissertations, Theses Global. (UMI No. 0136492).

Nosich GM (2015). Eleştirel düşünme ve disiplinlerarasi eleştirel düşünme rehberi (B. Aybek, çev.), Ankara: Ani Yayincilik. (Çalişmanin orjinali 2012'de yayimlanmiştir.).

Obay M (2009). Problem çözme yoluyla eleştirel düşünme becerilerinin gelişim sürecinin incelenmesi (Doktora tezi, Tez No.278295).

Özdemir S (2005). WEB ortaminda bireysel ve işbirlikli problem temelli öğrenmenin eleştirel düşünme becerisi, akademik başari ve internet kullanimina yönelik tutuma etkileri. Doktora tezi, Tez No.206258.

Özen M (2013). Investigation of Pre-Service Mathematics Teachers' Critical Thinking Processes Through Statistical And Probabilistic Knowledge in the Context of Popular Media Texts. Yüksek lisans tezi, Tez No. 345132.

Öztürk N (2006). Hemşirelik Öğrencilerinin Eleştirel Düşünme Düzeyleri Ve Eleştirel Düşünmeyi Etkileyen Faktörler. Yüksek lisans tezi, Tez No. 196306.

Patrick JJ (1986). Critical thinking in the social studies. Retrieved from ERIC database. (ED272432).

Paul R, Elder L (2006). The miniature guide to critical thinking: Concepts and tools. California, Tomales: Foundation for Critical Thinking.

Paul RW, Elder L (2002). Critical thinking: Tools for taking charge of your Professional life. Upper Saddle River, NJ: Prentice Hall.

Pirozzi R (2003). Critical reading, Critical thinking (2nd ed.). New York: Longman.

Schreglmann S (2011). Konu temelli eleştirel düşünme öğretiminin öğretmen adaylarinin akademik başari, eleştirel düşünme eğilimine ve düzeyine olan etkisi. Yüksek lisans tezi, Tez No. 300344.

Shin KR(1998). Critical thinking ability and clinical decision-making skills among senior nursing students in associate and baccalaureate programmes in Korea. Journal of Advanced Nursing 27(2):414-418.

Smith GF (2003). Beyond critical thinking and decision making: Teaching business students how to think. Journal of Management Education 27(1):24-51.

Tufan D (2008). Critical Thinking Skills of Prospective Teachers: Foreign language Education. Case at the Middle East Technical University Yüksek lisans tezi, Tez No. 227711).

Ünlü Ş (2017). Eleştirel düşünmeyi destekleyen öğretmen eğitimi programinin geliştirilmesi. Doktora tezi, Tez No. 481733.

Valdes-Corbeil ME (2005). The effect of the watson-glaser critical thinking appraisal test preparation program on the critical thinking of teacher education program applicants (Doctoral dissertation). Retrieved from ProQuest Dissertations AND Theses Global. (UMI No. 3165003).

Van Gelder T (2005). Teaching critical thinking: Some lessons from cognitive science. College Teaching 53(1):41-48.

Yağci R (2008). Sosyal bilgiler öğretiminde eleştirel düşünme: İlköğretim 5. sinif sosyal bilgiler öğretiminde, öğretmenlerin eleştirel düşünme becerilerini geliştirmek için uyguladiklari etkinliklerin değerlendirilmesi, Yüksek lisans tezi, Tez No. 217092.

Yeh Y (1997). Teacher training for critical-thinking instruction via a computer simulation (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses Global (UMI No. 9724730).

ACADEMIC JOURNALS
expand your knowledge

Educational Research and Reviews

Full Length Research Paper

Development of the English teaching evaluation model focusing on task-based learning to develop English writing ability and creative thinking in Language for sixth grade students in Thailand

Phetaree Srimunta[1*], Terdsak Suphandee[1], Somprasong Senarat[2], Sunan Sripai[1] and Sirisak Ardwichai[1]

[1]Department of Educational Research and Evaluation, Faculty of Education, Chaiyaphum Rajabhat University, Thailand.
[2]Department of Educational Research and Evaluation, Faculty of Education, Roi-ed Rajabhat University, Thailand.

This research aimed to study current situations, problems and needs for the development of an English teaching evaluation model focusing on task-based learning to develop English writing ability and creative thinking in the language; to create the development of the English teaching evaluation model, implement and evaluate the model designed. The research tools consisted of a structured interview form, an English writing ability test, creative thinking in language tests, an English teaching evaluation model focusing on task-based learning to develop English writing ability and creative thinking in language format, and a satisfaction questionnaire towards the model designed. Descriptive statistics were employed in the study including percentage, mean, standard deviation and F-test (One - way MANOVA). The results revealed that the model consists of 7 elements: Principle, objectives of the learning and evaluation, learning English area and learning indicators, selecting method of instruction based on the evaluation, setting performance goals based on the task/work, formulating the evaluation criteria and evaluation report. This is in addition to the 6 steps of evaluation: assessment preparation, designing learning activity, teaching and evaluation, teaching operation, conclude the assessment and feedback from related parties. On the other hand, results of the implementation revealed that the students who use this model obtained the average score, significantly at 0.05 level on English, writing ability and creative thinking in language which was higher than those who did not use the model. Based on the evaluation results, the effectiveness of the model was found to be at a high level overall and for each aspect.

Key words: English teaching evaluation model, task-based learning, English writing ability, creative thinking in language.

INTRODUCTION

English is a universal language. It is an important tool in searching for knowledge and experience, English has a lot of roles especially today. In fact politics, economy, society and education use English as a tool to seek knowledge, new technology and technological progress. Therefore, the teaching and learning of English consist of 4 skills which are listening, speaking, reading and writing, and suitable for the condition of learners in Thai society

(Wiriyachitra, 2012).

The importance of learning management in the 21st century consists of English as a mother tongue (English), reading skills for learning and receiving various knowledge as well as other skills including listening, speaking and writing foreign languages (World Language), Arts (Mathematics), Economics (Science), Geography, History Government and Civics (Panit, 2013). The Thai Ministry of Education announced a Basic Core Education Course in 2008 in foreign language learning, extending from primary to secondary levels, for learners to practice and use skills in various fields especially English writing skills which is essential for learners of English as a Foreign Language. The practice of writing English communication is at a higher level than writing sentences (Panit, 2013). Writing is important language ability and is most relevant to creativity because it can be measured easily. Based on the English language results of the National Basic Educational Testing (O-NET), sixth grade students of 2017academic year earned the lowest scores with an average score of 36.34 (Based on a full score of 100 points) (National Institute for Educational Testing Service, 2017). From reviewing of literature and related studies (Nawatrilap, 2012) it was found that English writing ability of Thai students is poor as most of them have problems in English writing skills such as vocabulary usage, idioms, grammar structure and writing mechanism. In addition, they are not able to compile ideas meaningfully.

Teaching and learning, which promote writing ability, should focus on students' practicing by themselves. This will enable them have more experience to know how to apply knowledge in various situations and encourage themselves to have the opportunity to practice learning skills and understand what they are learning, which is a form of learning that focus on students and teachers can use it to manage English learning effectively. Willis (1996) explains that, teachers can engage in learning management which involves organizing a variety of activities and gives students opportunity to practice the use of language skills in various situations. Such learning management consists of pre-task to enable the students understand the work they are going to perform. The Task Cycle is a process of implementation. Besides the presentation of the result of the operation and the final step, is the study of grammar structure. Vocabulary of work (Language Focus) for students to analyze the important characteristics of English and to practice use of grammar in writing after having an understanding of English grammar using the practice model as a learning base is suitable for the development of academic achievement and English language skills for communication. Students have the opportunity to develop

thinking skills through the process. Also important are group work practice for language skills through listening, speaking, reading and writing under appropriate learning activities consistent with the potential of the learners.

Measuring and evaluating students' language ability is an important job for teachers. When this assessment is done, students are aware of what they know and don't know, thus analyzing their own ability level. This leads to self-improvement for both teachers and students. Wongkanya (2008) provided the idea of assessing language skills, that is the teaching and learning of languages according to the language teaching for communication. Teachers should seek teaching methods and teaching techniques to be used in the classroom, while students are expected to get knowledge and language skills by applying knowledge from the language learning process as well as various processes combined with the knowledge. Also they should be able to use language in real situations, which is a guideline for assessing language in real conditions. From the external evaluation of the school in the Office of the Basic Education Commission Evaluated by Office for National Education Standards and Quality Assessment (Public Organization), it was stated that to promote creative thinking there is need to use creativity to solve creative production problems and prepare the youth for society in the future. They should be prepared for the promotion or development of creative ideas along with the development of other capabilities as well as develop the mind and being able to practice oneself for the benefit of society (Phuphiphawadi, 1998). It was found that the quality of the students did not meet the standards assessed, including 3 important standards, standards 4, 5 and 6, causing students to need to be improved and developed urgently is the 4th standard, and students have the ability to think, analyze, synthesize and have good judgment creative, thoughtful and visionary. There are 4 indicators in which the students' evaluation results must be improved largely (Wongkanya, 2008), from a research review related to the assessment of language skills research related to English writing and creativity and from research related to assessment forms, development of measuring tools, practice of English communication skills. At the primary level, according to the Basic Education Curriculum 2008, the researcher has not found that there is an evaluation form of teaching English that focuses on task-based learning to develop English writing ability and creative thinking for sixth grade students, as well as a handbook used by English teachers or those interested It can be seen that in teaching writing. The instructor should let the student follow the task-based; know how to solve the situation. The teacher must consider the composition of writing in

*Corresponding author. E-mail: Phetaree@hotmail.com.

various dimensions. That are too complicated for language accuracy, such as creating ideas compilation of ideas as well as the creativity of the learners teaching and learning to achieve goals must be consistent with the content and purpose of the teaching and learning assessment. The style of teaching student characteristics, the environment of media usage and learners help learners communicate ideas to writing able to develop writing skills effectively. From above problems and necessities, The researcher as English language teachers in primary school interested in developing an evaluation of teaching English focusing on task-based learning to develop English writing ability and creative thinking in language for sixth grade students and hope that this model can help to develop English ability of the learners and can be used in daily life appropriately according to the objectives of basic education courses. This study is a guideline for researchers to develop an evaluation form of teaching English focusing on task-based learning to develop English writing ability and creative thinking at various levels. This study evaluate English teaching model focusing on task-based learning to develop English writing ability and creative thinking in language for sixth grade students.

Objectives

(1) To study current conditions, problems, and needs for the development of English teaching model focusing on task-based learning to develop writing ability and creative thinking in language for sixth grade students.
(2) To create an evaluation form for teaching English focusing on task-based learning to develop writing ability and language creativity for sixth grade students.
(3) To implement the English teaching model that focus on task-based learning to develop writing ability and creative thinking in language for sixth grade students
(4) To evaluate the evaluation form of teaching English that focus on task-based learning to develop writing ability and creative thinking in language for sixth grade students.

Population and sample

The population in this study is based on sixth grade students in Anuban Chaiyaphum School, the Northeast of Thailand in the academic year 2018, comprising 315 people, and 7 classrooms. The samples were sixth grade students in academic year 2018, consisting of 45 students and 45 students in the control group which have similar abilities. Cluster Random Sampling was used.

The contents used in the experiment for the contents in the English language course are Personal Information, Daily Routine, Hometown, and Favorite Food. The duration used in the experiment is the second semester

of the academic year 2018. The duration of experiment was 16 h.

Research tools

(1) Structured Interview for interviewing English teachers.
(2) English lesson plans.
(3) A manual of the English teaching evaluation model focusing on task-based learning to develop English writing ability and creative thinking in language.
(4) Writing ability test.
(5) Creative thinking in language test.
(6) Evaluation form.

Finding quality of tools

(1) Structured Interview for interviewing English teachers. The researcher took the structured interview form to 5 experts to check the content for validity, relevance of the question, clarity of language and form of measurement. Then the data was analyzed for the correlation coefficient between the questions of the measurement and the terminology, using the Index of Item-Objective Congruence (IOC) with IOC value from 0.8 to 1.00. Finally, a complete structured interview form was made.
(2) English lesson plans. The researcher took the lesson plans to 5 experts to check the content for validity, relevance of the question, clarity of language and form of measurement. Then analyze the data of the correlation coefficient between the questions of the measurement and the terminology using the Index of Item-Objective Congruence (IOC) with IOC value from 0.8 to 1.00 and they are suitable overall at the highest level.
(3) A manual for the English teaching evaluation model focusing on task-based learning to develop English writing ability and creative thinking in language. The researcher took the manual to 5 experts interviewed to check the content for validity, relevance of the question, clarity of language and form of measurement. The data was analyzed for the correlation coefficient between the questions of the measurement and the terminology using the Index of Item-Objective Congruence (IOC), with IOC value from 0.8 to 1.00, the manual in terms of Useful Utility Standards, Feasibility Standards, Propriety Standards, and Accuracy standards are at a high level.
(4) Writing ability test and creative thinking in language test. The researcher took both test to 5 experts to check the content for validity, relevance of the question, clarity of language and form of measurement. The data was analyzed for the correlation coefficient between the questions of the measurement and the terminology using the Index of Item-Objective Congruence (IOC) with IOC value from 0.8 to 1.00. The tests were tried on with sixth grade students (30 students) to analyze the data and make the complete tests to the experimental group. The

result shows that the Alpha- Cronbach coefficient of writing ability test = 0.76 and creative thinking in language test =0.79.

(5) Evaluation form. The researcher took the evaluation form to 5 experts to check the content for validity, relevance of the question, clarity of language and form of measurement. The data was analyzed for the correlation coefficient between the questions of the measurement and the terminology using the Index of Item-Objective Congruence (IOC) with IOC value from 0.8 to 1.00 and it was suitable overall at the highest level.

METHODOLOGY

This research is divided into 4 phases as follows:

Phase 1: Study of current conditions, problems, need and review of literature, theories, and studies related to evaluate English teaching evaluation model focusing on task-based learning to develop English writing ability and creative thinking in language. The researcher conducted an interview with 10 Primary English teachers with 5 years of teaching experience in order to obtain information to develop into a form.

Phase 2: To create an evaluation form for teaching English that focus on task-based learning to develop English writing ability and creative thinking in language for sixth grade students, it consists of the following steps.

Step 1: Create an evaluation form for teaching English that focuses on task-based learning to develop English writing ability and creative thinking in language by using the data from Phase 1 from the concept study theories and related documents and the results of the interview to develop into a form.

Step 2. Examine the English teaching model focusing on task-based learning to develop English writing ability and creative thinking in language by drafting the forms obtained from Step 1 in Phase 2 to examine Utility Standards, Feasibility Standards, Propriety Standards, and Accuracy Standards of the form.

Step 3. Revise the English teaching evaluation model focusing on task-based learning to develop English writing ability and creative thinking in language from Step 2 in Phase 2, according to experts suggestions. Resulting in an English teaching evaluation model focusing on task-based learning to develop English writing ability and creative thinking in language to continue the trial phase 3

Step 4. Do the lesson plans according to the English core curriculum, English traditional lesson plans for the control group and task-based learning to develop English writing ability and creative thinking in language lesson plans for the experimental group.

Step 5: Create a manual for the English teaching evaluation model focusing on task-based learning to develop English writing ability and creative thinking in language and evaluation of teaching styles to be used in the experiment using the model for the experimental group.

Phase 3: Experiment by using the English teaching evaluation model focusing on task-based learning to develop English writing ability and creative thinking in language with the experimental group.

Phase 4: Evaluate the evaluation model, the introduction of the tested model, evaluate the efficiency of the model by asking the opinions of relevant English teachers to obtain an evaluation form

for teaching English model focusing on task-based learning to develop English writing ability and creative thinking in language that can be used to develop learners.

RESULTS

Studying of the English teaching evaluation focusing on task-based learning to develop English writing ability and creative thinking in language

The evaluation model focusing on task-based learning to develop English writing ability and creative thinking in language consists of 7 components and 6 assessment steps as follow:

1. Principles of the evaluation model: Learning and teaching management that emphasizes process learning to improve writing ability and creative thinking in language while learning language for communication by assigning task-based for students to perform. The achievement of the tasks and quality of work will show management skills. Work process and appropriate study behavior of students were evidence of achievement in accordance with program indicators and standards.

2. The purpose of the evaluation model: To evaluate the ability in writing English for communication and creative thinking in language according to various situations in learners' daily life

3. Knowledge of English language and indicators: To analyze from the basic education 2008 curriculum and set goals or desired outcomes for students and analyze the new English language teaching and learning guide based on the framework of international English language proficiency standards (CEFR) in the primary school level.

4. Methods of teaching and evaluation: Teaching and learning process that focuses on task-based learning to develop English writing ability and creative thinking in language consists of 5 teaching steps:

Step 1: Attracting learner interest
Step 2: Knowledge sharing
Step 3: Applying the task
Step 4: Analyzing the task
Step 5: Assessing the task

Choose how to organize teaching and learning affects the development of English writing ability and creative thinking in language. It should be a new and interesting way for students in basic knowledge. The evaluation results will be good and may be a method for such application. This method will make the students become more enthusiastic and cooperative. For example, students create their tasks in the form of Interactive notebook or pop up and decorate them beautifully. Have

students present group work in front of the class and show students work around the classroom. Try to evaluate method easily, not complicated, and should be worthwhile, evaluation can be done for all students at the same time.

5. Assignment of work / task is a target for students to know the task and use the results to improve teaching and learning. This evaluation uses 4 indicators:

1. Write about personal information
2. Write about daily routine
3. Write about hometown.
4. Write about favorite food.

6. Evaluation criteria in the interview form: the English teachers have suggested the evaluation criteria, the rubric should be used to evaluate writing ability and creative thinking in language in 4 levels and the quality judgment criteria is very good, moderate, improved for both individual and overall criteria. In addition, it should be evaluated with quality consistent scores in order to use the scores to compare and evaluate the quality of students' tasks.

7. Reporting evaluation results from the interview: English teachers give feedback on evaluation reports. Results should be reported for each student to know their ability level in order to improve their shortcomings to improve their grades, and encourage them to develop their writing ability and creative thinking in language.

8. Steps of evaluation: This process involves evaluating the teaching of English, focusing on task-based learning to develop English writing ability and creative thinking in language. They are as follows:

a) Evaluation preparation. The researcher must prepare a systematic work schedule, In order to achieve the goal. Then, meeting to clarify with those involved, consisting of teachers and students on operations evaluation according to the work schedule because it was very important in the workplace as it will prevent problems from occurring.
b) Design of teaching and evaluation activities. The researcher prepared and designed the activities for teaching and learning by using situations in students' real life, which is beneficial and conducive for teaching and learning activities and must be consistent with the curriculum. The teacher must arrange the teaching and learning in accordance with the standards and indicators.
c) Teaching and learning process is a very important step because it is the period of work and must be prepared to support the evaluation with variety of activities. Importantly, teachers and students must be friendly and help each other, collaborating to solve various problems, teachers must encourage students to have ideas in knowing

how to develop oneself and apply it in daily life very well. And teachers must work with caution systematically teaching and learning will lead to success as expected.
d) Performance evaluation is the information about students' ability and knowledge. Evaluation is conducted by teachers and students during the course to get information for improving teaching and to improve learners. In order to evaluate for success, cooperation must be achieved by all parties. The teacher must be able to perform well, which is to clear specific learning goals. Evaluation methods appropriate for the content, providing clear feedback to students' motivation and develop learners to be responsible persons for their grades and assess themselves according to the truth.
e) Performance summary. When the teachers have finished teaching must summarize the overall performance and separate into various issues in order to know various information, both before and after operation to identify defective parts, to improve the next work. Results can be summarized from time to time and upon completion of work. Therefore the summary is an overview and is presented to all parties for further acknowledgment. And to summarize the results of this work, teachers should explain to students what they have to do and how to develop, and correct the defect in that section.
f) Providing feedback to learners. This is to provide clear information, try to encourage students to take responsibility for their learning by using self-assessment methods to achieve the goals. If it is not successful, students must cooperate with the teacher in order to solve student faults. Teachers may adjust their learning methods and change the way they teach until students are able to understand their objectives.

Using the English teaching model focusing on task-based learning to develop English writing ability and creative thinking in language

Table 1 indicate that the mean score of the English writing ability of the experimental group after learning was higher than before learning with statistical significance at the level of 0.05 and have more distribution than before the experiment. In the control group, it was found that the mean scores of English writing ability after the experiment were higher than before the experiment but had less distribution than before the experiment with significance at the level of 0.05. Table 2 shows the mean scores of the creative thinking in language of the experimental group after learning were higher than before, at the statistical significance of 0.05 and distributed more than before the experiment. In the control group, it was found that the mean scores of creative thinking in language after the experiment were higher and had less distribution than before the experiment with significance.

Table 1. Mean and standard deviations of English writing ability scores before and after the experiment of students in experimental group and control group.

Evaluation	Experimental group (n=45)		Control group (n=45)	
	Mean	S.D.	Mean	S.D.
Pretest	51.96	10.16	50.18	10.47
Posttest	59.20	9.55	54.60	10.45
t	15.53 *		32.36 *	

* Significant at the level of 0.05.

Table 2. Mean and standard deviations of creative thinking in language scores before and after the experiment of students in experimental group and control group.

Evaluation	Experimental group(n=45)		Control group (n=45)	
	Mean	S.D.	Mean	S.D.
Pretest	54.98	10.18	54.73	10.33
Posttest	60.22	9.55	56.60	10.33
t	13.84 *		2.56 *	

* Significant at the level of 0.05.

Table 3. The results of the multiple variance analysis of English writing ability and creative thinking in language before the experiment of students in the experimental group and the control group.

Effect	Value	Hypothesis				Partial Eta
		F	df	Error df	Sig.	Squared
Pillai's Trace	0.978	1.96E+03	2	87	0	0.978
Wilks' Lambda	0.022	1.96E+03	2	87	0	0.978
Intercept Hotelling Trace	45.035	1.96E+03	2	87	0	0.978
Roy's Largest Root	45.035	1.96E+03	2	87	0	0.978
Pillai's Trace	0.082	3.879	2	87	0.024	0.082
Wilks' Lambda	0.918	3.879	2	87	0.024	0.082
Group Hotelling's Trace	0.089	3.879	2	87	0.024	0.082
Roy's Largest Root	0.089	3.879	2	87	0.024	0.082

F = F-test (a statistical test that compares the variances of two samples so as to test the hypothesis that the samples have been taken from populations with different variances).

at the level of 0.05

Table 3 shows the results of the multiple variance analysis of English writing ability and creative thinking in language of the experimental group and the control group p-value = 0.024, which is less than the set significance level. It shows that ability in English writing and creative

thinking in language of the experimental group was higher than the control group, significant at the level of 0.05

From the data analysis, it can be concluded that after the experiment, the ability of English writing and creative thinking in language of the learners, the experimental group gained learning management based on the English teaching model focusing on task-based learning to develop English writing ability and creative thinking in language higher than the control group that gained the traditional learning management. Significant at the level of 0.05.

DISCUSSION

The results of development of English teaching model focusing on task-based learning to develop English writing ability and creative thinking in language consists of 7 elements: principle, the objectives of learning and the evaluation, learning English area and learning indicators, selecting method of instruction based on the evaluation, setting performance goals based on the task/work, formulating the evaluation criteria and evaluation report. Then the 6 steps of evaluation: assessment preparation, designing learning activity, teaching and the evaluation, teaching operation, conclude the assessment, and giving feedback from related parties.

Hai-yan (2012), Nawatrilap (2012), Rungsawang (2012), Phuchomsri (2013), Sriket (2014), Panavelil (2015), Ahmed and Bidin (2016), and Nakornthap (2016) stated that task-based language teaching was the most interesting and a learner centered approach enabling learners to use their existing linguistic resources. The use of existing linguistic resources is a fundamental principle of task-based language teaching, since it leads the English as foreign language learners to be fluent and confident users of English language both inside and outside the classroom in real life situations. When teacher organize teaching and learning activities, they should prepare good media and any equipment, set the students to work as a team, give all students the opportunity to show methods of thinking and solving problem. In addition, they can consider the benefits of their studies. Therefore, students have more attention to learn English that focus on task-based learning to develop English writing ability and creative thinking in language with higher ability in English writing because it can help students understand the ways they work and increase various aspects of writing. However, there are many factors which promote and can inspire in the future, such as the role of teachers, monitoring evaluation of the implementation and recommendations according to the task. This step proposed the work-oriented teaching method that can be used as inspiration for foreign language teachers, which encourages additional learning and teaching according to tasks.

The key concept of the English teaching model focuses on task-based learning to develop English writing ability and creative thinking in language needs experts to check the feasibility and coverage. Therefore making this quality development tool and truly beneficial for students (Sri-Sa-at, 1992). This conforms to the study of Kanchanawasi (2011), Evaluation model; which is also a concrete approach that links the relationship system from the concept of assessment theory to the action plan in assessment. Writing research focuses on task-based. Taking into account students is important in organizing teaching and learning activities. Students participate in assessments and receive feedback in order to be able to improve immediately. It encourages students to develop themselves all the time. It is very useful and makes teachers have to prepare teaching all the time, which include the new learning evaluation article about the skills development in learning as well as learners' weaknesses for improvement. This is useful for judging the development and achievement of learners.

Recommendations

This study evaluates the effects of using the English teaching evaluation model focusing on task-based learning to develop English writing ability and creative thinking in language. This affects the ability of students, therefore, the results of using other forms of evaluation in learning was studied, in order to use the research results to improve the use of the evaluation form of learning. Future research should try it in any schools with different contexts or different situations. And these research findings provide information on evaluation English teaching that focus on task-based learning to develop English writing ability and creative thinking in language. These should be developed to improve writing ability and creative thinking in language; long-term continuing education to find out the consequences for those involved, including teachers and students, because human behavior is difficult to judge. Evaluation tools of this study are opinion questionnaires and learning management plans. There should be research on the effect of using tools that promote the evaluation of English learning correctly, according to the research tool development principles.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

REFERENCES

Ahmed RZ, Bidin SJB (2016). The Effect of Task Based Language Teaching on Writing Skills of EFL Learners in Malaysia. Open Journal of Modern Linguistics 6:207-218.

http://dx.doi.org/10.4236/ojml.2016.63022

Hai-yan M (2012). The Task-based Teaching of Writing to Big Classes in Chinese EFLSetting. Jiangxi Normal University, Nanchang, China.

Kanchanawasi S (2011). Theory of assessment. Bangkok: Chulalongkorn University Printing House.

Nakornthap T (2016). The development of the German listening-speaking skill assessment model for Mathayomsuksa 4 students. Educational Research and Evaluation Department Graduate School. Mahasarakham Rajabhat University.

National Institute for Educational Testing Service (NIETS) (2017). Guidelines for quality assessment according to the standards of education. Basic for quality assurance within the institution. The National Buddhist Printing Office.

Nawatrilap N (2012). Effects of task-based learning management on English writing ability of Mathayomsuksa two students of Sutabumrung Pittayakarn School in Chachoengsao province. Master of Education Program in English Language teaching. Chachoengsao: Rajbhat Rajanagarindra University.

Panavelil A (2015). Teaching and Learning to Write: Using a Task-Based Approach in an EFL Class. University of Nizwa, Oman.

Panit W (2013). Creating Learning into the 21st Century. Siam Commercial Foundation. Bangkok: S. Charoen Printing.

Phuchomsri A (2013). Developing a model to assess language development of Kindergarten level students. Graduate School, Maha Sarakham University.

Phuphiphawadi S (1998). Techniques for promoting creativity. Bangkok: Thai Watthana Panit.

Rungsawang P (2012). Development of a model for evaluating actual learning of High school students. Bangkok: Sukhothai Thammathirat University.

Sriket N (2014). Development of a model for assessing the quality of classroom action research of students in teaching practice and professional experience teaching Srinakharinwirot University. Bangkok: Srinakharinwirot University.

Sri-Sa-at B (1992). Preliminary research. Bangkok: Suwiriyasarn.

Willis J (1996). A Framework for Task-Based Learning. Longman Handbook: Oxford.

Wiriyachitra A (2012). English teaching. Bangkok: Natang Soo Lok Kwang Publisher.

Wongkanya K (2008). The Result of Learning English for Communication with Emphasis on Thinking. Language Creativity of Mathayomsuksa 2 Students. Faculty of Education Khon Kaen University. Khon Kaen: Khon Kaen University.

ACADEMIC JOURNALS
expand your knowledge

Educational Research and Reviews

Full Length Research Paper

Violence in physical education in a disadvantaged congolese environment: Perceptions of students and teachers

LEMBE Gorgon[1*], EWAMELA Aristide[1], LITOTO PAMBOU Lucien[2], AFOBOURI Georges Alfred[1] and MASSAMBA Alphonse[3]

[1]Laboratory of Didactics of Physical Education, Higher Institute of Physical Education and Sports, Marien Ngouabi University, Brazzaville, Congo.
[2]Laboratory of Sociology of Sport, Higher Institute of Physical Education and Sports, Marien Ngouabi University, Brazzaville, Congo.
[3]Sports Biosciences Laboratory, Higher Institute of Physical Education and Sports, Marien Ngouabi University, Brazzaville, Congo.

This study identifies and analyzes the different expressions of violence during physical education courses among a school population, and the pedagogical strategies of teachers to reduce violence in Brazzaville, Congo. Based on a survey of students of high schools from disadvantaged environment and teachers, a cross-sectional and analytical survey was carried out from January to April 2019. The activity "volleyball" was taught to the students during the survey. Two questionnaires were used as data collection tools in the research. The instruments were developed by the researcher. Arithmetic mean, standard deviation, normality test, student's test and analysis of variance were used for data analysis. The students explain the reasons for violence during physical education courses in three major trends: symbolic violence (devaluing appreciation and unjustified repetitive sanctions by teachers), physical violence (particularly unbalanced timetables), and incivility acts and verbal abuses. To palliate this violence, teachers use several socio-didactic strategies. The results of the study show the need to promote remediate strategies for reducing violence in physical education.

Key words: Physical education, violence, secondary education, disadvantaged environment.

INTRODUCTION

The last decade of the 20th century and in these first twenty years of the new era are characterized in sub-Saharan Africa in general, particularly in the Republic of

Congo by "re-democratizations" translated by socio-political conflicts (Longonda, 2000; Bowao, 2005). These conflicts led to a significant migratory flow in the Republic

of Congo with the reception of Rwandan refugees in 1997, Congolese of the Democratic Republic of Congo in 1997 and 2005, and Central Africans in 2015, under the control of the High Commission of Nations United for Refugees (UNHCR). The previous text comes down to this topic. Thus, the demographic heterogeneity generated in the major cities of the Congo, particularly in Brazzaville and associated with the Congolese ethnic diversity, generated different modes of communication led to attitudes and reactions of violence in school environment related to the incomprehension between students as indicated by Wilder (1992). Therefore, the Congolese social context has been unbalanced and disturbed, and remains so nowadays; an observation supported by a report of UNICEF (2007). It is in this context that a large number of Brazzavillian children and adolescents present different psychological disorders (academic delay, violence, incivility, etc.), excluded mental illnesses (Ndebani, 2007), which are observed in schools. Even if violence has always existed due to the fact that "the human relationship is a violent relationship" (Pain, 2006: 27), in the school sphere more trivial incivilities, such as rudeness, heckling, threats, noise, etc. are observed, which are all less spectacular "microviolences" but just as disturbing in the progression of the courses if they are repeated (Debardieux, 2006). These acts of inter-student violence, the resurgence of incivility, the lack of respect for authority (administrative staff and teachers) by the students in the high schools of Brazzaville which have been observed over the past ten years, reflect these dysfunctions.

However, several studies have shown that in difficult environments teaching is experienced as a permanent battle in the face of school disorder (Ndebani, 2007; Felner et al., 1995). Faced with this academic disorder, understanding the construction of collective activity through the analysis of processes then makes it possible to coordinate the individual activities of the teacher and students during the lesson (Blache, 2008). This goes, among other things, through the didactic contract (Brousseau, 1989: 95-101) and the shared contract (Blaya, 2010: 225). These allow us to understand how the teacher can take into account the activity of students from such backgrounds and on the other hand how students can learn from the activity of other students and that of the teacher, to successfully build a shared workspace. Furthermore, a collective activity conducive to cooperative work in a class requires a minimum of coordination, sharing and mutual understanding between the actors (Potvin and Rousseau, 1993). Thus, in high schools that are in difficult environments, teachers are constantly forced to establish minimum rules for community life and recall of their authority while ensuring the construction of this coordination.

With regard to physical education, this school discipline uses physical and sporting and artistic activities as teaching means. However, it is recognized that sport participates in the learning of socially desirable attitudes and values (Conseil de l'Europe, 2015). According to Durand and Weil, "the social skills acquired in the sporting practice at school want to be automatically transferable to the school and extracurricular life, thus making physical activities and sports in physical education a fundamental agent of socialization" (Durand and Weil, 2017: 14). Conversely, referring to the theory of social learning (Bandura, 1980), some authors consider sport as a place to learn aggressive behavior and one of the main culprits of current violence (Sabatier and Pfister, 1995; Augustin, 2009). It is in this context that one must study not only the determining factors of violence in the social conditions of teaching physical education in different societies, but also the educational strategies to remedy it. In the Congo, only one study has been partially devoted to violence in physical education at school (Boumpoutou, 2016). In the context of Congolese secondary education, where class sizes are plentiful (N>100) (MEN, 2018) and the social strata increasingly poorer (WHO, 2018), it seemed to us necessary to grant a special attention to this topic.

Aim of the research

From the above, the central question of this study is formulated as follows: how do the factors of violence in physical education linked to the diversity of pupils that constitute an obstacle to supply education focused on citizenship in a disadvantaged Congolese environment? Two secondary questions are corollaries to this main question: (1) What are the factors of violence in Physical Education (PE) perceived by pupils and teachers in disadvantaged Congolese surroundings? (2) In what way and how are the teaching strategies likely to minimize the risks of violence in physical education among said students?

To answer these questions, the following hypotheses were formulated: 1) The violence in PE perceived by pupils and teachers in disadvantaged Congolese environment is due to heterogeneity (national, religious), social, the situation of disadvantaged and unstructured families, the work / individual effort ratio, the varied psychological profiles, the relationship to Physical and Artistic Activities and Sports (PAAS) and the social value of PE, the attitude of the teacher; 2) The adaptive process supported by the choice of PAASs, the use of precise vocabulary, differentiated pedagogy and the psychological dimension, the need to recall principles (secularity, use of clothing tools), the creativity of sociability, the reflexive attitude, the search for compromise with the pupils allow the actors to coordinate their actions and work together in view of improve the educational climate and reduce violence in PE. The objectives of this work are: 1) to identify the factors of violence in physical education among Congolese

students from disadvantaged backgrounds ; 2) to analyze the determining factors and the teachers' perceptions with a view to remediation.

MATERIALS AND METHODS

Research model

The study consisted of a cross-sectional survey based on questionnaires. In this regard, it is useful to emphasize the legitimization of questionnaires as a method of evaluating conceptions. Despite the interest of tools that do not directly probe representations, it was considered that questionnaires constitute the minimum basis of any study on conceptions (Giordan et al., 2007; del Bayle, 2015). For this reason, this method was used, which makes it possible to collect reliable information on violence emitted by pupils during physical education in disadvantaged areas. This approach was also chosen by Mviri et al. (2018) to identify the factors of chronic absenteeism during physical education in Congolese students. The study was conducted between October 15 2018 and March 05 2019 in Brazzaville (capital of the Republic of Congo). This procedure uses statistical potential to identify the determinants of classroom violence during PE. The interest of the study lies in the awareness of the educational community of violence in PE by the partners of pedagogical action in Congolese difficult environment through the implementation of appropriate strategies of learning to remedy this violence.

Population

The population of this city has been estimated at 1.513.526 inhabitants, children enrolled in upper secondary education (high schools) representing 14% of Congolese population (CNSEE, 2017). Out of a total of 231,472 pupils attending the 7 public high schools in Brazzaville, 3 successive random draws at 1/3 made it possible to retain 3,572 pupils. However, only 367 pupils satisfied the inclusion criteria: pupil in the 1st scientific class, parent or guardian of low socioeconomic level regularity in PE courses, written consent to participate in the study, seniority of at least one year in the establishment within 5 years. These subjects were divided into 154 (44.7%) boys and 203 (55.3%) girls, between 15-23 years (mean age: 20.5 ± 1.2 years). The subjects were divided into two age groups: 15-18 years (n = 172; 46.9%) and 19-23 years (n = 195; 53.1%). The socioeconomic level of the student's parent or guardian has been defined according to the recommendations of the National Center for Statistics and Economic Studies of the Congo (CNSEE, 20017). The study also involved 93 physical education teachers, working in the 7 public high schools identified. However, only 36 teachers (21(58.3%) men and 15(41.7%) women) were included in the study, fulfilling the inclusion criteria: seniority in the exercise of the profession of EPS teacher at least. minus 3 years, written consent to participate in the study.

Experimental protocol

During the study period, all of the students surveyed were trained in volleyball. The learning contents, in accordance with program book of the National Institute of Research and Pedagogical Action (INRAP, 2002) of the Congo, included: the technical and tactical elements and gestures related to service, transmission and reception of ball; the behaviors associated with collective efficiency (choice between mutual aid and individual performance, skills), challenges or confrontation aimed at winning over the opponent by observing modifiable rules, the game of cooperation with a reduced

workforce through workshop alternation focused on the situations of exchange, cooperation and success of the group, and reference situations (solicitation of physical engagement on ½ field, finding of the different aspects of volleyball, attack / defense of the target alone or collectively), within 28 h.

The study also involved physical education teachers, working in the 7 public high schools of the capital city of Brazzaville. For this, we used data from the physical education department of the city of Brazzaville to identify all the teachers working in this city. Thus, 93 teachers made up the target population. However, only 80 teachers (52 (65%) men and 28 (35%) women) were included in the study, fulfilling the inclusion criteria: seniority in the exercise of the profession of PE teacher at least minus 3 years, written consent to participate in the study. The reliability of this information was based on contacts and interviews with directors of high schools, directors of studies, heads of department of physical education, as well as educational inspectors.

Data collection tools

Development of questionnaires

The study was based on two questionnaires: the first, intended for students to examine their opinions and representations on violence in PE. The questionnaire included 29 items contained in 3 parts: 1) symbolic violence (9 items), 2) incivility, verbal violence and crimes (12 items), and 3) physical violence (8 items). In regards to the questionnaire intended for teachers (22 items), it aimed to identify the heterogeneous and didactic factors of violence in PE (5 and 6 items respectively), as well as the didactical and learning remedies proposed by them (11 items). Each item was evaluated according to a descriptive-numerical Likert type rating scale, ranging from 1, 3 to 5 : "pas d'accord" (1 point), "pas tout à fait d'accord" (3 points), "d'accord" (5 points), pour chaque facteur cité dans le questionnaire. The questionnaires were intended for physical education teachers and students and were designed as follows.

Annex 1: Questionnaire for teachers

The heterogeneous factors of violence in PSE have a relationship:

(i) With the culture linked to the very diverse ethnicities and nationalities, prompting non-poor mastery of the French language (difficulties of expression and understanding when faced with verbal or written communication constituting) ☐

(ii) With the particular body which causes difficulties for the student to express his motor skills in front of the eyes of others ☐

(iii) With religion which causes problems related to the wearing of the Islamic headscarf, the student's refusal to participate in lessons ☐

(iv) With the rule varyingly lived according to the family and social context (educational consequences due to social determinisms linked to disadvantaged and unstructured family situations, a certain number of students, with their often tormented life course, have difficulties to respect the rules of conduct necessary for the life of any social group) ☐

(v) With the socio-economic profile (Difficulties in having an outfit adapted to the practice of PE) ☐

The didactic factors of violence in PSE have a relationship:

(i) At school and with differently experienced knowledge which has a direct influence on the relationship to work and individual effort: motivational consequences ☐

(ii) To adults (men and women) and to authority, rapport diversement vécu: consequences of the order of respect for the teacher ☐
(iii) At different school levels: consequences of the order of the pace of learning By nature, PSE is confronted with the heterogeneity of students in terms of their level of practice ☐
(iv) With varied psychological profiles: consequences of a relational nature (A large majority of students testify to impulsive behavior) ☐
(v) At PAAS and more generally at the EP discipline differently appreciated: didactic consequences ☐
(vi) To different self-lived: consequences of the order of one's own consideration and of the way people look at themselves (self-esteem) ☐

Faced with these socio-didactic factors of violence in PSE in difficult environments, the teachers' adaptations are:

(i) The use of a particular, simplified vocabulary, a mimicry by pupils to make themselves understood ☐
(ii) The use of the psychological dimension which consists in explaining, reassuring, putting in confidence, to convince in order to progressively evolve representations ☐
(iii) The reminder of the principle of secularism with the support of the educational institution (administration and school life of the establishment), which specifies that no religious, political or philosophical affiliation should disturb the course of the courses ☐
(iv) The genesis of meanings in terms of sociability, (which relates to the educational dimension), by recalling the rules related to respect and more generally to citizenship and therefore by inscribing his of teacher's action in this perspective ☐
(v) The level of respect requirements in terms of dress ☐
The genesis of meanings on a didactic level by touching on the credibility of knowledge, by enabling students to become aware of the interest and usefulness of knowledge for their learning and progress ☐
(vi) The genesis of meanings in terms of the pedagogical relationship, by appearing as a person whose function and role is to help learn while asserting his authority ☐
(vii) The need to set up a differentiated pedagogy, with all the limits that it may involve, in order to advance all the students at the same time ☐
(v) Supporting students in acquiring a more reflexive attitude about what they are doing and not acting according to the immediacy of the action ☐
(vi) The search for the right compromise for both "hooking" students, by proposing an approach that meets their expectations and especially their needs and initiate a real work with educational aims to transform them ☐
(vii) Vigilance and special attention for shy, silent, even introverted students, who will tend not to appear, not to dare, to do nothing for fear of appearing ridiculous ☐

Annex 2: Questionnaire for students

Violence in physical education is due:

(i) Failure to take into account the words of the students by the teacher or administrative staff ☐
(ii) Dissemination of personal information ☐
(iii) Distrust, doubt, indifference, denial ☐
(iv) The attitude of rejection on the part of adults (look) ☐
(v) Devaluing appreciation ☐
(vi) Blackmail at the exam or class council; repetitive sanctions (glues, lines ...) not justified ☐
(vii) The dismissal from the class, convocation to the CPE or the principal ☐

(viii) Parents' summons ☐
(ix) Temporary exclusion ☐

Symbolic violence is dependent on (of):

(i) Failure to take into account the words of the students by the teacher or administrative staff ☐
(ii) Dissemination of personal information ☐
(iii) Distrust, doubt, indifference, denial ☐
(iv) The attitude of rejection on the part of adults (look) ☐
(v) Devaluing appreciation ☐
(vi) The blackmail at the exam or class council; repetitive sanctions (glues, lines ...) not justified ☐
(vii) The dismissal from class, summons to the CPE or the principal ☐
(viii) The parents' summons ☐
(ix) The temporary exclusion ☐

Incivility, verbal violence and crimes are due to:

(i) Authoritarianism in the educational relationship ☐
(ii) Willful ignorance ("transparent" student) ☐
(iii) Disrespectful attitude of the adult ☐
(iv) Mockery, humiliating nickname ☐
(v) Stigma (lazy, lousy, thief, cheater ...) ☐
(vi) Contemptuous ☐
(vii) Humiliation ☐
(viii) Specific insult concerning a physical or moral trait ☐
(ix) Insults, profanity ☐
(x) Ethnic comments against pupils ☐
(xi) Sexism ☐
(xii) Incivility towards parents ☐

Physical violence is a reflection of:

(i) Unbalanced timetables ☐
(ii) Overloaded classes ☐
(iii) Unsuitable programs ☐
(iv) Dilapidated sports facilities and equipment ☐
(v) Howls ☐
(vi) Chalk, slap, kick etc. ☐
(vii) Breach of privacy (visit of rooms without knocking, research of lockers etc.) ☐
(viii) Addictive behaviors of personnel: alcohol, tobacco, anxiolytic, antidepressant ☐

Interviews were carried out in high schools. The questionnaires were submitted to 140 students (20 per high school) and 21 teachers (3 per high school). This pilot survey tested the appropriateness of questions and the correctness of the instructions given on the each questionnaire. After this test, amendments were made and a final version of the each questionnaire was adopted. The level of the internal consistency of the items in each questionnaire was estimated from Cronback's α index (Cronback's α = 0.76 for the pupils 'questionnaire and 0.79 for the teachers' questionnaire). Cronback's α index is considered acceptable to satisfactory for values ranging from 0.62 to 0.87 (Crocker and Algina, 1986).

Data analysis

The data entered on Epi-Info version 6.1.1 has been transferred to the SPSS version 25.0 software. The normality distribution of data for each variable, skewness and possible outliers were examined with the Kolmogorov-Smirnov test. The distribution having obeyed

the normal law, the established scores were expressed as mean ± SD. The comparison of two means was carried out using Student's test. Differences between 3 means were determined using an analysis of variance. In the case of a significant difference, a Tukey post hoc test used to identify the points of difference. Significance level of all tests was set as $p < 0.05$.

RESULTS

Reasons for violence in EPS

The causes of student violence recorded in PE were linked to symbolic violence, physical violence, grounds for incivility, verbal violence and offences. The causes of physical violence in PE are presented in Table 1. The student responses were identical in terms of the teacher's refusal to give the floor to the students. Furthermore, there was no significant difference between the opinions of girls and boys on the dissemination of personal information. Thus, the opinions of girls and boys regarding distrust and rejection by adults through their gaze were similar. However, girls spoke much more about devaluing appreciation compared to boys ($p < 0.001$). Conversely, girls revealed more unjustified repetitive sanctions compared to boys ($p < 0.001$). The results also show that girls were summoned by the supervisor or principal as well as boys as one of the determinants of violence in PE. Conversely, the summons of parents of students was significantly reported by boys as one of the factors of violence in PE compared to girls ($p < 0.001$). However, the violence induced by temporary exclusion has unanimously approved by pupils of both sexes.

The causes of physical violence are listed in Table 2. Only girls attributed physical violence to the imbalance in timetables ($p < 0.001$). However, students of both sexes unanimously attributed physical violence to the overcrowding, inadequate programs, dilapidated sport facilities and equipment, howling, projectile or aggressive behavior, and addictive behaviors of staff. Table 3 reports the reasons for incivility, verbal abuse and crimes identified by the students. The boys were the only ones to stigmatize authoritarianism in the educational relationship, willful ignorance, and insult linked to physical or moral aspects among the reasons for incivility, verbal abuse, and offences. On the other hand, the girls spoke of the adult's disrespectful attitude, contemptuous remarks, bias remarks against pupils, and sexism. However, students of both sexes unanimously pointed out mockery, stigma, humiliation, and rudeness towards parents as grounds for incivility, verbal abuse, and offences.

Teachers' perception of violence in PE

The heterogeneous factors of violence in PE perceived

by teachers have been presented in Table 4. These results show that the men mentioned that the violence is linked to the culture and the verbal expression, contrary to the women who retained the motor failure of the pupils. Nevertheless, teachers of both sexes have expressed similar opinions on the social entertainments determining violence in PE. Table 5 presents the opinions of PE teachers on the didactic factors related to violence in PE. The factors identified were for women, the influence of the authority experienced in various ways and the PAAS to learn about violence in PE according to the teachers, against the different educational levels of students among men. However, teachers of both sexes of both sexes attribute PE violence to the varied psychological profiles of students. The teachers' adaptations to the socio-didactic factors of violence in PE are shown in Table 6.

To alleviate the violence in their lessons, the men called on the use of a clear vocabulary to take into account progress in learning, in pedagogical relationships, and vigilance over lazy students. However, no significant difference was observed between some socio-didactic adaptations to violence in PE mentioned by teachers of both sexes, in particular: the use of the psychological dimension, appropriate pedagogy, appropriate pedagogy, acquisition a more reflective attitude, and an approach to the expectations of the students.

DISCUSSION

The objectives of the study were to identify the factors of violence in physical education among Congolese students from disadvantaged backgrounds; to analyze the determining factors and the teachers' perceptions with a view to remediation. The results obtained show first of all that the summons of parents and unjustified repetitive sanctions exacerbate the violent behavior of pupils during PE (Table 1). This fact can be explained by the fact that the youngest always find it difficult to fully appreciate the advice or the reproaches of parents, of the social environment, especially if this undermines their expectations linked to "modernity". This behavior is more common in boys, in most cases in our societies in both Western and African countries: boys seem more belligerent and violent in reactions than girls (Atoukam et al., 2003).

Regarding the refusal to speak to pupils during learning as factors of violence, the opinions of the two sexes are comparable. This behavior is the very expression of the students' refusal to cooperate. He expresses their disagreement with the norms, learning practices or simply the development of a course, or more generally of the establishment, and their desire to question them. This refusal to participate is therefore passive resistance. It is therefore manifested in different collective or individual behaviors of the students. This is how some pupils forget

Table 1. Causes of symbolic violence perceived by pupils of both sexes during PE.

Item	Whole group (N= 2167)	Girls (n = 1263)	Boys (n = 904)
Denial of speech to students	4.2±0.3	4.1±0.5	4.3±0.2
Dissemination of personal information	1.9±0.3	1.6±0.2	2.1±0.4
Mistrust	4.5±0.2	4.4±0.3	4.6±0.2
Rejection of adults (look)	4.5±0.2	4.6±0.2	4.4±0.3
Devaluing appreciation	2.9±0.4	4.2±0.3***	1.7±0.5
Unjustified repetitive sanctions	3.1±0.3	1.9±0.4	4.3±0.2***
Convocation of students by supervisor or principal	4.1±0.3	4.1±0.4	4.5±0.3
Parents' summons	3.0±0.2	1.6±0.3	404±0.2***
Temporary exclusion	4.3±0.3	4.2±0.4	4.4±003

***, $p < 0.001$.

Table 2. Causes of physical violence.

Item	Whole group (N= 2167)	Girls (n = 1263)	Boys (n = 904)
Unbalanced timetables	2.9±0.4	4.1±0.3***	1.8±0.5
Plethoric classes	4.6±0.2	4.5±0.3	4.7±0.1
Inadequate programs	4.2±0.3	4.3±0.4	4.2±0.2
Deterioration of sport facilities and equipment	4.4±0.3	4.5±0.2	4.3±0.4
Howls	4.6±0.4	4.7±0.4	4.1±0.5
Projectile throw or aggressive behavior	4.3±0.2	4.4±0.2	4.2±0.3
Addictive staff behavior	4.6±0.2	4.6±0.3	4.7±0.2

***, $p < 0.001$.

Table 3. Causes of incivility, verbal abuse and crimes identified by students.

Item	Whole group (N= 2167)	Girls (n = 1263)	Boys (n = 904)
Authoritarianism in the educational relationship	2.8±0.2	1.2±0.3	4.6±0.2
Willful ignorance	2.9±0.4	1.4±0.5	4.4±0.4
Adult's disrespectful attitude	2.8±0.4	4.3±0.5	1.3±0.3
Mockery	3.9±0.2	4.1±0.3	3.7±0.2
Stigma	4.4±0.3	4.6±0.2	4.2±0.5
Contemptuous remarks	3,3±0.4	4.1±0.5	1.5±0.4
Humiliation	4.5±0.3	4.3±0.4	4.7±0.2
Physical or moral insult	2.9±0.3	1.3±0.4	4.5±0.3
Tribalist remarks against students	2.5±0.4	4.2±0.4	0.9±0.4
Sexism	2.9±0.3	4.4±0.3	1.4±0.3
Incivivities towards parents	4.6±0.1	4.5±0.2	4.7±0.1

their school affairs or make the wrong timetable, or even ignore it. These results, which corroborate those of Murdock (1999), make it possible to analyze the permanent danger which addresses this concern relating to the refusal of speech in learning.

Refusal to join can be manifested by active resistance from students. It is in this configuration that it exposes the protagonists to acts of violence. Indeed, students can refuse, individually or collectively, the activity proposed by the teacher, to take notes or even question, the skills

Table 4. Heterogeneous factors of violence perceived by PE teachers.

Items	Whole group (n=80)	Female (n = 28)	Male (n = 52)
Culture and verbal abuse	3.0 ± 0.2	1.5 ± 0.3	4.6 ± 0.2
Motor failure violence	4.6 ± 0.2	1.8 ± 0.4	3.4 ± 0.3
Social entertainment	4.3 ± 0.4	4.6 ± 0.2	2.9 ± 0.3

Table 5. Didactic factors of violence in PE among teachers.

Items	Whole group (n=80)	Female (n = 28)	Male (n = 52)
Diverse authority	3.0 ± 0.2	4.4 ± 0.2	1.6 ± 0.3
Different school levels	2.8 ± 0.5	1.5 ± 0.4	4.1 ± 0.6
Varied psychological profiles of students	4.1 ± 0.3	3.9 ± 0.2	4.3 ± 0.4
APSA to learn	3.2 ± 0.4	4.3 ± 0.4	2.1 ± 0.5

Table 6. Teachers' adaptations to socio-didactic factors of violence in PE.

Items	Whole group (n=80)	Female (n = 28)	Male (n = 52)
Use of clear vocabulary	2.8 ± 0.3	1.5 ± 0.2	4.2 ± 0.4
Use of the psychological dimension	4.3 ± 0.4	4.1 ± 0.2	4.5 ± 0.6
Progress in learning	3.0 ± 0.4	1.7 ± 0.3	4.3 ± 0.5
Educational relations	3.2 ± 0.2	1.8 ± 0.2	4.6 ± 0.3
Appropriate teaching	3.0 ± 0.3	1.6 ± 0.4	4.4 ± 0.3
Acquisition of a more reflexive attitude	2.6 ± 0.3	1.1 ± 0.3	4.2 ± 0.4
An approach to student expectations	4.5 ± 0.2	4.4 ± 0.2	4.6 ± 0.3
Vigilance on lazy students	2.9 ± 0.4	1.8 ± 0.3	4.1 ± 0.5

of a teacher, whether or not accompanied by heckling. Likewise, they can organize a collective delay, or even refuse to enter the classroom in order to be interested in another activity. Such a sling, although relatively rare, destabilizes the teachers. It can take on greater proportions (insults, notorious disrespect or disobedience).

Females attributed physical abuse to the imbalance in timetables (Table 2). This can be explained by the lack of concentration in laissez-faire. The underlying motivation for this style is usually to stay in the organization without getting too involved. Tired, jaded, frustrated or demotivated, this teacher is content with the minimum required. The division of learning work and the simplification of tasks are taken to the extreme, offering no stimulus, no challenge to overwork, thereby generating monotonous and repetitive work. Seeking to avoid controversy, his conception of evaluation was limited to the strict minimum, avoiding drawing attention to his lack of commitment and / or, more seriously, to

his incompetence or incapacity.

Regarding physical violence, it is most often committed in public in front of the whole class or in the schoolyard out of sight, such as in the toilets or hidden corners that are not visible to teachers or supervisors. It is translated in the specific case essentially by fights, kicks, fists, as well as throwing stones and sand, which are linked to a disagreement with a teacher or a comrade. For example, a student may overturn a desk against one of their classmates whom they initially insulted for refusing to play with them. This fact can be explained, among other things, by the imbalance of timetables, singularly cited by girls. Our results join those of Marsenach and Mérand (1987) through the analysis of teachers' behaviors in teacher-student interaction. The student subject to violence is characterized by the lack of stimulation in learning associated with indifference, even lack of consideration. This can provoke in the child a production of the teacher's behavior which will result in a drop in motivation, resulting in a lack of cognitive commitment

and persistence. But the pupils can also pay into another excess: faced with a withdrawal of a teacher, they may be tempted to lose the baton thanks to of collective heckling as a means of collective organization, helping to unite the group and create social ties (Le Ny, 2017: 124).

Sex also can pose an influence on the reactions and behaviors of human beings. Boys generally seem less tolerant; this lack of tolerance leads to a lack of consideration of the authority of the supervisor who may appear to him as an obstacle to his freedom. It is in this direction that the results in Table 3 indicated that the boys reported authoritarianism in the educational relationship, willful ignorance and insult linked to aspects of physical or moral among the reasons for incivility, verbal abuse and offence. On the other hand, the girls mentioned the disrespectful attitude of the adult, the contemptuous words, the bias words against the students and sexism.

Dignity has also been mentioned by girls and boys. Indeed, all humans show self-esteem and shame which are behaviors which, once violated, lead to outrage. The results also showed that students of both genders unanimously emphasized mockery, stigma, humiliation and rudeness towards parents as grounds for incivility, verbal abuse and offences. In this regard, the teacher and the student, who are two main actors in the education system, act but do not necessarily have the same point of view on physical violence in the school environment. The teacher, an actor in the republic education service, must share the values of the republic and register his action within the framework of the fundamental principles of the education system and within the regulatory framework of the school. He must also build, implement and animate teaching and learning situations taking into account the diversity of students, organize and ensure a group operating mode that promotes student learning and socialization, assess progress and student acquisitions. Consequently, violence appears as an obstacle preventing the achievement of the missions assigned by the actor of the education system.

The data in Table 3 also showed that sexism contributes to sexual violence among girls. In fact, "sexual violence" is sexual behavior exercised on a person without their consent. In a specific setting, it is the students who represent the subjects of sexual violence, and as such, they are the subject of particular attention in their environment. This sexual violence manifests itself in various forms: rape, desecration, indecent touch and exposure, sexual conversation, etc. (Dehia and Rebih, 2015).

Regarding perceptions of violence among teachers, it first appears to define this notion. Perception is a process by which an individual chooses, organizes, and interprets elements of external information to construct a coherent image of the world around him (Berkowitz, 1989). Several individuals subjected to the same stimulus may have different perceptions depending on the environment around them and according to their personal characteristics. The perception of information can be explained through the actions of the individual. His attitude is very often linked by the nature of the information to be identified; distortion results in the distortion of information, the final product of which can be relatively poorly appreciated, and the retention which manifests itself in the retention of information (Galand and Philippot, 2000). The perception of violence in PE by teachers in our study was divided into three groups.

The first group concerns the heterogeneous factors of violence in PSE. The results obtained and recorded in Table 4 showed that violence among men is linked to culture and verbal expression. On the other hand, according to the women, it is linked to the motor failure of the pupils. Furthermore, the diversity of assessments linked to sex indicates the diversity of manifestations of violence. Indeed, the difficulty of expression and the lack of culture can seriously hamper the education system, the culture being part of a human manifestation distances it from its species, because each people has its culture. Culture being a characteristic of a people, its verbal or motor stigmatization contributes to violence.

Our observations support the thesis of Saury et al. (2006) according to which the analysis of the nature of the relationships between the teacher and the taught within what he calls the "educational couple" reveals the incidences of violence, personality. These relationships can lead to two feelings or two types of opposite behavior: sympathy or antipathy, closeness or alienation (Famose, 2001: 72). The data in Table 4 also show that teachers of both sexes expressed similar opinions on social entertainment, an important determinant of violence in PE. It is known that modernity imported and imposed by scientific progress does not only have advantages. There are also disadvantages, for example the lack of concentration of the students, who are attracted to nonsense in the name of the fashion of our time.

The teachers' opinions on the didactic factors of violence in PE constituted the second group of parameters observed. The results in Table 5 reveal that the influence of variously experienced authority and the PAAS to learn constitute two factors of violence unanimously by teachers. The report to the PAAS and more generally to the PE discipline is differently assessed on its didactic consequences. First of all, students often have a representation of PAASs close to the benchmark social practice. Consequently, some of them have great difficulty entering a decontextualized learning situation. The challenge here is to initiate and maintain student engagement in a training process. Faced with this, the teacher is often faced with a lack of motivation on the part of the students. Secondly, the gender mix is often a source of conflict in the level of students' resources, in the reasons for engaging in practice and in representing

the activity; this can lead the teacher to have to further differentiate the objectives pursued (Blache, 2008).

Consequently, must, under the pretext of starting from their representations, strictly respect their tastes, their choices, their wills, their attitudes, to finally subscribe to their desires and their desires and resolve not to change their representations. Do we have to offer something new, gradually introduce a new approach, even if it means disturbing them intellectually, to encourage them to change their operationalization, by bringing them to question their knowledge and by developing their conceptions, their thinking system or benchmark, which is nothing but their belief system? The answers to these questions are delicate because they are the result of a necessary compromise between taking into account the characteristics of the students and our legitimate ambition regarding their training. Nevertheless, it is undoubtedly by considering the second option that there will be a modification, a reshaping of their knowledge, the result of which will be a restructuring of their motor repertoire (capital of motor actions) with a constructive critical spirit. Therefore, we must accept the student as he is, while not allowing him to remain so.

The results of the study also showed that for teachers of both sexes, violence is a function of the varied psychological profile of students in PE. This can be attributed to the fact that the human environment has an influence on the behavior of the human being, especially of pupils whose educations (church, school, and home) are diverse. These different environments have a role in this system. The third group of parameters observed for teachers 'perception of violence in PE is linked to teachers' adaptations and no to the socio-didactic factors of violence. The results of this survey are shown in Table 6. The results indicate that only men have chosen as coping mechanisms for violence: the adoption of a clear vocabulary, progress in learning, pedagogical relationships, and watch out for lazy students. Indeed, the need to get the message out has always animated teachers. The achievement of the pedagogical objectives passes by the expression of the teacher towards the students through: knowledge, the process to teach and the process to learn. The result of this process is the training process in all students. This idea is similar to that of Reboul (2012) for whom all teaching in the service of the pupil owes it to the latter to acquire a better comprehension in his learning. It gives three meanings to the word "learn": "learn that" (information act), "learn to" (learning to acquire a skill), "learn" (activity whose purpose is to learn something) (Reboul, 2012).

Finally, we noted the absence of significant difference between some socio-didactic adaptations to violence in PE mentioned by teachers of both sexes: the use of the psychological dimension, the appropriate pedagogy, the appropriate pedagogy, the acquisition of " a more reflexive attitude and approach to students' expectations. This observation can be explained by the fact that PE, in its richness and variety, uses both the specificity of each

of the social and cultural practices, and what unites them. The role that the PE program then plays, in accordance with the classification of PAASs, must make it possible to ensure a "balanced menu" between activities and to enter different ways in the problem of "education for citizenship" (Havage and Bequignon, 1999: 1).

In view of the above, combating violence in physical education lessons more than in other school subjects should be one of the priorities of school authorities. For this, the adoption of effective and relevant educational strategies, putting the pupil at the center of learning, can promote the development of physical education while the implementation of coercive measures would increase these anti-values against those who have for most of today's societies are rebelling. However, such an enterprise relies on the necessary articulation of several actors: educators, parents, authorities of establishments, public authorities. It is only in this way that self-respecting sporting activities are practiced in physical education constitute means of combating violence at school and outside school.

Conclusion

The results obtained show that violence in schools and particularly in physical education stems from the heterogeneity of socio-psychological profiles, of pupils, of the relationship with PAAS and of the social value of PE, as well as attitudes of the teacher. The PE has long displayed its claims in this area of citizenship education, raising in particular at the frontispiece of its programs the necessary training of a "lucid, cultivated, autonomous citizen", and multiplying the citizen objectives: responsibility, solidarity, tolerance, and respect for the rules. Consequently, the data from the study presence suggest that the study of the psycho-pedagogical and didactic processes involved in the occurrence of violence in PE providing a pragmatic light admitting to fight against this scourge in an unfavorable environment.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

REFERENCES

Atoukam M, Afolayan TA, Falmata A, Mbaya S, Mpissukidi J, de Vos A (2003). Pression socioanthropologique de la vie moderne sur les comportements déviants des hommes et femmes en Afrique Centrale, pp. 93-126. In : Rapport final « Projet Avenir des Peuples d'Afrique Noire subsaharienne. Bruxelles, Commission Européenne.

Augustin JP (2009). Sport, violences et territoires. Cahiers de Géographie du Québec 150:369-384.

Bandura A (1980). L'apprentissage social. Paris, Editions Mardaga.

Berkowitz L (1989). Frustration-agression hypothesis: Examination and reformualation. Journal of Personality and Social Psychology 41:156-162.

Blache B (2008). Enseigner en milieu difficile : pour une aide à l'intervention pédagogique. Revue EPS 33:54-60.

Blaya C (2010). Les pratiques pédagogiques des enseignants d'EPS. Tradition/Innovation. Paris, Institut National de Recherche Pédagogique, Rapport de recherche.

Boumpoutou GA (2016). An exploratory of the relationship between the perceived attitude of violence and the adoption of preventive practices in Congolese high schools. Doctoral dissertation, Brazzaville, Université Marien Ngouabi, 232p.

Bowao C (2005). Les crises sociopolitiques et armées en Afrique Centrale. Paris, L'Harmattan.

Brousseau G (1989). Le contrat didactique et le concept de milieu. Rennes, Publications de l'Institut de Recherche Mathématiques de Rennes, fascicule S6, Vème école d'été de didactique des mathématiques et de l'informatique, pp. 95-101.

CNSEE (2017). La République du Congo en chiffres, 2016. Rapport du recensement de la population, de l'habitat, des petites et moyennes entreprises et de la qualité de vie.

Conseil de l'Europe (2015). La lutte contre la violence en Europe. Place du sport. Strasbourg, Editons du Conseil de l'Europe.

Crocker L, Algina J (1986). Introduction to classical and modern test theory. New York, Harcourt Brace Jevanonich College Publishers.

Debardieux C (2006). Le spectacle de la violence. Paris, Editions Hermann.

Dehia A, Rebih A (2015). Implication de l'EPS contre la violence et l'incivilité scolaire. Master thesis. Tunis, Université de Tunis, pp. 23/24.

del Bayle JL (2010). Introduction à la méthodologie des sciences sociales, 2e édition. Paris, Editions Lavoisier.

Durand JP, Weil R (2017). Sociologie contemporaine, 3e édition. Paris, Editions Quadrige/PUF.

Famose JP (2001). La motivation en éducation physique et en sport. Paris, Editions Dunod.

Felner RD, Brand S, DuBois DL, Adam AM, Mulhall PF, Evans EG (1995). Socioeconomic disadvantage, proximal environmental experiences, and socioemotional and academic adjustment in early adolescence: Investigation of a mediated effects model. Child Development 66:774-792.

Giordan A, Girault Y, Clément P (2007). Conceptions et connaissance, 2e édition. Berne/Paris, Editions Peter Lang.

Galand B, Philippot P (2000). The role of scholl goal structure and teacher-student relationships in work avoidance: A path analysis. Communication presented to the 7th Workshop on Achievement and Task Motivation, Louvain, Belgique.

Havage AA, Bequignon JL (1999). L'EPS et la citoyenneté. Paris, Editiond Revue EPS.

INRAP (2002). Livre programme, classe de première scientifique. Brazzaville, Ministère de l'Enseignement Primaire et Secondaire, Chargé de l'Alphabetisation.

Le Ny JF (2017). Educational Encyclopedia Universalis. Paris, La Pensée Sauvage.

Longonda NG (2000). Femmes de Brazzaville Nord Genre et combats pour la survie pendant la guerre du 5 juin 1997 et la période post conflit. Annales de l'Université Marien NGOUABI 7:36-45.

Marsenach J, Merand R (1987). Les pratiques pédagogiques des enseignants d'EPS. Tradition/Innovation. Paris, Institut National de Recherche Pedagogique, rapport de recherche.

MEN (2018). Rapport du Conseil National de l'Enseignement, Septembre 2018. Brazzaville, Direction des Etudes, Statistiques et la Planification, Ministère de l'Education Nationale.

Murdock TB (1999). The social context of risk: Status and motivational predictors of alienation in middle school. Journal of Education Psychology 91:62-75.

Mviri HC, Entsiro HM, Litoto Pambou L, Tsiama PJA, Koulombo AU, Moulongo JGA, Massamba A, Mbemba F (2018). Chronic absenteeism in physical education in Congolese students: Central African analysis. American Journal of Innovative Research and Applied Sciences 7(1):65-73.

Ndebani F (2007). L'école congolaise face aux effectifs plétoriques au decours des conflits sociopolitiques de 1998-2000: Problèmes et perspectives. Pointe-Noire (Congo), Editons LMI.

Pain J (2006). Les comportements disruptifs dans les sports. Paris, Editions PUF.

Potvin P, Rousseau R (1993). Attitudes of the teachers towards the pupils in scholl difficulty. Canadian Review of Education 18:132-149.

Reboul O (2012). Tackling violence in schools: A global perspective bridging the gap between standards and practice. Geneva, Switzerland.

Sabatier C, Pfister R (1995). Transgression des règles par l'enfant dans la pratique du handball en milieu scolaire. STAPS 36:45-55.

Saury J, Ria L, Gal-Petitfaux N (2006). Action ou cognition située: Enjeux scientifiques et intérêts pour l'enseignement en EPS. Paris, Editions Vigot.

UNICEF (2007). Place des enfants refugés dans les écoles congolaises en 2006: Analyse et perspectives. Rapport d'un comité d'experts. Brazzaville, représentation nationale de l'UNICEF.

Wilder JS (1992). The identification of factors contributing to the avademic decline of a population of college students. Psychology: A Journal of Human Behavior 29:1-7.

WHO (2018). Atlas of African health statistics 2018. Universal health coverage and the sustainable development goals in the WHO African Region. Brazzaville, WHO Office for Africa.

ACADEMIC JOURNALS
expand your knowledge

Educational Research and Reviews

Full Length Research Paper

The relationship between perceived manager support and work commitments of sports instructors

Nedim Malkoc[1]* and Suzan Dal[2]

[1]Exercise and Sports Department, Health Science University, Istanbul, Turkey.
[2]Sports Science Faculty, Istanbul Cerrahpasa University, Istanbul, Turkey.

The aim of this study is to investigate the perceived role of supervisor support in predicting the work engagement levels of instructors working in sports venues. Sample of this study consists of a total of 254 instructors, 88 males and 166 females, age ranged 22 to 63, and working in various sports venues. Personal information form, perceived supervisor support and work engagement scale applied to the individuals in the sample group. This study was designed based on the screening model. To compare variables in the data obtained from the questionnaires applied on trainers, percentage, frequency, correlation, regression, t-test and analysis of variance (ANOVA) were used. In accordance with the analysis result, supervisor support was found to be an effective factor on work engagement. The results of the research revealed that the perceived supervisor support decreased as the trainers' level of education increased. However, it has been found that female trainers benefit from supervisor support in the workplace more than men and focus more on their jobs.

Key words: Sports instructors, work engagement, sport venues, quantitative study.

INTRODUCTION

Work engagement

Due to global change especially in recent years in management mentality in behaviours in the organization, positive attitudes are in the forefront instead of negative emotions and behaviours and positive organizational behaviour have become more of an issue (Bostancı and Ekiyor, 2015). Managers, human resources specialist and academicians have been intensively focusing on the concept of "work engagement" and the details of the

concept in recent years. In this sense, all these specialists accept the basic claim that if the employees' commitment levels are high, productivity will increase, and costs will decrease (Seanberg et al., 2011).

Kahn (1990), one of the theorists who first introduced the concept of work engagement, defined the work engagement as the physical, cognitive and emotional complete commitment of the employees to their work. Work engagement reflects a positive mood characterized by the concepts of being alive, dedication and assimilation. Dedicated employees can be described as

*Corresponding author. E-mail: nedimmalkoc82@gmail.com.

highly motivated people who receive energy from their jobs and fully accomplish their work. Therefore, their work results in profitability, productivity and customer satisfaction (Seanberg et al., 2011). It is seen that the employees who are integrated to the work and devoted to the work perform better than others, are more prone to taking initiative, and have higher motivation to learn than others (Bostancı and Ekiyor, 2015).

Work engagement can lead to some negative consequences as well as many positive outcomes mentioned earlier. According to Glassdoor (2016)'s study, 53% of employees who are committed to work are confident that they will find a similar position within six months if they lose their job. Despite the undesirable consequences of self-confidence of organizational commitment, the organization should work to nurture and develop a commitment that requires a two-way relationship between the employer and the employee (Sridevi, 2010). When employees are engaged to their tasks, they individually find their work meaningful, they think that the hard work required by the job can be overcome more easily and they are hopeful about the future of their work.

Supervisor support

With the understanding of the importance of organizational support, studies have begun to deal with the sub-elements of organizational support. In this context, the importance of supervisor support has been examined in many studies. Eisenberger et al. (2001) stated that employees expect their supervisor to support themselves. Supervisor support is defined as the importance of the supervisor's attention to the ideas of the employees, sincerity about their happiness, and the thinking of the goals and values of the employees (Rhoades et al., 2001).

According to Guchait et al. (2014), perceived supervisor support includes coaching, guiding each member with individual attention, helping subordinates to fulfil their job responsibilities, and evaluating performance.

Eisenberger et al. (2016) found a significant difference in their study from the studies concluded that supervisor support leads to positive organizational management results in doctrine. In this study, they made concrete suggestions about how to provide supervisor support. In doctrine, this is an important deficit. It has been an important resource for supervisors and human resources specialists in this sense. Suggestions include:

(1) Do not just do the things you have to do. Carry out workforce activities at the discretion of employees. What should already be in a business will not be perceived as administrative support. An example of this is the employee going to a training that the sector does not have to send.
(2) Be fair and righteous in implementing, monitoring and realizing executive activities.
(3) Set achievable goals and reward in proportion.
(4) Provide individualized benefits to employees instead of generalized benefits.
(5) Before being supportive to subordinate supervisors thus they become supportive to your employees.
(6) Train subordinate supervisors to be supportive of your employees.
(7) Create a strong social relations network.
(8) Start organizational support before employment starts.

Negative organizational behavior attitudes arise in employees who are not supported by their supervisor (Ng and Feldman, 2012; Fakunmoju et al., 2010). Positive organizational behaviors consist in employees receiving supervisor support (Turgut, 2011; Goh et al., 2015; Stinglhamber and Vandenberghe, 2003).

The relationship between work engagement and supervisor support

It is thought that supervisor support will contribute positively to many organizational management and governance as it substantially affects the organizational culture (İnce, 2016; Turgut, 2011). As employees' perceptions of organizational support increased, their engagement levels increased evenly. Organizational support was partially mediated by supervisor support (Woerkom et al, 2016). It has been reached as a result of researches that work engagement is strongly connected with organizations based on financial results such as productivity, profitability and customer satisfaction (Sorenson, 2013). It has been reached that the positive results that will arise from the work engagement can be provided with the support of supervisor (İnce, 2016).

In the study conducted by Latif and Gülzar (2011); they found that executive support and organizational support had a strong impact on organizational commitment. One of the conclusions reached in their studies is very important on behalf of this study. According to this result supervisor support is more effective than organizational support for organizational commitment. Supervisor support acts as an intermediary between organizational support and organizational commitment.

In a similar study, they stated that autonomy in the workplace, the relationship between the employees and the positive relationship with the supervisor are important in the continuation of the commitment to the work (Albrecht, 2010; Gagné and Bhave, 2011; Chirkov, 2011). In the study of Görgülü et al. (2019) on football referees, it was concluded that manager support and organizational commitment had a positive and significant effect. In the literature, it is expected that this study will

contribute to the field due to the limited work in the field of sports related to executive support and dedication to work.

METHODOLOGY

Research design

This study was designed based on the screening model. The screening model is a study approach that aims to describe a past or previous event exactly the way in which it happened (Karasar, 1999).

Population and sample

The working universe of the study consists of 310 trainers working in Kocaeli province in Turkey. The sample group of the research consists of a total of 254 instructors between the ages of 22 and 63, 166 women and 88 men. The data were collected by simple random sampling method.

Data collection tools

In this study which is quantitative study, perceived supervisor support and work engagement scales were used.

Personal information form

In order to learn the demographic information of the instructors questions related to age, gender, marital status, and educational status are asked in this form.

Perceived supervisor support

The scale used in the study was developed and the reliability and validity of the scale is also done by Şahin and Giray (2012). The scale is 11 items with a 5-point Likert type (1 = strongly disagree and 5 = strongly agree). The Cronbach Alpha coefficient of the scale is 0.94.

Work engagement scale

In order to measure the work engagement, the scale is developed by Schaufeli et al. (2002) and the validity and reliability study of the Turkish version was conducted by Turgut (2011). The scale consists of 17 questions and three sub-dimensions (Vigour, Dedication, Absorption). The internal consistency level of the scale obtained from the research sample for the Turkish version was 89, indicating that the scale had a high reliability.

Statistical analysis

Statistical software (IBM Statistical Package for Social Sciences (SPSS) version 21 IBM, USA) is used for analysis. Percentage, frequency, correlation, regression, t-test and ANOVA tests were used to compare the variables. The data were evaluated based on the total scores of the participants' answers to each question and statistical significance accepted at the $p \leq 0.05$ level.

Sampling adequacy and Barlett Sphericity tests were performed for the Perceived Supervisor Support Scale used in the study.

According to the results of the test Keiser-Meyer-Olkin (KMO) sampling adequacy coefficient 0.936, and Bartlett Sphericity test was found to be $\chi^2 = 2299.141$ at 55 degrees of freedom (p < 0.01). For the Work Engagement Scale, Keiser-Meyer-Olkin (KMO) sampling adequacy coefficient was 0.921, and Bartlett Sphericity test was found to be $\chi2 = 2906.791$ at 120 degrees of freedom (p <0.01).

Internal consistency Cronbach alpha coefficient value of Perceived Supervisor Support scale is 0.950; and The Cronbach's alpha value of Work Engagement Scale is found to be 0.939.

FINDINGS

As a result of this study, demographic information is shown in Table 1. According to this, 65.4% of the participants were female and 34.6% were male. The average age was between 31 and 40 and the education level was concentrated at bachelor's level. 46.5% of the participants were married and 53.5% are single.

Independent sample t-test was used to determine the differences between the subscales and total scores of Work Engagement Scale and the Supervisor Support Scale. As a result of the analyses, it was determined that Work Engagement Scale sub-dimensions, the Vigor scores of the Women (Mean= 4.10) were significantly higher than the scores of men (Mean = 3.84) [t (252) = 2.707, p <.01]. In addition, it was found that the absorption points of women (Mean= 4.07) were significantly higher than men (Mean = 3.57) [t (252) = 4.694, p <0.01]. The dedication scores of women (Mean = 4.48) were significantly higher than those of men (Mean = 4.14) [t (252) = 3.699, p < 0.01]. The total engagement scores of women (Mean = 4.21) were also significantly higher than that of men (Mean = 3.85) [t (252) = 4.239, p < 0.01].

When the data in Table 2 are analyzed in general, it can be stated that the total scores of women in the Study Participation Scale and Supervisor Support Scale are higher than men. According to these findings, it can be said that they benefit more from Supervisor Support in their workplace and focus on their work better.

One-way ANOVA was used to determine the differences of Supervisor Support Scale and Work Engagement Scale subscale and total scores according to age. In the analyses, no significant difference was found in the scores of the Supervisor Support Scale and Work Engagement Scale subscales (Table 3).

One-way ANOVA was used to determine the differences between the subscales and total scores of the Work Engagement Scale and Supervisor Support Scale applied in the study. In the analyses, it was determined that the scores of the Supervisor Support Scale differed significantly between the groups [F (250, 3) = 2.777, p < 0.05]. After the post-hoc analysis (LSD), the scores of high school graduates (x̄ = 4.18) was found to be significantly higher than the scores of the bachelor graduate students (x̄ = 3.71) and the scores of the master graduate students (x̄ =3.65) (Table 4).

Table 1. Participant demographic profile.

Profile		Number	Percentage
	Female	166	65.4
Gender	Male	88	34.6
	Total	254	100.0
	Married	118	46.5
Marital Status	Single	136	53.5
	Total	254	100.0
	High School	29	11.4
	Associate Level	19	7.5
Educational status	Bachelor's level	152	59.8
	Master Level	54	21.3
	Total	254	100.0
	≤ 30	130	51.2
	31-40	75	29.5
Age	≥ 41	49	19.3
	Total	254	100.0

Table 2. Differences of supervisor support scale and work engagement scale subscale and total scores according to gender.

Variable	Gender	N	Mean	SS	t (p)
Supervisor support	Female	166	3.7957	0.85488	0.776 (0.438)
	Male	88	3.7066	0.90035	
Vigor	Female	166	4.1024	0.76093	2.707 (0.**007**)
	Male	88	3.8409	0.67566	
Absorption	Female	166	4.0711	0.80393	4.694 (0.**000**)
	Male	88	3.5750	0.79701	
Dedication	Female	166	4.4855	0.64284	3.699 (0.**000**)
	Male	88	4.1455	0.79001	
Engagement (Total)	Female	166	4.2197	0.65368	4.239 (0.**000**)
	Male	88	3.8538	0.65630	

It was determined that the Work Engagement Scale subscales Vigour scores differed significantly between the groups [F (250, 3) = 4.957, p < 0.01]. After the Post-Hoc analysis (LSD), the scores of the master graduate students ($\bar{x}$ = 3.69) was found to be significantly lower than the scores of the high school graduates ($\bar{x}$ = 4.14), and also the scores of the associate graduates ($\bar{x}$ = 4.27) was found to be significantly lower than the scores of the undergraduate ($\bar{x}$ = 4.06).

It was determined that the Work Engagement Scale subscales dedication scores differed significantly between the groups [F(250, 3)=3.335, p<0.05]. After the Post-Hoc analysis (LSD), the scores of the master graduate students ($\bar{x}$ = 4.10) was found to be significantly lower than the scores of the high school graduates ($\bar{x}$ = 4.50) and the scores of the bachelor graduates ($\bar{x}$ = 4.44).

It was also found that the total scores of the Work Engagement scale differed significantly between the groups [F (250, 3) = 3.098, p < 0.05]. After the Post-Hoc analysis (LSD), the scores of the master graduate

Table 3. Differences of Supervisor Support Scale and Work Engagement Scale subscale and total scores according to age.

Variable	Age	N	Mean	SS	F (p)
Supervisor support	≤30	130	3.7483	0.81284	
	31-40	75	3.7079	0.99185	0.740 (0.478)
	≥41	49	3.8961	0.82175	
Vigour	≤30	130	3.9654	0.78248	
	31-40	75	4.0911	0.71202	0.682 (0.507)
	≥41	49	4.0136	0.67601	
Absorption	≤30	130	3.8754	0.91339	
	31-40	75	3.9253	0.81059	0.108 (0.898)
	≥41	49	3.9224	0.64007	
Dedication	≤30	130	4.3877	0.72422	
	31-40	75	4.3867	0.74568	0.398 (0.672)
	≥41	49	4.2857	0.64420	
Engagement (Total)	≤30	130	4.0762	0.70549	
	31-40	75	4.1344	0.68432	0.199 (0.821)
	≥41	49	4.0739	0.58871	

Table 4. The difterince between the supervisor support scale and work engagement scale subscale according to educational status Post-Hoc analysis (LSD).

Variable	Education	N	Mean	SS	F (p)	Difference (LSD)
Supervisor Support	High School [1]	29	4.18	0.74410		
	Associate Level [2]	19	3.79	1.02397	2.777 (0.042)	1>3,
	Bachelor's level [3]	152	3.71	0.80906		1>4
	Master Level [4]	54	3.65	0.99215		
Vigour	High School [1]	29	4.14	0.61838		
	Associate Level [2]	19	4.27	0.78609	4.957 (0.002)	4<1,
	Bachelor's level [3]	152	4.06	0.73800		4<2,
	Master Level [4]	54	3.69	0.71771		4<3
Absorption	High School	29	3.80	0.75873		
	Associate Level	19	4.03	0.81721	0.832 (0.477)	-
	Bachelor's level	152	3.94	0.89389		
	Master Level	54	3.77	0.69396		
Dedication	High School [1]	29	4.37	0.61955		
	Associate Level [2]	19	4.50	0.81478	3.335 (0.020)	4<2,
	Bachelor's level [3]	152	4.44	0.69459		4<3
	Master Level [4]	54	4.10	0.73484		
Engagement (Total)	High School [1]	29	4.11	0.60234		
	Associate Level [2]	19	4.26	0.76699	3.098 (0.027)	4<2,
	Bachelor's level [3]	152	4.151	0.68986		4<3
	Master Level [4]	54	3.8564	0.59751		

students ($\bar{x}$ = 3.85) was found to be significantly lower than the scores of the high school graduates ($\bar{x}$ = 4.26) and the bachelor graduates ($\bar{x}$ = 4.15).

According to these data, high school graduate participants can be said to get higher scores from Supervisor Support Scale than others. However, it can be stated that master graduate students have lower scores on the Work Participation Scale and the Job Participation Scale than others.

Pearson correlation analysis was used to determine the relationship between the scores of the Supervisor Support Scale and the Work Engagement scale subscale. According to the analysis results, Supervisor Support scores was found to be positively correlated with Work Engagement scale subscale Vigour scores (r = 0.531, $p < 0.01$), absorption scores (r = 0.265, $p < 0.01$), dedication scores (r = 0.438, $p < 0.01$) and total engagement scores (r = 0.457, $p < 0.01$) (Table 5).

In order to examine whether the scores of the Supervisor Support Scale applied in the study predicted the total scores of the work engagement scale, the total score of work engagement scale was determined as the dependent variable and the scores of the Supervisor Support Scale were determined as independent variable and standard multiple regression analysis was applied to them. The simple linear regression model in which all independent variables are included in the equation together; it was determined that total engagement scores significantly predicted [F (1, 252) = 66.618, $p < 0.01$]. The model explains 20% of the variance in total engagement scores (R^2 = 0.209). When the standardized regression coefficients were examined, it was found that the scores of the Supervisor Support positively predicted the total engagement scores (β = 0.273, $p < 0.01$) (Table 6).

DISCUSSION

In this study, the effect of perceived executive support on commitment was investigated. The results obtained within the scope of the analyses conducted in the research are given subsequently.

As a result of the analyses, no statistically significant difference was found between the participants' supervisor support and total engagement scores according to gender (p = 0.438). As a result of the study conducted by Meriç et al. (2019) on teachers' organizational support, including supervisor support, it was concluded that male teachers perceived more organizational support than female teachers. This result is thought to be related to the same gender of the supervisor in the work environment. In the result of the work engagement, it was found that female employees have higher scores than male employees in the sub-scale of vigor, absorption, and dedication and total engagement. In a study conducted by Gulzar and Rafiq (2018) on academic staff, it was concluded that female academic staff were more likely to

engage in work than male academic staff. Banihani et al. (2013) concluded that work engagement differed by gender, and that men were more likely to engage in work than women. However, some studies in the literature say that work engagement does not differ in terms of gender. In another study, Reissová et al. (2017) concluded that work engagement was similar in both gender. As a result of the study conducted by Bostancı and Ekiyor (2015), it was found that gender was not a significant variable in work engagement. Mulaudzi and Takawira (2015) concluded that gender did not influence work engagement.

In line with these results, it can be stated that the effect of perceived manager support on employees' job loyalty does not vary much by gender. In addition, it can be said that the women participating in this research are trying to contribute more to the institution by working more selflessly and enthusiastically than men.

There were no significant differences between the participants' Supervisor Support and work engagement subscales and total engagement scores according to age. Similarly, Bostancı and Ekiyor (2015) concluded that age is not an important factor affecting work engagement. In a study conducted by Zincirkıran et al. (2016), it was concluded that young instructors had less perceptions of supervisor support than older Instructors.

There were no significant differences between the instructors' supervisor support and work engagement subscales and total engagement scores according to education status. It has been determined that instructors with a high school degree are more affected by supervisor support than instructors with bachelor and master degree. From this point of view, it can be stated that participants who receive high school degree need more supervisor support than participants with higher education status. In other words, as the level of education of the participants increases, their need for supervisor support decreases. It was concluded in previous studies that the perception of supervisor support did not change according to the level of education (Aksoy, 2017; Zincirkıran, 2016).

It was determined that the vigour subscale scores of the individuals who have postgraduate education are lower than those who have high school, associate and bachelor education. The total score of engagement and dedication subscale was found to be lower for those with postgraduate education than individuals with high school and bachelor education. Rhoades and Eisenberger (2002) reached conclusions that as the level of education increases, the work engagement decreases which supports the findings of this study. Similarly, Güner's (2006) study on teachers found that the higher the level of education is associated with higher engagement to work. In some studies (Bostancı and Ekiyor, 2015; Meriç et al., 2018), it has been concluded that education is not effective in work engagement.

As a result of the analysis, it was determined that the

Table 5. Pearson correlation analysis of the supervisor support scale and commitment scale subscale scores with each other.

Variable	Supervisor support	Vigour	Absorption	Dedication	Engagement (Total)
Supervisor support	1				
Vigour	0.531*	1			
Absorption	0.265*	0.637*	1		
Dedication	0.438*	0.750*	0.651*	1	
Engagement (Total)	0.457*	0.892*	0.873*	0.894*	1

*$p<.01$, N: 254, r: Pearson correlation coefficient.

Table 6. Regression analysis of the subscale scores of the Work Engagement Scale and Supervisor Support Scale.

Variable	B	β	t	p
Constant	27.755	0.168	16.380	0.000
Supervisor support	0.289	0.273	8.162	0.000

$R=0.457$, $R^2=0.209$, $R^2_{adj}=0.206$, $F(1.252)=66.618$, $p<0.01$. Dependent Variable: Engagement (Total).

correlation coefficient showing the power (degree) of the relationship between the binary variables was significant. In other words, it was concluded that there was a high, positively correlation between variables. In the analysis conducted to examine the effect of concepts on each other, regression analysis showed that supervisor support had a statistically significant effect on work engagement. From these results, it was concluded that supervisor support has an effect on work engagement.

In this study, it is revealed that the instructors who receive supervisor support will increase their work engagement. When similar studies are examined, literatures on the sports are very limited. In a study conducted by Gorgulu et al. (2019) on football referees, they found that supervisor support, especially in upper leagues, positively and significantly affected organizational commitment. In a study conducted by İnce (2016) on garment industry workers, organizational support was found to be an effective factor on work engagement and supervisor support. Similarly, Burns's (2016) study on Southern California healthcare company found that organizational support is decisive on work engagement. Meriç et al. (2019) found a positive relationship between the perceived organizational support of teachers and their work engagement. As in other studies conducted on a similar subject, it was concluded in this study conducted on instructors of sports venues, that perceived supervisor support had a positive effect on work engagement.

Based on the research results reached, the suggestions presented can be listed as follows:

(1) Various strategies need to be developed in institutions to increase their job satisfaction and motivation in order to increase the job relations of instructors.
(2) Supervisor support should be provided to the instructors at regular intervals in order to improve their work-life balance.
(3) Various in-service training activities should be organized in order to increase the professional competence of instructors, thus improving the quality of the training provided at the institution.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

REFERENCES

Aksoy C (2017). Çalışanlarda Adalet Ve Yönetici Desteği Algısının Güven Oluşumundaki Rolü: Havacılık Sektöründe Bir Uygulama. Journal of Aviation Cilt:1, Sayı:1.

Albrecht SL (2010). Handbook of Employee Engagement: Perspectives, Issues, Research, and Practice. Edward Elgar Publishing, Northampton, MA. 28.

Banihani M, Lewis P, Syed J (2013). Is work engagement gendered? Gender in Management: An International Journal 28(7): 400-423.

Bostancı H, Ekiyor A (2015). Çalışanların işe adanmasının örgüt içi girişimciliğe etkisinin incelenmesi: Sağlık sektöründe bir uygulama. Uluslararası Sağlık Yönetimi ve Stratejileri Araştırma Dergisi 1(1):37-51.

Burns KL (2016). Perceived Organizational Support and Perceived Supervisor Support as Antecedents of Work Engagement. Master's Theses, San Jose University.

Chirkov VI (2011). Dialectical relationships among human autonomy, the brain, and culture. In Human autonomy in cross-cultural context (pp. 65-91). Springer, Dordrecht.

Eisenberger R, Armeli S, Rexwinkel B, Lynch PD, Rhoades L (2001). Reciprocation of perceived organizational support. Journal of Applied Psychology 86(1):42-56.

Eisenberger R, Glenn P, Malone D, Presson WD (2016). Optimizing Perceived Organizational Support to Enhance Employee Engagement. SHRM-SIOP Science of HR Series.

Fakunmoju S, Woodruff K, Kim HH, LeFevre A, Hong M (2010). Intention to leave a job: The role of individual factors, job tension, and supervisory support. Administration in Social Work 34(4):313-328.

Gagné M, Bhave D (2011). Autonomy in the workplace: An essential ingredient to employee engagement and well-being in every culture. In Human autonomy in cross-cultural context (pp. 163-187).

Glassdoor (2016). https://www.engagementmultiplier.com/blog/why-is-employee-engagement-so-important/ (Çevirimiçi) 18.7.2019.

Goh Z, Ilies R, Wilson KS (2015). Supportive Supervisors Improve Employees'Daily Lives: The Role Supervisors Play in the Impact of Daily Workload on Life Satisfaction via Work-Family Conflict. Journal of Vocational Behavior, pp. 1-27.

Gorgulu R, Adilogullari I, Ulucan H (2019). The Effect of Perceived Managerial Support of Coaches' Organizational Commitment in Professional Football. Journal of Education and Training Studies 7:3.

Guchait P, Paşamehmetoğlu A, Dawson M (2014). Perceived supervisor and co-worker support for error management: Impact on perceived psychological safety and service recovery performance. International Journal of Hospitality Management 41: 28-37.

Gulzar S, Rafiq M (2018). Gender and Work Engagement: A Study of Academic Staff in Higher Education. Arabian Journal of Business and bar A Management Review 8:2.

Güner H (2006). Öğretmenlerin adanmışlık sorunu: İstanbul ili örneğinde bir çalışma. Yayımlanmamış yüksek lisans tezi. Marmara Üniversitesi Eğitim Bilimleri Enstitüsü, İstanbul.

İnce AR (2016). Algılanan Örgütsel Desteğin İşe Adanmışlık Üzerindeki Etkisinde Yönetici Desteğinin Aracılık Rolü, Elektronik Sosyal Bilimler Dergisi Elektronik Sosyal Bilimler Dergisi 15(57): 649-660.

Kahn WA (1990). Psychological conditions of personal engagement and disengagement at work. Academy of Management Journal 33:692-724.

Karasar N (1999). Scientific research methods - Concepts, principles, and techniques. Ankara, Turkey: Nobel.

Latif S, Gulzar A (2011). The Impact Of Organizational And Supervisory Support On Survivors 'Organizational Commitment After Downsizing In Telecom Sector Of Pakistan. International Journal of Economics and Management Sciences 1(5): 55-61.

Meriç E, Çiftci DÖ, Yurtal F (2019). Analysis of the Relationship Between Perceived Organizational Support and Work Engagement. Kastamonu Education Journal 27(1):65-74.

Mulaudzi MC, Takawira N (2015). Examining The Gender Influence On Employees' Work Engagement Within A South African University, Risk Governance and Control: Financial Markets and Institutions 5(2-1):110-119.

Reissová A, Šimsová J, Hášová K (2017). Gender Differences in Employee Engagement. Littera Scripta 10:2.

Rhoades L, Eisenberger R, Armeli S (2001). Affective commitment to the organization: The contribution of perceived organizational support. Journal of Applied Psychology 86(5):825- 836.

Rhoades L, Eisenberger R (2002). Perceived organizational support: A review of the literatüre. Journal of Applied Psychology 87(4):698-714.

Schaufeli WB, Salanova M, González-Romá V, Bakker AB (2002). The Measurement of Engagement and Burnout: A Two Sample Confirmatory Factor Analytic Approach. Journal of Happiness Studies 3:71-92.

Seanberg JE, Mckechnie SP, Ojla MU, James JBS (2011). Control supervisor support and work engagement: A winning combination for workers in hourly jobs. Journal of Vocational Behavior 79:613-624.

Sridevi MS (2010). Employee Engagement: The Key to Improving Performance. International Journal of Business and Management 5(12):90.

Sorenson S (2013). How employee engagement drives growth. Gallup Business Journal 1:1-4.

Stinglhamber F, Vandenberghe C (2003). Organizations and Supervisors as Sources of Support and Targets of Commitment: A Longitudinal Study. Journal of Organizational Behavior 24:251-270.

Turgut T (2011). Çalışmaya Tutkunluk: İş Yükü, Esnek Çalışma Saatleri, Yönetici Desteği ve İş- Aile Çatışması ile İlişkileri. Atatürk Üniversitesi İktisadi ve İdari Bilimler Dergisi 25(3-4):155-179.

Woerkom V, Bakker MAB, Nishii LH (2016). Accumulative job demands and support for strength use: Fine-tuning the job demands-resources model using conservation of resources theory. Journal of Applied Psychology 101(1):141.

Zincirkıran M, Yalçınsoy A, Işık M (2016). Conference: 2nd International Congress on Economics and Business 2016, At Sarejova / Bosnia and Herzegovina.

AJ ACADEMIC JOURNALS
expand your knowledge

Educational Research and Reviews

Full Length Research Paper

Constructing and measuring of the critical success factors of college students' international mobility: Application of Analytic Hierarchy Process (AHP) method

Shu-Min Tsai[1], Yaw-Yih Wang[1]*, Yuan-Duen Lee[2] and Song-Tsan Hong[2]

[1]Central Taiwan University of Science and Technology, Taiwan.
[2]Chang Jung Christian University, Taiwan.

With the increasing popularity and importance of globalization issues, "global mobility" has become one of the important education policies of Taiwan's higher education. Many universities have actively applied "Shuei-Hai-Fei-Yan" and "Shuei-Hai-Shi-Jhu" programs to follow the trend of globalization and arrange outstanding students to participate in overseas training or internships in order to strengthen the cultivation of university students' global mobility. However, under the impact of the trends of "globalization", "lower birth rate" and "digitalization", it is necessary to explore the critical success factors of global mobility of college students. This study takes a teacher and Student University in southern Taiwan as the research object, and applies Analytic Hierarchy Process (AHP) and questionnaires on 11 experts and 174 students. The results of the study found that: (1) the major aspects of factors for teachers using AHP to recognize the critical success factors of university students' international mobility are "environmental adaptability", "international language skills", "challenges and adventures", and "global vision"; the perspectives of college students are "challenging and adventurous", "global vision", "environmental adaptability", and "international language ability"; (2) AHP experts recognize that among the 13 key elements of the secondary aspect of the key success factors for international mobility of college students, their weights are ranked in the top five in sequence: "fluent international language or oral expression ability", "oversea life adaptability", "clear message conveyed in international languages", "overseas psychology adaptability", "adaptability for overseas work/study abroad"; and the perspective of university students is "multicultural tolerance or acceptance", "try or experience new things", "dare to challenge difficult tasks", "cross-cultural thinking perspective", and "without the fear of risks or failure".

Key words: College students, international mobility, T-type talent, critical success factors.

INTRODUCTION

For the past years, under the trend of globalization, Taiwan's contacts with countries around the world have become closer. It is not only limited to the aspect of trade and diplomacy, but more frequent exchanges in education, culture and tourism, such as international sister university schools, regular students' exchanges

and government-provided policies on talent cultivation, according to the Education Statistics Bulletin No. 105 written by the Statistics Office of the Ministry of Education in 2019. The number of foreign students in colleges and universities are 126,997, an increase of 4.6% each year due to the sharp increase in overseas students from New South countries; the largest increase was in overseas students from Vietnam and Indonesia. In 2018, there were 51,970 students from the new southbound countries, accounting for 41% of the total number of overseas students, which has been increasing year by year. The primary three countries of origin are Malaysia, Vietnam and Indonesia, accounting for 80% of the total number of students from the new southbound. The new southbound countries include the ten ASEAN countries (Indonesia, Malaysia, Philippines, Thailand, Singapore, Brunei, Cambodia, Laos, Myanmar and Vietnam), and six countries in South Asia (India, Pakistan, Bangladesh, Sri Lanka, Nepal and Bhutan), New Zealand and Australia.

According to the "Statistics on the number of international students of Taiwan in the world's major countries in 2019" from the International and Cross-strait Education Division of the Ministry of Education on December 4, 2019, 9,957 students studied in Europe; 20,681 students in Oceania; 27,771 students in America; and 12,812 students in Asia, making a total of 71,221 people. On 2 June, 2020, the research collected the "statistics of the number of Taiwan students studying in major countries from 2009 to 2019". Using 2009 as a basis, the ratio of Taiwan students who went to major countries in 2019 will be analyzed as follows: United States (-33.00%), United Kingdom (-37.37%), Australia (+172.32%), Japan (+111.87%), Canada (-2.94%), France (+27.16%), Germany (+190.32%), New Zealand Zeeland (-19.46%) and other countries (+177.88%) in 2018. Therefore, we can find that the ratio of our students studying in Germany in the past ten years shows the highest trend, followed by other countries and Australia; 2,718 in the U.S. (-18.44%), 3,805 in the United Kingdom (-2.31%), 6,056 in Australia (+45.02%), 5,603 in Japan (+78.27%), 3,480 in Canada (+50.00%), 1,200 in France (+36.05%), 1,645 people in Germany (+154.64%), 491 in New Zealand (+4.69%), and 6,561 in other countries (+162.02%). These can be found in the growth of Chinese students studying abroad in other countries in the past ten years. In addition to the highest ratio, Germany is also the country with the second highest growth rate of students studying abroad. The other countries use the number of countries and visas for studying in 2019 as statistics; they include the Americas (38 in Mexico; 52 in Brazil; 8 in Chile), Europe (68 in Hungary; 295 in Switzerland; 623 in the Netherlands; 373 in Italy; 483 in Poland; 166 in Austria; 274 in Czech; 167 in Belgium; 67 in Denmark; 630 in Spain; 291 in Sweden; 122 in Finland; 270 in Russia), Asia (2,055 in South Korea; 55 in India; 305 in Indonesia; 152 in Malaysia; 48 in Turkey) and Africa (19 in South Africa).

In order to enhance the international mobility of young people and expand their international perspectives, the Ministry of Education began to launch the "Learning Overseas Project", "Cherish talents overseas", "Study overseas by dreams" and "New Southbound of Studying overseas by dreams" 2007, allowing schools to apply for scholarships to study abroad or internships in foreign companies to the Ministry of Education. Learning Overseas Project includes four categories: "Study overseas by dreams", "Cherish talents overseas", and "New Southbound of Studying overseas by dreams", of which the Department encourages outstanding college students to go to overseas' colleges and universities. According to Luxu (2019), the main purpose of "Study overseas by dreams" and "New Southbound of Studying overseas by dreams" is to arrange students' internships in overseas' companies and institutions and to send 30,689 students abroad, giving domestic students the opportunity to enhance their international outlook and international mobility. The Ministry of Education also proposed a "Plan for Enhancing Young Students Global Mobility" in 2016, in order to increase the "Global Mobility" of young students, so as to improve students' "communicative ability" , "adaptability", "professional ability" and "practical power "are the core to cultivate young students with an open mindset of an international outlook, an identity that recognizes multiple cultures, and retains implicit capabilities such as resilience (Ministry of Education 2016, Global Mobility Improvement Program for Young Students).

In summary, the major education policies promoted by the Ministry of Education in Taiwan, such as the improvement of foreign language communication skills, international exchange students and short-term study abroad programs, international academic exchanges and internship programs, etc., are all aimed at training students to have "international mobility". In view of the impact of trends such as "globalization", "lower birth rate", and "digitalization", it is a common issue facing countries around the world, and the cultivation of "international mobility" in a goal that countries focus on. However, papers on related topics in Taiwan are very rare, which aroused the interest in this research. The objective is to construct and measure the critical success factors (CSF) of the international mobility of college students through the perspectives of experts and college students. This research aims to achieve the

*Corresponding author. E-mail: yywang1954@ctust.edu.tw.

following main research goals:

(1) Explore the key success factors and relative weights that university students need for international mobility based on the opinions of teachers and experts from a university in Southern Taiwan.
(2) From the perspective of a university student in southern Taiwan, explore the importance of college students to the key success factors required for international mobility.
(3) Suggestions on how to improve the international mobility of college students based on the findings of the study, for the reference of future policy makers and researchers.

LITERATURE REVIEW

International mobility

"International mobility" is a new topic that countries have paid much attention to in recent years. It is also a novel concept. Policy makers and educators have realized that internationalization and globalization cannot be promoted through arranging students abroad for exchange and further studies. However, students' international mobility is the critical point. Global Education Association in Taiwan (GEAT) (Huang, 2017) proposed that "International mobility" is no longer just a noun, a verb, but a "dedicated label" that must be and shall be closely attached on the body.

Chen (2013) believes that the cultivation of international mobility is a process of education. It must be accumulated from the construction of knowledge, the cultivation of attitudes and the experience of participating in interactions to meet people and things in the world. Lin (2016) considers that the historical spectrum of international mobility has changed from the motive of survival in the last century to this century due to the change in life style, so the future international mobility includes survival and life, competition and cooperation, response and foresight, individual and collective action, understanding of care and responsibility, international understanding and national identity.

He Guo-Xu (2016) explained that the cultivation of international mobility emphasizes that students shall establish multicultural thinking, learn to understand, appreciate and respect different cultures and traditions, and avoid creating "cultural blindness". Expanding cultural horizons with international empathy promotes international understanding by respecting international multiculturalism and ethnic groups, and move towards the goal of a harmonious, inclusive, cooperative, and common world village. Scholars' explanations of international mobility let us understand that international mobility is not a slogan of a policy or system, but a process of truly implementing multicultural identity and

strengthening international understanding. In the era of globalization and the rise of global village outlook, those talented in the future should have the ability to respect and appreciate the beauty of different cultures, actively care about global issues and international situations, have multi-cultural values and the mind of world peace, so as to truly implement the core concepts and values of the essence of international mobility.

Wen (2019) mentioned that fostering international mobility also needs to highlight the uniqueness, individual and culture of each place. Cultural exchanges created through international mobility are more meaningful. Guo (2019) mentioned that international mobility, or global mobility, was proposed in response to the era of globalization to measure the survival of mankind in the new century to adapt international changes and high competition. New indicator of survival of the fittest, according to Tang-Yao and Li (2019), talks about global mobility as an integration of multiple abilities. It is necessary for college students to strengthen their global mobility by adopting systematic, comprehensive and holistic training strategies on campus. Demonstration of global mobility can strengthen an individual's ability to grow in cognition, emotion, action, interpersonal, life and environment.

"International mobility" is also a global mobility. It is a concept of integration of multiple abilities and multicultural thinking, which can become an important indicator of international competitiveness and survival ability.

Overview of global international mobility

In response to globalization and international competitiveness, governments of all countries have facilitated the cultivation of international students and focused on the importance of implementation of international education in recent years. Therefore, international mobility has become another type of competition and cooperation among countries in the new century (Guo, 2019). The following is a detailed description of the plans and strategies that countries take to implement global international mobility (Table 1).

International mobile capabilities and indicators

In view of the fact that international mobility is an international policy that countries have emphasized the importance today, it is also an important indicator for cultivating young students with transnational capabilities and international perspectives. Coupled with the indicators and capabilities of the concept of international mobility, there is still no clear definition. This study summarizes the views of scholars in domestic and abroad, and sorts out the important indicators and

Table 1. List of countries' plans and strategies for promoting international mobility from 2010 to 2019.

Country (Time)	Project/Strategy Name	Project/Strategy Name
European Union (2020)	2020 European Union strategy	It is a European Union's economic development plan for the next ten years. The purpose is to strengthen the coordination of economic policies among member states, promote economic growth, expand employment, improve education and training, encourage knowledge innovation, and improve the efficiency of energy resources and sustainable development trend (quoted from MBA Think Tank Encyclopedia, 2020).
Korea (2012)	Korean Move, K-Move	Based on the "Korean Mobile Center" (K-Move for short), establish an overseas support system to cultivate young people to become internationally competitive talents through customized training courses and dedicated mentors, and provide better overseas employment opportunities (Collected by Huang, 2018).
Japan (2013)	"Fly! Study abroad in Japan"	The goal is to cultivate Japanese talents that are "business-oriented and meet the needs of society" and "active the world" to enhance Japanese students' international outlook and national competitiveness. The target is to reach 120,000 international college students or more in Japan and 60,000 high school students by 2020 (quoted from Yang, 2016).
European Union (2014)	(Erasmus+) Plan	A global higher education project for the European Union, a global transnational academic research and education integration project focusing on EU countries. The content mainly includes: Learning Mobility of Individuals, Cooperation for Innovation and the Exchange of Good Practices, Support for Policy Reform (Jean Monnet Activities) and Sport.
USA (2015)	New Generation Study Abroad Plan	Encourage more U.S. college students to study abroad in other countries. The number of international students can reach 600,000 after five years, and offer the priority opportunities to students who haven't studied abroad and disadvantaged students, so as to improve the global competitiveness of American youth (organized by Zhang, 2016).
Australia (2015)	New Colombo Plan, NCP	It is a large-scale international Asian youth study and exchange program for Australia. The purpose is to encourage Australian college students to conduct short-term studies or internships in countries of the Asia-Pacific regions such as the Indian Pacific and social cultures (quoted from Bi, 2016).
Taiwan (2016-2019)	Enhance Young Students' Global Mobility Program	The goal is to train young students that have cross-cultural communication, adaptability, professionalism and practical ability in order to achieve the goal of "global citizens and talents in the world" or freedom to move around the world and global arrangement (Enhance young students' global mobility plan 2016).
Taiwan (2007-2018)	Study Abroad Plan	The purpose is to enhance the international mobility and international vision of young people. The main contents include "learn overseas" that selects outstanding university students to study abroad, "study overseas by dreams" for professional internships, and "cherish talents overseas" that are exclusive to the outstanding students of three projects, and added the "New Southbound Learning Sea Dreaming Project" in 2017, arranging students to New Southbound for workplace internships, and helping students build dreams through overseas study internships (Global Information from The Ministry of Education Online (2019).

Source: Collection of this study.

capabilities of international mobility. Table 2 provides details, as a reference for the design of the AHP expert questionnaire for the key success factors of international mobility in this research.

Table 2. List of important indicators and capabilities of international mobile forces for domestic and foreign scholars from 2013 to 2019.

Author	Time	Important indicators and capabilities of international mobility
Kumpikait and Duoba	2013	Three core competencies are cultural power (cultural awareness and expression), civic power (social and civic abilities), and professional power (professional knowledge and skills).
Zhuang	2014	Professional ability, language ability, and adaptability.
Chen	2014	Professional ability with international vision, international communication, as English the core (including foreign language fluency), cross-cultural thinking and integration ability, life adaptability, wandering.
Chen	2015	Children ability in 21st Century: Critical thinking, problem solving, innovation and creativity, interpersonal communication, communication expression, career, leadership responsibility, global awareness, financial entrepreneurship, digital ability, citizenship, health and environmental protection (Global Views Monthly, issue 350).
Xiao	2015	T-shaped skills were first proposed by Dorothy Barton, a professor at Harvard Business School, in 1995. In a rapid changing business environment, what companies really need is T-shaped with both professional and cross-disciplinary knowledge talent. This coincides with the Finnish National Board of Education (FNBE) defining seven "transversal competences" for future needs, including: 1. Ability to think and learn; 2. Ability to interact and express; 3. Self-care, daily living skills and the ability to protect their own security; 4. Multi-literacy; 5. Digital application ability. 6. Ability to work, live and entrepreneurship. 7. Participation, influence, and responsibility for a sustainable future (World Magazine, Issue 586).
Liang	2015	The US Department of Education has formulated the "International Education Policy 2012-2016"to strengthen American students' global capabilities. Among the 21st century world citizens, it is mentioned that they shall have four important abilities: 1. Investigate the world; 2. Recognize perspectives; 3. Communicate ideas; 4. Take action.
Børing et al.	2015	Analysis of comprehensive survey data from the mobile experience of researchers from EU universities and non-university research institutes found that research visits are the most common form of international mobility, but employment migration (transnational changes in employers) is unexpectedly widespread. International student mobility and corporate internship experience seem to be good predictors of subsequent mobility in a research career.
Lee	2017	According to the Global Mobility Plan of the Ministry of Education through empirical analysis, the pre-factors affecting the global mobility of college students were found to be professional competency, language communication, international adaptability, and innovative solutions.
Li and Tang-Yao	2019	Global mobility: GLOBAL (G: global citizenship), language (L: language ability), occupation (O: occupation), befriend (B: befriend), acculturation (A: acculturation), lifestyle (L: lifestyle).
Wen	2019	Summarize the contents of international mobility, including global citizenship, language ability, professional ability, life adaptability, interpersonal social ability, multicultural understanding and tolerance, teamwork, innovation and problem solving, critical thinking ability, lifelong learning ability, interdisciplinary learning ability, autonomous learning ability, etc.

Source: Collected by Guo (2019) Li and Tang-Yao (2019).

Table 3. List of key indicators of key success factors for international mobility in this research.

Indicator of competency	Scholars reference (Time)
Verbal communication	Zhuang (2014); Chen (2014); Chen (2015); Xiao (2015); Liang (2015); Lee (2017); Lee and Tang-Yao (2019); Wen (2019)
Environmental adaptability	Zhuang (2014); Chen (2014); Chen (2015); Xiao (2015); Liang (2015); Lee (2017); Lee and Tang-Yao (2019); Wen (2019)
Global perspective	Kumpikait and Duoba (2013); Chen (2014); Chen (2015); Lee and Tang-Yao (2019)
Challenge and adventure	Chen (2015); Liang (2015); Lee (2017); Wen (2019)

This study found that scholars have identified "professional competence" as a necessary and important capacity in the identification of international mobility indicators or abilities by scholars (Kumpikaitė and Duoba, 2013; Zhuang, 2014; Chen, 2014; Lee, 2017; Wen, 2019). The opinions of scholars, including the index capabilities of the four major items, are detailed in Table 3.

This study applies the aforementioned four abilities as the main facet indicators for college students to enhance their international mobility. The ability to communicate, express language and adapt to the environment have been mentioned by many scholars, and the global vision is to combine cross-cultural and interdisciplinary thinking, and to empathize with cross-cultural people and matters. The basic concept is international movement necessary. Challenges and adventures are formulated in response to current trends, encouraging young college students in Taiwan to step beyond their own comfort zone of limitations, explore more and experience new things, and actively seek exchange or study abroad in order to increase their international mobility.

Critical success factors (CSF)

CSF first started with the theory of organizational economics, and to be applied in the field of management decision-making, focusing on the analysis of management strategies such as core competitiveness, value chain analysis, and enterprise management processes. Now it has become strategic management and business management, so the important concepts in this paper are widely used. The following are the definitions of key success factors in domestic and foreign countries.

Rockart (1979) proposed critical success factors for improving the success of business competition and operational performances; operators must meet the critical success factors. Leidecker and Bruno (1984) believed that the critical success factors are certain characteristic conditions and variables. If they could be

supported, maintained, or managed properly, they may have a significant impact on the success of companies in certain industries. Kenichi and Huang (1985) considered the critical success factors are one of the ways for strategists to find strategic advantages. The critical success factors were analyzed by using the industrial structure, and resources that were concentrated in specific areas to obtain industrial competitive advantages. Lee (2019) mentioned that the key success factors are important factors that must be obtained for the success of an enterprise's business operations, and that certain conditions or other relevant fields must be mastered in order to achieve success and competitive advantage, and gain an advantageous position. Besides, Hofer and Schendal (1978) pointed out that the search for key success factors can be carried out in the following five steps: First, confirm the factors related to the competitive environment of the industry; Second, each factor gives different weights according to their relative importance; third, give different weights according to the relative importance of the industry; fourth, calculate the weighted score of each factor; fifth, each factor should be prioritized in the actual comparison.

According to the definitions of the above key success factors, as the key success factors (KSF) for international mobility of college students are defined in this research, college students possess a certain ability and professional; they can master several of them to create an advantage in the world and stand out from talents around the world.

Analytic hierarchy process and expert choice system

The Analytic Hierarchy Process (AHP) was developed by Thomas L. Saaty (Professor of the University of Pittsburgh) in 1971. It is mainly applied in uncertain situations and decision problems with a majority of evaluation criteria. In terms of the experience of Saaty (1980), Analytic Hierarchy Process method can be applied to the decision-making problem, including setting priorities, generating a set of alternatives, choosing the

Table 4. AHP pairwise comparison matrix.

Evaluation scale	Definition	Description
1	Equal Importance	Contributions of pairwise comparisons are equally importance (equal)
3	Weak Importance	Experience and judgment are slightly inclined to a certain scheme favorite (somewhat stronger)
5	Essential Importance	Experience and judgment are strongly inclined to a certain scheme favorite (very strong)
7	Very Strong Importance	Actually shows very strong incline to a certain scheme favorite (absolute strong)
9	Absolute Importance	There is enough evidence to definitely prefer a certain scheme (extremely strong)
2,4,6,8	Intermediate values	As a compromise is needed

Source: Saaty (1990).

best policy alternative, determining requirements, making decision using benefits and costs, allocating resources, predicting outcomes-risk assessment, measuring performance), designing a system, ensuring system stability, optimizing, planning, and conflict resolution.

Tzeng (2019) summarized Chu's (2009) AHP theory and implementation paper, and proposed that the implementation steps of the hierarchical procedure method can be included in 9 steps:

(1) Determining problem assessment: Expand the problem as much as possible and include the possible causes of the problem, establish a planning group, and define the scope of the problems.
(2) List the evaluation elements: List the factors that affect the evaluation individually. At this time, the order and relevance are not considered.
(3) Establishing the hierarchy: The assessment elements are divided into levels according to the degree of interrelationship and independence. According to the suggestion of Saaty (1980), each element shall not exceed 7.
(4) Questionnaire design and survey: Each level of elements is evaluated in pairs under a certain element of the previous level as an evaluation benchmark. Design a 1-9 scale of questionnaire for each pair of elements. According to the suggestion of Saaty (1990), the scale of item can be divided into 9 scales, as shown in Table 4.
(5) Establishing a pairwise comparison matrix: Based on the results obtained from the questionnaire survey, a pairwise comparison matrix is established. There are N (N-1) / 2 combinations in the form of pairwise.
(6) Calculate the advantage vector and the maximum eigenvalue: Use the eigenvalue solution in numerical analysis to obtain the eigenvector, and then calculate the maximum eigenvalue based on it.
(7) Consistency check: The values in the comparison matrix are compared in pairs, which is the judgment value made by the decision maker based on subjectivity. Therefore, the values need to be checked for consistency and referred as a consistency index (CI) to be prepared to check the decision maker answers whether the pairwise matrix formed is a consistency matrix. If the result of the assessment fails, the questionnaire is considered invalid. When C.I.=0, the judgment is completely consistent, C.I.> 0 is inconsistent, and C.I.≤0.1 is tolerable bias.
(8) Selection of alternatives: If the entire hierarchy passed the consistency check, the priority vector of the alternatives can be obtained. Finally, the weighted average method is used to obtain the weighted comprehensive evaluation points to determine the priority of the alternatives.
(9) Analysis and review: Make comprehensive judgments and recommendations based on the priority obtained.

Mao and Chen (2010) mentioned that some inconveniences and limitations will arise in the practical application of the analytic hierarchy process (such as the increase of related factors in more complex decision-making problems, the increase of the hierarchical structure, etc.). It makes the calculation process of AHP quite cumbersome, so Professor Satty and Professor Forman of George Washington University and others developed the first expert decision-making system, named Expert Choice, with Decision Support Software (DSS) in the United States. It was published on E.C. l984, 1985, 1986, 2000, and in other versions. The development and application of AHP's Expert Choice System improves the ease of use of AHP operations and effectively promotes the promotion and application of AHP. Li (2018) and Zhang and Ding (2016) mentioned that the Expert Choice software has a built-in consistency verification function, and its consistency verification is based on inconsistency ration index and overall inconsistency ration index; it cannot be greater than 0.1 to meet the requirements of logical consistency.

RESEARCH METHODS

Research Framework

The detailed structure of this research is as shown in Figure 1. There are four major factors in the main facet and 13 factors in the secondary facet.
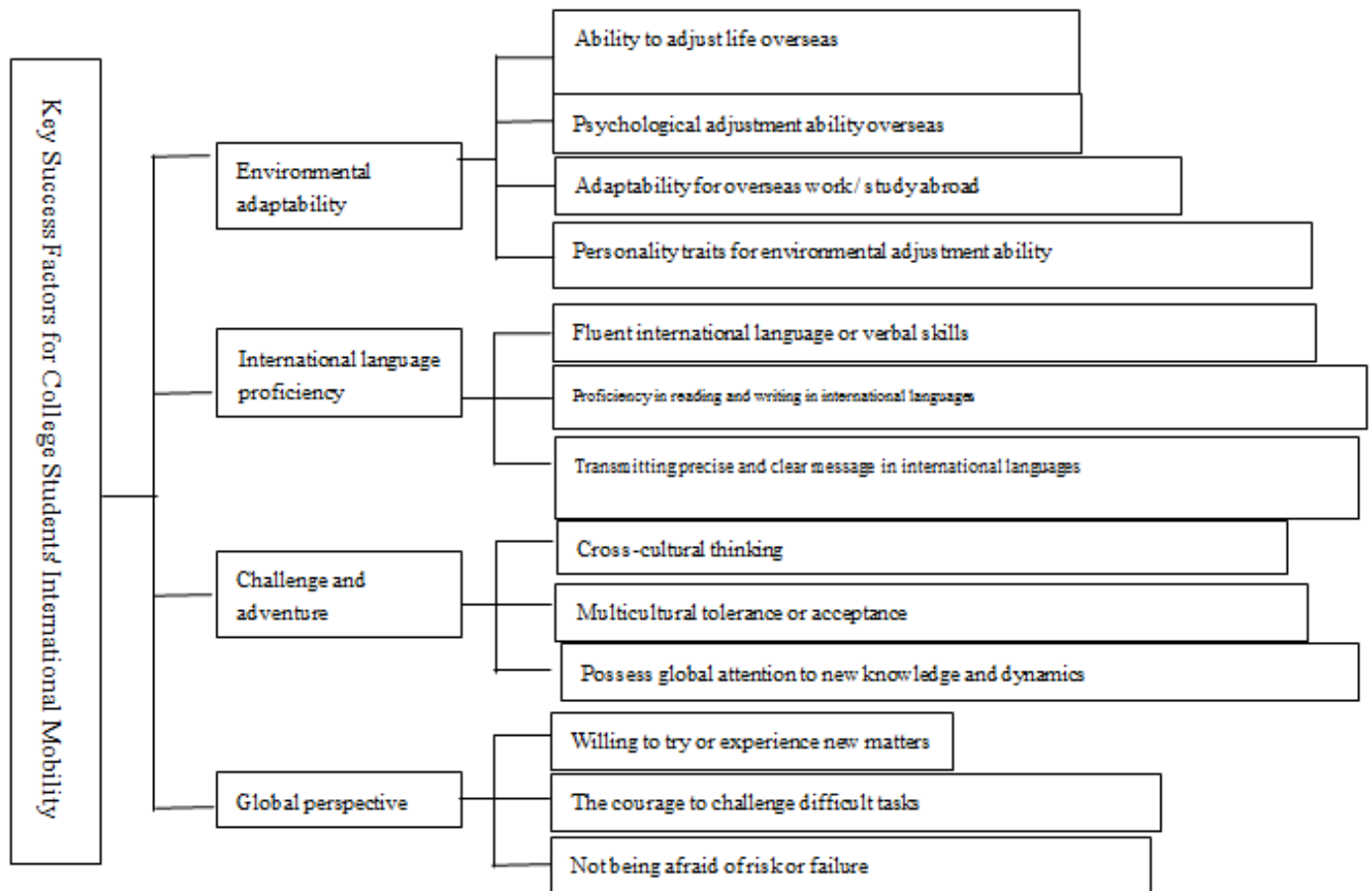
Figure 1. Hierarchical architecture of key success factors for international mobility of college students.

Research objects and questionnaire distribution

Teachers and students of a university in southern Taiwan were the research participants; analytic hierarchy process (AHP) expert questionnaires were given to teachers who have good understanding of international mobility. A total of 17 questionnaires were distributed and 11 were actually recovered. The detailed information of AHP expert is shown in Table 5. For the students, intentional sampling was used to design a questionnaire on a Likert six-point scale. A total of 200 questionnaires were distributed. After deducting incomplete questionnaires, the actual number of questionnaires was 174. The rate of recovery was 87%.

Research data processing and analysis

This study uses Expert Choice 2000 expert decision-making software to perform expert AHP questionnaire data processing and analysis to establish relative weights between indicators. After the questionnaire is recovered, the assessment results of experts and scholars were entered in sequence, and the software system was used to test the consistency of the built-in functions. We checked whether the inconsistency ration index and overall inconsistency ration index meet less than 0.1 to meet the requirements of logical consistency. After the consistency test, according to the assessment of experts and scholars, the weight distribution of the overall indicators, the weight distribution and ranking of the

indicators at each level were determined. In this study, SPSS version 22.0 was used for descriptive statistics in the processing and analysis of college student questionnaire data. Finally, the importance of the weight value of the key success factors of the international mobility of college students in the expert AHP questionnaire is compared with the average number of college students' knowledge of each factor to understand their differences.

RESULTS AND DISCUSSION

AHP questionnaire analysis

This study uses the built-in function of Expert Choice 2000 to test the consistency. The inconsistency ration index of each level is less than 0.1, and the overall inconsistency ration index=0.05 is also less than 0.1. Through the consistency test, we further analyze the weight values between factors at all levels.

AHP analysis of main facets

As shown in Table 6, the research results show that the

Table 5. List of AHP experts in this research.

Expert Name	Service Unit	Expert Name	Service Unit
Wang, Zheng-Hua	Associate Professor, Department of Business Management, University of Southern Taiwan	Zhang, Rui-Qi	Assistant Professor, Department of International Business, University of Southern Taiwan
Wang, Qiong-Yao	Assistant Professor, Foreign Language Center, a university in southern Taiwan (Current position: Assistant Professor, Foreign Language Center, Zhongtai University of Science and Technology)	Tzeng, Yan-Juan	Associate Professor, Department of Tourism and Catering Management, University of Southern Taiwan
Lee, Min-Yu	Assistant Professor, Department of International Business, University of Southern Taiwan	Zheng, Sheng-Shi	Associate Professor, Department of Business Management, University of Southern Taiwan
Lee, Hui-Zhu	Assistant Professor, Department of Shipping Management, University of Southern Taiwan	Lai, Xiu-Qing	Professor, Department of Accounting and Information Science, Southern Taiwan University
Lin, Xiu-Juan	Associate Professor, Department of Business Management, University of Southern Taiwan	Lan, Yue-Su	Associate Professor, Department of Translation Studies, Southern Taiwan University
Xu, Yan-Ping	Associate Professor, Department of Tourism and Catering Management, University of Southern Taiwan		

Table 6. Weight distribution of key success factors for international mobility of college students.

Parameter	Four major facets	Weight	Sequence
Key success factors for college students' international mobility	Environmental adaptability	0.374	1
	International language skills	0.340	2
	Challenges and adventures	0.144	3
	Global perspective	0.142	4

four major facets of "Key Success Factors for International Mobility" are sorted in order according to the weights identified by experts respectively: (1) Environmental adaptability (0.374); (2) International language skills (0.34); (3) Challenges and adventures (0.144); (4) Global perspective (0.142).

The weight of "environmental adaptability" of the main facet is 0.374, which is slightly higher than the other main facets. This indicates that the experts believe the "environmental adaptability" is the most significant key success factor for international mobility of college students. In the era of globalization, there are more and more opportunities for cross-border exchanges, coupled with the development of science and technology, and the frequent flow of talents between countries. In the future, the youth employment market will not be confined in Taiwan, but will aim at global development. If you can

integrate into the foreign environment earlier and adapt well, you will have a better competitive advantage.

AHP analysis of the minor facet

Under the four major facets, this study develops three to four factors of the minor facet, and a total of thirteen factor indicators are used for further analysis. In the analysis, their respective weights compared to the facet (1) the weights of key success factors related to international mobility of college students (2) are presented.

Environmental adaptability

It is found in Table 7 that the environmental adaptation

Table 7. Table of weight allocation for environmental adaptation capabilities.

Minor facets	Title	Weight(1)/Facets sequence	Weight(2)/Overall sequence
Environmental adaptability	Ability to adjust life overseas	0.347 / 1	0.130 / 2
	Psychological adjustment ability overseas	0.257 / 2	0.096 / 4
	Adaptability for overseas work / study abroad	0.21 / 3	0.079 / 5
	Personality traits for environmental adjustment ability	0.186 / 4	0.69 / 7

Table 8. International Language Proficiency Weighting table.

Minor facets	Title	Weight(1)/Facets sequence	Weight(2)/Overall sequence
International language proficiency	Fluent international language or verbal skills	0.523 / 1	0.178 / 1
	Proficiency in reading and writing in international languages	0.123 / 3	0.042 / 10
	Precise and clear message in international languages	0.355 / 2	0.121 / 3

capabilities experts believe the "overseas life adjustment capability" occupies a larger proportion compared to the key success factors for international mobility of college students, it ranks second. It is inferred that the main reason may be as college students conduct international communication or exchange, the first is that they must be able to adapt to local life issues such as diet or culture. When college students' ability to adapt to overseas life is not good, it may cause them to encounter a lot of trouble in the overall process and also reduce the quality of their work or study.

International language proficiency

It is found from Table 8 international language skills, experts believe that "fluent international language or oral expression ability" occupies most of the proportion compared to the key success factors of international mobility of college students, it is ranked first. There is a small gap between the importance of the former's ability to adapt to overseas life. It is inferred that the main reason may be that in international communication or exchange, verbal communication and expression skills are indispensable. As college students' international language ability is not fluent or oral expression ability is not good, it is easy to cause misunderstanding or conflict in various aspects, or it is not easy to cooperate with others. This results in the effectiveness of students' international mobility.

Global perspective

From Table 9, it is found that in the perspective of globalization, experts believe that "possessing a

multicultural tolerance or acceptance" is obviously important. It ranks sixth at the weight of the key success factors for international mobility of university students; however, as for international mobility or exchanging, it is a necessary ability. The main reason is that when college students go abroad, they need to adapt life and the pressure of foreign language communication, how to fit in multiculturalism of foreign countries and accept or tolerate and adapt to cultures of another country is regarded as a very important key point. Embedding foreign cultures in life will help to adapt to the cultures of other countries quickly and enhance personal social relationships.

Challenges and adventures

From Table 10, it is found that in the challenge and adventures, "do not be afraid to face risks or failures" occupies a larger proportion. Compared with the weight of the key success factors of international mobility of college students, it ranks at eighth, which is medium importance. However, its importance cannot be ignored. When college students are alone abroad, they may encounter many problems, such as cultural differences or communication barriers. Not each problem can be solved easily. At this time, that the ability of not being afraid to face risks or failures is considered as very important. As a person possesses this ability, it is easier to deal with the various problems that come in with positive and optimistic attitudes, so that it can help college students adapt better abroad.

Questionnaire analysis for college students

This study conducted an average analysis of the

Table 9. Globalization perspective weight allocation table.

Minor facets	Title	Weight(1)/Facets sequence	Weight(2)/Overall sequence
Global perspective	Possess global attention to new knowledge and dynamics	0.225 / 3	0.032 / 12
	Possess cross-cultural thinking	0.239 / 2	0.034 / 11
	Possess Multicultural tolerance or acceptance	0.536 / 1	0.076 / 6

Table 10. Challenges and risky weight allocation table.

Minor facets	Title	Weight(1)/Facets sequence	Weight(2)/Overall sequence
Challenges and risky	Willing to try or experience new things	0.237 / 3	0.034 / 11
	The courage to challenge difficult tasks	0.323 / 2	0.046 / 9
	Not being afraid of risk or failure	0.440 / 1	0.063 / 8

questionnaires for recovering. The results of the study are shown in Table 11. Among the four major facets, college students in southern Taiwan scored the highest in challenging and adventurous (4.55), followed by the global vision (4.50), and the last two are environmental adaptability (4.06) and international language ability (3.37). From the result, it can be found that the perspective of a university student in southern Taiwan, the key to the success of students' recognition of international mobility is the challenge, adventurousness and global vision. International language skills are relatively less important. The reason may be that the undergraduates trained by Taiwan education are weaker in challenge and adventurous spirit than in other countries. If they can be improved in advance, they will stimulate the international mobility of college students and face language expression in foreign environments and will naturally overcome to adapt it.

In the analysis of the average of each item, the average score of the opinion of college students was "possessing multicultural tolerance or acceptance", followed by the average score of "willing to try or experience new things", and "transmitting precise and clear messages in international languages" is the lowest average score. It is inferred that the main reason may be that Taiwan college students have been under the over-protection of their parents since childhood, and the lack of internationalization in overall of Taiwan environment has made college students' vision and intentions weak.

Based on the above research conclusions, this study found that teachers' AHP expert views on the key success factors of university students' international mobility are different from those of college students. The key success factors of their cognition are ranked differently, which is worthy of research by future researchers. Besides, the discussions of most scholars and experts can be consistent with the analysis results of

the AHP expert questionnaire of this research teacher through the exploration of the literature. As shown in Table 3, more scholars have proposed the "adaptability of the environment" and "international language ability".

However, Wen (2019) pointed out from different viewpoints that "language is no longer the main key of international mobility, and culture is the priority". The language indicated in the article is not key to the "critical important" of international mobility, and the thinking is even more critical. It is important to cultivate students' international mobility in advance and develop students with international awareness and humanistic literacy; students must continue to strengthen their professional knowledge and skills at each stage of learning, and develop unique skills. Finally, it is meant to improve students' English language skills. This argument and research are verified in the questionnaire analysis of college students, which is in line with the viewpoints of college students.

Conclusion

Trying more or experiencing new things will help college students' international mobility. Also due to the current popularity of translation software, it is of relatively low importance for college students to know how to transmit precise and clear messages in international languages in terms of international mobility.

(1) According to the results of analysis by AHP experts, the key success factors of international mobility of college students are in the main facets, and their weights are in sequence of "environmental adaptability", "international language skills", "challenges and adventures", and "global vision".
(2) Based on the recognition of AHP experts, the weight

Table 11. List of the average of key success factors for international mobility of college students.

Parameter	Facets	Title	Average of facets	Average	Sequence
Key success factors for college students' international Mobility	International language proficiency	Fluent international language or verbal skills	3.37	3.45	11
		Proficiency in reading and writing in international languages		3.35	12
		Transmitting precise and clear message in international languages		3.32	13
	Environmental adaptability	Ability to adjust life overseas	4.06	4.02	9
		Psychological adjustment ability overseas		4.07	8
		Adaptability for overseas work / study abroad		3.87	10
		Personality traits for environmental adjustment ability		4.29	6
	Global perspective	Possess global attention to new knowledge and dynamics	4.50	4.18	7
		Cross-cultural thinking		4.43	4
		Multicultural tolerance or acceptance		4.88	1
	Challenge and adventure	Willing to try or experience new matters	4.55	4.73	2
		The courage to challenge difficult tasks		4.54	3
		Not being afraid of risk or failure		4.38	5

score of "adjustment ability for overseas life" is the highest among the main aspects of environmental adaptability, and the weight score of "personality traits with environmental adjustment" is the lowest. As for the main aspects of international language proficiency, the "fluent international language or oral expression ability" has the highest weight score, and the "skilled international language reading and writing ability" has the lowest weight score. In the main aspects of challenge and adventure, the weight score of "possess multicultural tolerance or acceptance" is the highest, and "possess global new knowledge dynamics" is the lowest. In the main aspects of the global vision, the weight score of "not being afraid to face risk or failure" is the highest, and the weight score of "willing to try or experience new matters" is the lowest.
(3) According to the recognition of AHP experts, among the 13 index elements in the minor facets of the key success factors for international

mobility of college students, the top five are ranked in sequence of weight, which is "fluent international language or oral expression ability", "ability to adapt overseas life", "transmitting precise and clear message in international language", "ability to adjust overseas", "ability to work/study abroad".
(4) According to the recognition of college students, the key success factors of the international mobility of college students are in the main facets, and their importance is in the sequence of "challenge and adventure", "global vision", "environmental adaptability" and "international language ability".
(5) According to the recognition of college students, among the 13 index elements in the minor facets of the key success factors of international mobility of college students, the top five are ranked in the sequence of importance: "multicultural tolerance or acceptance", "willing to try or experience new matters", "dare to challenge

difficult tasks", "possess a cross-cultural thinking perspective", "not being afraid of facing risks or failure".
To sum up, the practical and theoretical contribution of this study is to construct a hierarchical structure of the key success factors of international mobility for policy makers and researchers through literature analysis and the perspective of teachers and students of Chang JungChristian University. In addition, through the practical analysis results of this study, we know that there is a significant difference between teachers' and students' views on the key success factors of international mobility of college students. This result is thought-provoking. It also makes us understand that there may be recessive relationship among policy makers (government units), facilitators (teachers), and practitioners (college students) of international mobility of college students. This brings new thinking to the management practice, which needs to be further

explored by subsequent researchers.

Suggestions

Government agencies and colleges

(1) Based on the literature analysis, it is known that international mobility is one of the important policies that governments around the world focus on. Therefore, it is suggested that our government shall continue to organize various related plans to enhance the global mobility of young students, so that college students who have not gone abroad to have the opportunity to practice and enhance international mobility.
(2) From the analysis of experts' perspectives and university students' perspectives, it is found that the two factors of "possess multicultural or acceptance" and "no fear of facing risks or failures" are relatively important. Therefore, it is recommended that school units can strengthen international cooperation and exchanges, organize more international exchange visits on the campus or set up international multicultural community activities, and can also apply strategic and challenging methods of cooperation in curriculum design to enable students expand their international perspective and create own world.
(3) The importance of viewpoint "environmental adaptability" and "international language skills" is proposed by experts; therefore, it is suggested that schools can promote overseas internship programs and provide relevant language skills training courses regularly to enhance students' international mobility and increase workplace employment rates.

College students

(1) Plan the four years of college period appropriately and have the experience to be apprenticeships, study abroad or experiment, and implement the practice of international mobility.
(2) Increase the ability of self-internationalization from time to time, such as more participation in international volunteer activities, international community activities, so that they have a multicultural tolerance, acceptance and thinking.
(3) Cultivate yourself to have the ability to challenge, be willing to try or experience new matters, and not to be afraid of failure. You will often learn by yourself and keep your curiosity about things. This will increase your international mobility and improve your competitive advantage.

Follow-up research

Due to the limitation of manpower, material, time and financial strength, this study still has some deficiencies. Therefore, suggestions for the follow-up researchers are as follows:

(1) As far as the research object is concerned: This study only takes the teachers and students of Chang Jung Christian University as the research object, and the inference of the research results may be limited. It is suggested that the follow-up researchers can expand to all universities in Taiwan, and analyze and compare them. They can also include college students from different countries as research objects, make cross-border comparison, or join the perspective of directors of overseas internship enterprises to explore, which will increase the depth and scope of relevant research.
(2) As far as the research topic is concerned, this study mainly focuses on the construction and measurement of the key success factors of college students' international mobility. It is suggested that follow-up researchers can add the dimensions of personality traits or employability to explore their relevance with college students' international mobility, so as to improve their research contribution.
(3) In terms of research methods, this study focuses on quantitative research, and suggests that follow-up researchers can join qualitative interviews to enrich and deepen the research content.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

REFERENCES

Bi Z (2016). Australia Government "New Colombo Plan, NCP" discussion. Monthly Journal of Educational Research 271:42-52.
Børing P, Flanagan K, Gagliardi D, Kaloudis A, Karakasidou A (2015). International mobility: Findings from a survey of researchers in the EU. Science and Public Policy 42(6): 811-826.
Chen C (2013). The next wave of national competitiveness: International mobility and cross-cultural thinking. Teacher World 183:14-20.
Chen C (2014). The next wave of national competitiveness: International mobility and cross-cultural thinking. English Career 44:22-30.
Chen F (2015). The knowledge you learn will be fun to learn (10 lessons to develop children's 12 future abilities). Vision Magazine, 350 issues. Retrieved Dec. 20, 2019 from https://www.gvm.com.tw/article/20740
Chu Z (2009). Analytic Hierarchy Process Theory (AHP) & Practice. Retrieved June 16, 2020 from ftp://mail.im.tku.edu.tw/Prof_Shyur/AHP/AHP2009.pdf
European Union (2014). Introduction to New Erasmus. Retrieved Feb. 20, 2019 from https://ciae2.kmu.edu.tw/attachments/article/266/%E6%AD%90%E7%9B%9F%E3%80%8C%E6%96%B0%E4%BC%8A%E6%8B%89%E6%96%AF%E8%8E%AB%E6%96%AF%E8%A8%88%E7%95%AB%E3%80%8D(Erasmus+)%E7%B0%A1%E4%BB%8B.pdf Education Group of the European Union and the Representative.
Guo S (2019). International. Move. Education. Taiwan Education Review Monthly 8(6):23-26.
He, Guo-Xu (2016). From the multi-cultural thinking to talk about the cultivation of international mobility. School Administration Bimonthly

102:65-78.

Hofer CW, Schendel D (1978). Strategy formulation: Analytical concepts. West, St. Paul, MN.

Huang K (2017). Take the international mobile force as a body label and take it away! /Three professionals tell you to knock on the door of the international workplace. English Career, 59. Retrieved June 16, 2020 from https://www.englishcareer.com.tw/english-career/59/%e6%8a%8a%e5%9c%8b%e9%9a%9b%e7%a7%bb%e5%8b%95%e5%8a%9b%e7%95%b6%e4%bd%9c%e8%ba%ab%e9%ab%94%e6%a8%99%e7%b1%a4%e5%b8%b6%e8%91%97%e8%b5%b0%ef%bc%81-%e4%b8%89%e4%bd%8d%e5%b0%88%e6%a5%ad%e5%91%8a/

Huang Y (2018). First explore Europe, America, Australia, Japan and South Korea to enhance the global mobility of young people. Taiwan Education Review Monthly 7(8):90-95.

International and Cross-strait Education Division of the Ministry of Education in Taiwan (2009-2019). Annual Number of Chinese students studying abroad in major countries Statistics Business Statistics / Study abroad. Retrieved June.15, 2020 fromhttps://depart.moe.edu.tw/ED2500/News_Content.aspx?n=2D25F01E87D6EE17&sms=4061A6357922F45A&s=A46653AE07C18A2B

International and Cross-strait Education Division of the Ministry of Education. Statistics on the number of international students in China in the world's major countries in (2019). Retrieved June 15, 2020 from https://depart.moe.edu.tw/ED2500/News_Content.aspx?n=2D25F01E87D6EE17&sms=4061A6357922F45A&s=40189E41FE9CF7A4

Kenichi O, Huang H (1985). Strategist's Smart, Long River Press.

Kumpikaitė V, Duoba K (2013).Developing core competencies: Student mobility case. Procedia - Social and Behavioral Sciences 99:828-834.

Lee D (2019). Research on key success factors of Taiwan Investment Corporation (unpublished Master's thesis).Soochow University, Taipei City.

Lee W (2017). The related analysis of the factors affecting the international mobility force of Taiwan university students. Global in Localization and International Mobility: International Symposium on Trends and Challenges in International Talent Cultivation in the 21st Century. Nantou.

Leidecker JK, Bruno A V (1984). Identifying and using critical success factors. Long Range Planning 17(1):23-32.

Li S, Tang Y (2019). Analysis of the global mobile power cultivation strategy of college students - based on the GLOBAL model. Taiwan Education Review Monthly 8(1):143-150.

Liang Y (2015). U.S International Education Policy. National Education Information E-Newsletter，81. Retrieved Dec. 20, 2019 from http://fepaper.naer.edu.tw/index.php?edm_no=81&content_no=4553

Lin M (2016). The spectrum of international mobility: pragmatic and wise international mobility. Monthly Journal of Educational Research 271:4-11.

Education Statistics Bulletin–No. 105 (2019). Overview of foreign students at Colleges and Universities in Taiwan, 2018. Retrieved Dec. 20, 2019 from http://stats.moe.gov.tw/files/brief/107%E5%B9%B4%E5%A4%A7%E5%B0%88%E6%A0%A1%E9%99%A2%E5%A2%83%E5%A4%96%E5%AD%B8%E7%94%9F%E6%A6%82%E6%B3%81.pdf

Luxu K (2019). Study Abroad Plan - More than 30,000 students have gone abroad for 11 years - overseas study internships are no longer out of reach。Retrieved Dec. 20, 2019 from Focus Newshttps://www.wealth.com.tw/home/articles/19281

Mao D, Chen J (2010). Research on Decision Method of Construction Waste Classification and Recycling Scheme Based on AHP. Journal of Engineering Management 4:378-382.

MBA Think Tank Encyclopedia (2020). European Union strategy。Retrieved June 16, 2020 from https://wiki.mbalib.com/zh-tw/%E6%AC%A7%E7%9B%9F2020%E6%88%98%E7%95%A5

Ministry of Education (2016). Global Mobility Initiative for Young Students. Retrieved June 16, 2020 from http://www.mths.tc.edu.tw/files_web/20160528083141.pdf

Rockart JF (1979). Chief executives define their own data needs. Harvard business review 57(2): 81-93.

Saaty TL (1980). The Analytic Hierarchy Process. McGraw-Hill, New York.

Saaty TL (1990). How to make a decision: The Analytic Hierarchy Process. European Journal of Operational Research 48(1): 9-26.

Tang-Yao, Li, Shi-Ming (2019). How to strengthen the global mobility of college students. Taiwan Education Review Monthly 8(6):18-22. Retrieved June 16, 2020 from http://www.ater.org.tw/journal/article/8-6/topic/04.pdf

The Ministry of Education Online (2019). Study Abroad Plan of the Ministry of Education，helping youths build dreams through overseas study internships。Retrieved Feb. 20, 2019 fromhttps://www.edu.tw/News_Content.aspx?n=9E7AC85F1954DDA8&s=3E194B1D7DE01D68

Tzeng M (2019). Research on the key success factors of the supervision efficiency of financial science and technology in China (Unpublished Master's Thesis).National Taipei University of Science and Technology, Taipei City.

Wen M (2019). The key to touching international mobility: Reflection on the experience of studying abroad. Taiwan Education Review Monthly 8(6):1-5.

Xiao F (2015). Are our children strong enough? World Magazine, P. 586. Retrieved Dec. 20, 2019 from https://www.cw.com.tw/article/article.action?id=5072671

Yang W (2016). Japan's Discussion on Global Mobility - with "Fly! The Study abroad in Japan project, for example. Monthly Journal of Educational Research 271:53-69.

Zhang S, Ding Y (2016). Research on the construction of core competence indicators of national elementary school teachers. Journal of Education, Hsinchu University of Education 33(1):1-38.

Zhang X (2016). International Mobility: America New Generation Study Abroad）Plan. Monthly Education and Research 271:32-41.

Zhuang K (2014). Cultivation of International Mobility. English Career P. 45. Retrieved June 16, 2020 from https://www.englishcareer.com.tw/english-career/45/%e5%9c%8b%e9%9a%9b%e7%a7%bb%e5%8b%95%e5%8a%9b%e7%9a%84%e5%9f%b9%e9%a4%8a/

ACADEMIC JOURNALS
expand your knowledge

Educational Research and Reviews

Full Length Research Paper

Variables affecting social-emotional development, academic grit and subjective well-being of fourth-grade primary school students

Kayhan Bozgün[1]* and Meltem Akın-Kösterelioğlu[2]

[1]Department of Primary Education, Faculty of Education, Amasya University, Amasya, Turkey.
[2]Department of Educational Sciences, Faculty of Education, Amasya University, Amasya, Turkey.

This study aims to examine the effects of some demographic variables on the social-emotional development, academic grit and subjective well-being of fourth-grade primary school students. The sample of this cross-sectional study consisted of 582 fourth grade primary school students. Data were collected using the Social-Emotional and Character Development Scale, the Academic Grit Scale, and the Subjective Well-Being in School Scale. It lasted around 30 min to answer the data collection tools. Data were analyzed using the SPSS 23 program. In this study, the levels of social-emotional development, academic grit and subjective well-being were higher in female students who received preschool education, and had a high frequency of daily book-reading. In addition, the multivariate main effects of students' gender, pre-school education and frequency of daily book-reading were significant. Relevant trainings can be organized in cooperation with universities and school counselling services to raise awareness of both teachers and families about daily book-reading. This can have an impact on students' academic grit, subjective well-being and social-emotional development.

Key words: Primary school students, social-emotional development, academic grit, subjective well-being.

INTRODUCTION

Advancing technology and differing living conditions can affect social relationships, individual learning, academic success and similar situations. What kind of features an individual should have in achieving success is among the topics still arousing interest of scholars. Depending on the changing trends across the world, social-emotional development in children has come to the fore along with social-emotional learning in education (Ji et al., 2013).

Since social-emotional development has a relationship with subjective well-being, pleasure of learning, motivation and similar variables, it is important to acquire these skills starting from preschool period (Kluczniok et al., 2016; The Centre for Adolescent Health, 2018). Relevant studies focused on the cognitive, academic and linguistic development of children, but did not give due consideration to their social-emotional competencies

(Russell et al., 2016).

With the Industry 4.0 revolution, one of the most striking results of education 4.0 is that cognitive development is not solely sufficient in learning (Thomson et al., 2018; Turkish Industry and Business Association (TÜSİAD), 2019). To make the learning meaningful and become a product of life, several studies are conducted on the nature of learning, including social-emotional development (Ji et al., 2013), grit (Heckman and Rubinstein, 2001; O'Neal et al., 2019) and happiness (Askell-Williams et al., 2013). In addition, schools add grit-oriented assessments and practices to their curricula and courses (Hoerr, 2013). Thus, education authorities aim to raise happy individuals, managers, educators and employees who have strong communication skills, high emotional intelligence, perseverance, determination and responsibility, in business, education, society, that is, wherever there are humans (Ministry of National Education (MEB), 2018; TÜSİAD, 2019).

By declaring its education vision of 2023, MEB has stated that current system focuses on students' cognitive development only, neglecting other competences such as social-emotional development. As a solution to this problem, the 2023 Education Vision report emphasizes on the need for happy individuals equipped with social-emotional skills (MEB, 2018). A common feature of developed countries including Finland, Sweden and Norway is that individuals living in the country are happy (Helliwell et al., 2019). Education systems of such countries with high number and educated happy people pay attention to make students happy. In his book "Emotional Intelligence: Why It Can Matter More Than IQ?", Daniel Goleman states that intelligence is not a true linear explanatory of success, emphasizing on the necessity of social-emotional learning for success in students (Norris, 2003). These results suggest that education systems should focus on social-emotional development of students together with improving their non-intelligence skills such as attention, determination and responsibility (Karatay et al., 2015). Accordingly, students' social-emotional characteristics, perseverance and happiness should be evaluated together with their academic success as a whole. Students should be subjectively well, determined, faithful, decisive, and socially-emotionally developed, especially to make the learning a more enjoyable activity (Göçer, 2014; Katrancı, 2015; O'Neal et al., 2019).

Social-emotional development

Bandura states that social relations have an important place in the learning process of human being, a social entity. As children grow up and spend time at school, they are expected to develop positive relationships with their peers (Brown and Larson, 2009). In order to show these relationships, they should be socially-emotionally developed. Social-emotional development is defined as developing positive relationships with others, acquiring knowledge, and being aware of and managing feelings (Ji et al., 2013; Zins et al., 2004). The importance of the question of "Why is social-emotional development important for children?" can be explained by the fact that development, which starts at an early age, shows its effects in the following periods of life, either positively or negatively. Studies have reported that children who show strong improvement in these areas of development, which should be taught both as a skill and a lesson, especially in early childhood and primary school can establish healthy relationships with their peers and parents, and have positive relationships, positive emotions and mental health, and thus show higher school performance (Durlak et al., 2011; Greenberg et al., 2003). Individuals who will need these skills, which do not only concern childhood and are also necessary in the following periods of life, should have a healthy social development to achieve academic success, attain high school performance, and have good family relations by gaining social competence (Yukay-Yüksel, 2009).

The acquisition of social-emotional skills in early ages is important, as social-emotional development is associated with cognitive and physical development, and is important in the formation of personality and character (Özdemir et al., 2012). Social-emotional development is affected by many factors, including heredity, parental attitude, environment, culture, sibling, peer relationships, teacher, effort, motivation, curiosity, empathy, care, responsibility, school commitment, improvement in grades, study habits, awareness of learning to learn, advanced reading skills, and literacy; and it may differ in life cycle (Belfield et al., 2015; Collaborative For Academic, Social, and Emotional Learning (CASEL), 2005; Elias and Moceri, 2012; O'Neal et al., 2019; Zins et al., 2004, 2007). It is also important to examine the effect of demographic variables such as book-reading, gender and preschool education on social-emotional development in children as they affect reading skills.

Academic grit

Grit is defined as "determination to overcome obstacles" by the Türk Dil Kurumu (TDK) (2016). Relevant Turkish studies have used this word referring to resilience (Töremen and Demir, 2016) and persistence (Sarıçam et al., 2016; Telef, 2016). Contrary to some people's misconceptions that intelligence is the most effective predictor of success, Duckworth et al. (2007) state that grit should be accepted as an important predictor of success, by emphasizing that those showing higher grit (that is perseverance and passion for long-term goals) among students with same intelligence level are more successful. They also report that individuals with grit are

more likely to move towards success without deviating from their goals. Sarıçam et al. (2016) state that grit is an important and necessary factor in achieving social-emotional development and succeeding in all other areas of life, and can be considered a social-emotional skill or moral value. Grit can be improved as it is related to development areas (Duckworth et al., 2007). Studies have reported that grit is associated with academic success (Bowman et al., 2015), self-efficacy, self-regulation, metacognition (Rojas et al., 2012; Wolters and Hussain, 2015), self-control (Duckworth et al., 2007), depression, anxiety and stress (Lee, 2017; Özhan and Boyacı, 2018).

Subjective well-being

Together with positive psychology, subjective well-being has become one of the primary subjects of researchers, as it positively affects quality of life and health (Askell-Williams et al., 2013; CASEL, 2005; World Health Organization (WHO), 2006; Huebner et al., 2006). In the literature, subjective well-being, also called hedonic well-being, hedonic happiness or state of happiness, refers to experiencing positive emotions frequently and seeing oneself as a happy individual by getting a high satisfaction from the life as a result of minimizing or eliminating negative emotions (Diener, 1984; Seligman, 2002). Subjective well-being consists of cognitive and emotional dimensions. The cognitive dimension is composed of a self-assessment of life satisfaction, and the emotional dimension is composed of a self-assessment of satisfaction consisting of positive- and negative emotions about oneself. There are family, environment and school and similar variables in the sub-dimensions of life satisfaction. School satisfaction explains subjective well-being in school (Diener and Suh, 1997; Haranin et al., 2007). Subjective well-being in school refers to the presence of a culture and an environment encouraging dynamic and top-level development for staff and students in a school. By focusing on coping with difficulties, healthy life development is important for providing a quality education and training centered upon cultural, academic, social, emotional, physical and technological development (Ireland Ministry of Education and Skills, 2015). As subjective well-being in school of primary school students increases, their school attachment and attendance also increase (Liu et al., 2015; Telef, 2016).

Emphasizing on subjective well-being in students and learning about the change of subjective well-being by demographic variables can provide important results. Studies of the European Union, Pew Research Center and the World Values Survey continue to draw attention to the importance of well-being (Diener and Seligman, 2004). In addition, PISA performs measurements on science, reading and mathematics, and also collects statistics on happiness (Organization for Economic

Co-operation and Development (OECD), 2019).

Study purpose and significance

MEB (2019) conducted a large-scale survey with fourth grade students, and reported that 40% of them had reading comprehension problems, and 60% could not use the number operations skills. These results suggest whether there is a relationship of preschool education, book-reading and gender with this problem. Besides cognitive development, it can also be asked whether affective characteristics have also an effect on this problem. Katrancı (2015) states that having a book shelf in home has significant effect on children are reading skills.

Until the beginning of the 21st century, schools have emphasized on students' cognitive development, neglecting their social-emotional development and subjective well-being (Thomson et al., 2018). Most of the studies on subjective well-being have targeted secondary school students, adolescents and adults (Baytemir, 2016; Erdem, 2018; Huebner et al., 2006), therefore there is a limited number of studies on subjective well-being in children (Telef, 2014). The number of studies on grit began to increase with Angela Lee Duckworth from 2007, but there is still a need for studies examining the change of grit skill in primary school students with respect to preschool education and book-reading. There are no studies examining the main effect of gender, pre-school education and frequency of daily book-reading on social-emotional development, academic grit, and subjective well-being in primary school students. The results of this study can guide national programs that will draw attention to the importance of preschool education and daily book-reading in social-emotional development, subjective well-being and academic grit of primary school students. Based on this reason, this study aims to examine the effects of gender, pre-school education and frequency of daily book-reading on social-emotional development, academic grit and subjective well-being in primary school fourth grade students. For this purpose, the following research questions were prepared:

(i) Is there a difference between the social-emotional development, academic grit and subjective well-being mean scores of male and female students?
(ii) Is there a difference between the social-emotional development, academic grit and subjective well-being mean scores of 4th grade students who have received pre-school education?
(iii) Is there a difference between the social-emotional development, academic grit and subjective well-being mean scores of 4th grade students according to frequency of daily book-reading?
(iv) Is there a difference between the social-emotional development, academic grit and subjective well-being

mean scores of 4th grade students, depending on the common effect of gender, pre-school education and frequency of daily book-reading?

METHODOLOGY

Sample

A cross-sectional research design was used in this study (Cohen et al., 2018). Its population consisted of 1928 fourth grade primary school students studying in the city center of Amasya in 2018-2019 academic year. The sample size was determined using the proportional cluster sampling method (Cohen et al., 2018). For this purpose, firstly, schools in the city center of Amasya were divided into three groups as city, town and village schools, and then the number of students to be reached for the sample was determined by considering the ratio of these schools in the population. A school in the city center was later added to the sample due to possible data losses and better representation of the population. The sample consisted of 582 primary school students, including 460 students (79%) from schools in the city center; 56 (10%) from those in towns, and 66 from those in villages. In addition, 311 (53.4%) of the students were males, and 271 were females (46.6%), whose age ranged between 9 and 11 years.

Data collection tools

Personal information form

This form was used to learn about the students' gender, age, pre-school education status and frequency of daily book-reading.

Subjective well-being in school scale

The scale, developed by Liu et al. (2015), was used to determine the subjective well-being levels of primary school students. Its Turkish validity and reliability study was conducted by Bozgün and Kösterelioğlu (2020). This is a five-point Likert type scale with 33 items, in which total scale score varies between 33 and 165. High scores indicate high subjective well-being levels. In this study, the Cronbach's alpha internal consistency coefficient of the scale was calculated as .90, indicating an excellent scale reliability (Yockey, 2011). An example item from the scale is "Our campus has a beautiful environment".

Social-emotional and character development scale

The SECDS, developed by Ji et al. (2013) and adapted into Turkish by Bozgün and Baytemir (2019), is used to measure students' social-emotional and character development. Although the original scale aims to measure both students' social-emotional and character development, only the social-emotional development subscale of the scale was used in this study as it aimed to measure students' social-emotional development. The social-emotional development subscale consists of 14 questions to determine the levels of positive social behavior, self-control, and self-development in students. This is a four-point Likert scale, scoring between "I totally disagree" and "I totally agree". Total scale score ranges between 14-56, where higher scores indicate higher social-emotional development. In this study, the Cronbach's alpha internal consistency coefficient of the scale was calculated as .79, which indicates a good scale reliability. An example item from the scale is "I try to cheer up other kids if they are feeling sad".

Academic grit scale

The scale was developed by Rojas et al. (2012) to determine students' academic grit levels, and its Turkish validity and reliability study was conducted by Bozgün and Başgül (2018). Both the original scale and its Turkish version have a single-factor structure with 10 items. This is a four-point Likert scale, scoring between "I totally disagree" and "I totally agree". Total scale score ranges between 10-40, where higher scores indicate higher academic grit. In this study, the Cronbach's alpha internal consistency coefficient of the scale was calculated as .77, which indicates a good scale reliability. An example item from the scale is "I keep working at something new even when it's hard".

Research procedure

Data were collected between March-June 2019 by the researcher after obtaining the necessary permissions from the Amasya Provincial Directorate of National Education. Before data collection, students were informed about research ethics by explaining that participation in the study was voluntary, that their answers would be kept confidential and not be used for any purpose other than the purpose of the study, and that they could leave the study at any time without any sanction. Students filled out the data collection tools in approximately 30 min.

Data were analyzed using the SPSS [Statistical Package for the Social Sciences] version 23. Before data analysis, a preliminary analysis was performed to check data accuracy, missing data, outliers, and statistical assumptions (Tabachnick and Fidell, 2014). The minimum and maximum values and frequency distributions of each variable were examined to check the accuracy of the data. This analysis revealed that all variables were within the expected value ranges. The median value of Tabachnick and Fidell (2014) was assigned in the data set as the missing value was 5% or less. Descriptive statistics were used to give information about students' socio-demographic characteristics. One-way MANOVA [Multivariate Analyzes of Variance] was performed to determine the differences between students' social-emotional development, academic grit and subjective well-being total mean scores. As the homogeneity of variance or covariance matrices was violated in some of the one-way MANOVA, Pillai's Trace was used to report the multivariate main effect, in accordance with the suggestions of Tabachnick and Fidell (2014). In addition, Games-Howell post hoc test was used when the assumption of homogeneity of variances was violated. Furthermore, the research results were examined using the Welch t test or the Welch F test, and the results similar to those in the one-way MANOVA were obtained. Therefore, the results of one-way MANOVA were reported in the study. In all statistical analyses, an error margin of .05 was accepted as the upper limit.

RESULTS

Table 1 presents descriptive statistics regarding the demographic characteristics of fourth grade primary school students. Accordingly, majority of the primary school fourth grade students were males, received pre-school education and had low frequency of daily book-reading. Table 2 presents the students' social-emotional development, academic grit, and subjective well-being total mean scores and standard deviation values. Table 3 presents the results of one-way MANOVA performed to examine the differences between students' social-emotional development, academic grit and subjective

Table 1. Statistics on students' demographic characteristics.

Variable	Subcategories	*f*	%
Gender	Male	311	53.4
	Female	271	46.6
Have you received pre-school education?	Yes	455	78.22
	No	127	21.8
Frequency of daily book-reading	None	69	11.9
	Low	282	48.5
	High	231	39.6

Table 2. Descriptive statistics on social-emotional development, academic grit, and subjective well-being.

Variable	Social-emotional development		Academic grit		Subjective well-being	
	M	SD	M	SD	M	SD
Gender						
Male	48.35[b]	5.32	35.39[b]	3.78	115.82[b]	11.70
Female	50.43[a]	4.49	36.55[a]	3.63	118.82[a]	10.42
Pre-school education						
Yes	49.58[a]	4.86	35.96	3.83	117.64	11.41
No	48.38[b]	5.62	35.83	3.44	117.10	10.50
Frequency of daily book-reading						
None	44.84[c]	6.02	32.07[c]	4.47	103.42[c]	16.08
Low	48.79[b]	4.60	35.59[b]	3.50	116.92[b]	9.00
High	51.30[a]	4.20	37.51[a]	2.73	121.70[a]	8.04

There is a significant difference between the groups: a>b>c.

Table 3. Multivariate MANOVA results.

Variable	Pillai's Trace	*df*n, *df*d	F	p	Partial η^2
Gender	0.04	3, 578	80.73	0.001***	0.04
Pre-School Education	0.02	3, 578	40.81	0.003**	0.02
Frequency of Daily Book-Reading	0.28	6, 1156	310.49	0.001***	0.14

**p<.01; ***p<.001.

well-being total mean scores according to gender, pre-school education status and frequency of daily book-reading.

Accordingly, the multivariate main effects of gender (F(3, 578)= 8.73, p<0.001, η^2= 0.04), pre-school education (F(3, 578)= 4.81, p<.01, η^2= .02), and frequency of daily book-reading (F(6, 1156)= 31.49, p<.001, η^2= 0.14) were statistically significant. The multivariate main effect of gender and preschool education had a low effect size, whereas the multivariable main effect of frequency of daily book-reading had a high level of effect size. A series of one-way analysis of variance (ANOVA) was performed to determine which dependent variables caused the difference. Table 4 presents the one-way ANOVA results.

Accordingly, there was a statistically significant difference between the students' social-emotional development (F(1, 580) = 25.50, p<0.001, η^2 = 0.04),

Table 4. One way ANOVA results.

Variable	*df*n, *df*d	F	p	Partial η^2
Gender				
Social-emotional development	1, 580	25.50	0.001***	0.04
Academic grit	1, 580	14.21	0.001***	0.02
Subjective well-being	1, 580	10.51	0.001**	0.02
Pre-school education				
Social-emotional development	1, 580	5.66	0.018*	0.01
Academic grit	1, 580	0.13	0.718	0.00
Subjective well-being	1, 580	0.23	0.634	0.00
Frequency of daily book-reading				
Social-emotional development	2, 579	55.09	0.001***	0.16
Academic grit	2, 579	72.64	0.001***	0.20
Subjective well-being	2, 579	93.30	0.001***	0.24

**p<.01; ***p<.001; ***p<0.001.

academic grit (F(1, 580)= 14.21, p<0.001, η^2= 0.02), and subjective well-being (F(1, 580)= 10.51, p<0.001, η^2= .02) total mean scores by gender; and between their social-emotional development (F(1, 580)= 5.66, p<.05, η^2= 0.01) total mean scores by pre-school education; and also between their social-emotional development (*F*(2, 579)= 55.09, p<0.001, η^2= 0.16), academic grit (F(2, 579)= 72.64, p<0.001, η^2= 0.20), and subjective well-being (F(2, 579)= 93.30, p<0.001, η^2= 0.24) total mean scores by frequency of daily book-reading. Both the differences between students' social-emotional development, academic grit and subjective well-being total mean scores by gender, and those between their social-emotional development total mean scores by pre-school education had a low effect size. However, the differences between their social-emotional development, academic grit and subjective well-being total mean scores by frequency of daily book-reading had a high effect size. As seen in Table 2, female students had significantly higher social-emotional development, academic grit and subjective well-being total mean scores than male students. In addition, those who received preschool education had significantly higher social-emotional development total mean score than those who did not receive preschool education. In addition, the Games-Howell post hoc tests revealed that students with high frequency of daily book-reading had significantly higher social-emotional development, academic grit, and subjective well-being total mean scores than both those with low frequency of daily book-reading and those who did not read any books at all. Furthermore, students with low frequency of daily book-reading had significantly higher social-emotional development, academic grit and subjective well-being total mean scores than those who did not read any books at all.

DISCUSSION

This study examined the effects of gender, pre-school education and frequency of daily book-reading on social-emotional development, academic grit and subjective well-being in primary school fourth grade students. According to the first subproblem of the study, there was a significant difference in favor of girls in terms of social-emotional development, subjective well-being and academic grit of primary school students. In the literature, there are studies consistent with this result. Kluczniok et al. (2016) obtained research results similar to those in this study by determining that female students have higher social-emotional development, subjective well-being and willingness to learn than male students. Studies have reported that females have higher grit (Duckworth et al., 2007; Rojas et al., 2012), social-emotional development (Erdem, 2018; Ji et al., 2013) and subjective well-being (Kluczniok et al., 2016) than boys. However, Baytemir (2016) have determined that male students differ from girls in terms of social competence and subjective well-being. There are also studies suggesting no significant difference between students' grit (Duckworth and Quinn, 2009) and subjective well-being (Erdem, 2018; Huebner et al., 2006) by gender. Based on the results of this study, the fact that girls are more socially and emotionally developed and have higher subjective well-being than boys can be explained by the fact that as women find better places in society, work in more skilled jobs and enjoy higher number of equal rights with men by each passing day, parents raise their daughters with this awareness. In addition, girls have faster biological development than boys; therefore they may have higher social-emotional development and act more maturely in initiating relationships. Primary

education is a period children start to form groups with their fellow peers, therefore they may feel compelled to be successful.

According to the second subproblem of the study, students who received preschool education had higher social-emotional development, academic grit and subjective well-being than those who did not. Russell et al. (2016) state that preschool education has an important effect on task completion, one of the indicators of social development and grit in primary school children. Kohn and Rosman (1972) report that students with preschool education are more curious and better reflect the indicators of social-emotional development. In contrast to these results, Öztürk (2008) found that preschool education had no effect on social skills. In the literature, there are studies suggesting that preschool education affects social-emotional development. Because, social-emotional development proceeds rapidly in preschool period compared to other periods. When they are socially and emotionally developed, primary school students with preschool education can develop high level of subjective well-being and grit, which are associated with social-emotional development (Banerjee et al., 2016; Mayr and Ulich, 2009).

According to the third subproblem of the study, students with a high frequency of daily book-reading had higher social-emotional development, academic grit and subjective well-being than those with low frequency of daily book-reading and those who never read books. Similarly, students with low frequency of daily book-reading had higher social-emotional development, academic grit and subjective well-being than those who never read books. Consistent with these results, Anderson (2017) states that the happiness of primary school students who read and understand what they read increases. There are studies suggesting that reading habit decreases after the 2nd and 3rd grades of primary school (Kurnaz and Yıldız, 2015; Yıldız and Kaman, 2016), which suggests that students should gain reading habit in primary school period and continue it with determination. By declaring a need to raise socially and emotionally developed students in its 2023 educational vision and establishing its philosophy as growing happy children, MEB emphasizes in its large-scale study on primary school fourth grade students that the lack of reading comprehension in 40% of students points out the necessity to encourage students to have an awareness of grit skill for gaining reading habits (MEB, 2019). Many schools have recently integrated grit-based assessments and practices into their curriculum and classroom environment, which also emphasizes on the same necessity (Hoerr, 2013).

According to the last subproblem of the study, the variables of gender, pre-school education and frequency of daily book-reading have a joint impact on social-emotional development, academic grit and subjective well-being in primary school students. In this context, relevant authorities should pay more attention to preschool education and reading in order to educate students who are socially-emotionally developed, academically determined and have high subjective well-being. Because students who read books and receive preschool education are more determined and happier and have more developed social-emotional skills. In line with this result, it can be concluded that happy students with high social-emotional development are more willing to read books. In addition, the contribution of preschool education to social-emotional development of children has been proven once again with this study. The Centre for Adolescent Health (2018) has emphasized on pre-school education as an investment in all areas of development in the following periods of a child's life. Preschool education contributes to the developmental characteristics of children aged 5-6 years, one of the important periods of social-emotional development. Further studies should requestion the higher values of female students than male students and the low levels of male students. Reading books is important in terms of not only learning but also being a means of understanding emotions and developing imagination.

The results obtained are due diligence; therefore, the effects of preschool education, whose impact on social-emotional development, academic grit and subjective well-being in primary school students was determined in this study, on reading motivation, reading comprehension and writing skills in children receiving preschool education can be examined in future studies. Informative activities can be conducted for families to ensure that students receive pre-school education. Relevant trainings can be organized in cooperation with universities and school counselling services to raise awareness of both teachers and families about daily book-reading, which has an impact on students' academic grit, subjective well-being and social-emotional development. To increase the reading levels of children, parents must be model to their children on reading and in every home there must be a bookshelf. Although the study group of this study is described as primary school students, the study is limited to fourth grade students. As subjective well-being and social-emotional development vary by age, further studies can examine these variables in different age groups without being limited to primary school students.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

REFERENCES

Anderson JK (2017). An examination of psychological variables and reading achievement in upper elementary students. ProQuest Dissertations and Theses Global (1951781308). https://search.proquest.com/docview/1951781308?accountid=25074
Askell-Williams H, Dix KL, Lawson MJ, Slee PT (2013). Quality of implementation of a school mental health initiative and changes over time in students' social and emotional competencies. School

Effectiveness and School Improvement 24(3):357-381.

Banerjee R, Mclaughlin C, Cotney JL, Roberts L, Peereboom C (2016). Promoting Emotional Health, Well-Being, and Resilience in Primary Schools. Public Policy Institute for Wales: Wales.

Baytemir K (2016). The mediation of interpersonal competence in the relationship between parent and peer attachment and subjective well-being in adolescence. Education and Science 41(186):69-91.

Belfield C, Bowden AB, Klapp A, Levin H, Shand R, Zander S (2015). The economic value of social and emotional learning. Journal of Benefit-Cost Analysis 6(3):508-544.

Bowman NA, Hill PL, Denson N, Bronkema R (2015). Keep on truckin'or stay the course? Exploring grit dimensions as differential predictors of educational achievement, satisfaction, and intentions. Social Psychological and Personality Science 6(6):639-645.

Bozgün K, Akın-Kösterelioğlu M (2020). İlköğretim Öğrencileri İçin Okulda Öznel İyi Oluş Ölçeğini Türkçeye uyarlama çalışması. International Journal of Turkish Literature Culture Education 9(2):884-897.

Bozgün K, Başgül M (2018). Akademik Azim Ölçeğinin Türkçeye uyarlanması: Geçerlik ve güvenirlik çalışması. Akademik Sosyal Araştırmalar Dergisi 6(85):435-445. doi: http://dx.doi.org/10.16992/ASOS.14521

Bozgün K, Baytemir K (2019). Sosyal-Duygusal ve Ahlaki Gelişim Ölçeğinin Türkçeye uyarlanması: Geçerlik ve güvenirlik çalışması. Electronic Turkish Studies 14(1):156-179.

Brown B, Larson J (2009). Peer relationships in adolescence. In R. M. L. Steinberg (Ed.), *Handbook of adolescent psychology:* Contextual influences on adolescentdevelopment (3rd ed., p. 74–103). Hoboken, NJ:Wiley

CASEL (2005). Safe and Sound: An Educational Leader's Guide to Evidence-Based Social and Emotional Learning (SEL) Programs. Philadelphia, PA and Chicago, IL: Authors. http://files.eric.ed.gov/fulltext/ED505373.pdf

Cohen L, Manion L, Morrison K (2018). Research methods in education (8th ed., p. 218). New York, Routledge.

Diener E (1984). Subjective well-being. Psychological Bulletin 95(3):542-575.

Diener E, Seligman ME (2004). Beyond money: Toward an economy of well-being. Psychological Science in the Public Interest, 5(1): 1-31.

Diener E, Suh E (1997). Measuring quality of life: Economic, social, and subjective indicators. Social Indicators Research 40(1-2):189-216.

Duckworth AL, Peterson C, Matthews MD, Kelly DR (2007). Grit: Perseverance and passion for long-term goals. Journal of Personality and Social Psychology 92(6):1087–1101.

Duckworth AL, Quinn PD (2009). Development and validation of the short grit scale (Grit-S). Journal of Personality Assessment, 91(2): 166-174. doi:10.1080/00223890802634290.

Durlak JA, Weissberg RP, Dymnicki AB, Taylor RD, Schellinger KB (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. Child Development 82(1):405-432.

Elias MJ, Moceri DC (2012). Developing social and emotional aspects of learning: the American experience. Research Papers in Education 27(4):423-434.

Erdem Ş (2018). Üstün yeteneklilerin iyi oluşunda bilgelik, değerler ve benlik kavramının rolü. Tokat Gaziosmanpaşa Üniversitesi, Eğitim Bilimleri Enstitüsü, Tokat.

Göçer A (2014). Yazma Tutum Ölçeği'nin (YTÖ) Türkçeye uyarlanması: Geçerlik ve güvenirlik çalışması. Kastamonu Eğitim Dergisi 22(2):515-524.

Greenberg MT, Weissberg RP, O'brien MU, Zins JE, Fredericks L, Resnik H et al. (2003). Enhancing school-based prevention and youth development through coordinated social, emotional, and academic learning. American Psychologist 58(6-7):466-474.

Haranin E, Huebner ES, Suldo SM (2007). Predictive and incremental validity of global and domain-based adolescent life satisfaction reports. Journal of Psychoeducational Assessment 25(2):127-138.

Heckman JJ, Rubinstein Y (2001). The importance of noncognitive skills: Lessons from the GED testing program. American Economic Review 91(2):145-149.

Helliwell JF, Huang H, Wang S (2019). Dünya Mutluluk Raporu. https://worldhappiness.report/ed/2019/changing-world-happiness/

Hoerr TR (2013). Fostering grit: How do I prepare my students for the real world? Alexandria, VA: Association for Supervision and Curriculum Development.

Huebner ES, Suldo SM, Valois RF, Drane JW (2006). The brief multidimensional students' life satisfaction scale: Sex, race, and grade effects for applications with middle school students. Applied Research in Quality of Life 1(2):211.

Ireland Ministry of Education and Skills (2015). Well-being in primary schools. https://www.education.ie/en/Publications/Education-Reports/Well-Being-in-Primary-Schools-Guidelines-for-Mental-Health-Promotion.pdf

Ji P, DuBois DL, Flay BR (2013). Social-Emotional and Character Development Scale. Journal of Research in Character Education 9(2): 121-147.

Karatay R, Timur S, Timur B (2015). 2005 ve 2013 yılı fen dersi öğretim programlarının karşılaştırılması. Adıyaman Üniversitesi Sosyal Bilimler Enstitüsü Dergisi 6(15):233-264.

Katrancı M (2015). İlkokul dördüncü sınıf öğrencilerinin kitap okuma motivasyonlarının incelenmesi. Ana Dili Eğitimi Dergisi 3(2):49-62.

Kluczniok K, Anders Y, Sechtig J, Rossbach HG (2016). Influences of an academically oriented preschool curriculum on the development of children are there negative consequences for the children's socio-emotional competencies? Early Child Development and Care 186(1):117-139.

Kohn M, Rosman BL (1972). Relationship of preschool social-emotional functioning to later intellectual achievement. Developmental Psychology 6(3):445-452.

Kurnaz H, Yıldız N (2015). Ortaokul öğrencilerinin okuma motivasyonlarının çeşitli değişkenlere göre değerlendirilmesi. Türkiye Sosyal Araştırmalar Dergisi 19(3):53-70.

Lee WS (2017). Relationships among grit, academic performance, perceived academic failure, and stress in associate degree students. Journal of Adolescence 60:148-152.

Liu W, Tian L, Huebner ES, Zheng X, Li Z (2015). Preliminary development of the elementary school students' subjective well-being in school scale. Social Indicators Research 120(3):917-937.

Mayr T, Ulich M (2009). Social emotional well being and resilience of children in early childhood settings–PERIK: an empirically based observation scale for practitioners, Early Years 29(1):45-57

MEB (2018). 2023 Eğitim Vizyonu Raporu. Mutlu Çocuklar Güçlü Türkiye. https://2023vizyonu.meb.gov.tr/doc/2023_EGITIM_VIZYONU.pdf

MEB (2019). Türkçe-Matematik-Fen Bilimleri Öğrenci Başarı İzleme Araştırması. http://www.meb.gov.tr/meb_iys_dosyalar/2019_12/03105347_PISA_2018_Turkiye_On_Raporu.pdf

Norris JA (2003). Looking at classroom management through a social and emotional learning lens. Theory into practice 42(4):313-318.

OECD (2019). Türkiye PISA Genel istatistikleri. https://gpseducation.oecd.org/CountryProfile?plotter=h5&primaryCountry=TUR&treshold=5&topic=PI

O'Neal CR, Boyars MY, Riley LW (2019). Dual language learners' grit, engagement, and literacy achievement in elementary school. School Psychology International 40(6):598-623.

Özdemir O, Özdemir PG, Kadak MT, Nasıroğlu S (2012). Kişilik gelişimi. Psikiyatride Güncel Yaklaşımlar 4(4):566-589.

Özhan MB, Boyacı M (2018). Üniversite öğrencilerinde depresyon, anksiyete ve stresin yordayıcısı olarak azim: Bir yapısal eşitlik modellemesi. Anatolian Journal of Psychiatry 19(4):370-376.

Öztürk A (2008). Okulöncesi eğitimin ilköğretim 1. ve 3. sınıf öğrencilerinin sosyal becerilerine etkisinin incelenmesi (Unpublished Doctoral dissertation), Selçuk Üniversitesi Sosyal Bilimler Enstitüsü, Konya.

Rojas JP, Reser JA, Usher EL, Toland MD (2012). Psychometric properties of the Academic Grit Scale. Lexington: University of Kentucky. http://sites.education.uky.edu/motivation/files/2013/08/RojasUsher.pdf

Russell BS, Lee JO, Spieker S, Oxford ML (2016). Parenting and preschool self-regulation as predictors of social emotional competence in 1st grade. Journal of Research in Childhood Education 30(2):153-169.

Sarıçam H, Çelik İ, Oğuz A (2016). Kısa Azim (Sebat) Ölçeğinin

Türkçeye Uyarlanması: Geçerlik ve güvenirlik Çalışması. Uluslararası Türkçe Edebiyat Kültür Eğitim Dergisi 5(2):927-935.

Seligman MEP (2002). Positive psychology, positive prevention, and positive therapy. In C. R. Snyder & S. J. Lopez (Eds.), Handbook of positive psychology (pp. 3-9). New York, NY, US: Oxford University Press. https://psycnet.apa.org/record/2002-02382-001

Tabachnick BG, Fidell LS (2014). Using multivariate statistics (6th ed.). Harlow: Pearson Education.

TDK (2016). Büyük Türkçe sözlük. http://www.tdk.gov.tr/index.php?option=com_gts&arama=gts&guid=TDK.GTS.5c8214a78c2667.05402318

Telef BB (2014). Çocuklar için Kapsamlı Okul Doyumu Ölçeği'nin Türkçeye uyarlama çalışması. Eğitimde Kuram ve Uygulama, 10(2): 478-490.

Telef BB (2016). Okulda Pozitif Yaşantılar Ölçeği geçerlik ve güvenirlik çalışması. Journal of Human Sciences, 13(2): 2475-2487.

The Centre for Adolescent Health, Murdoch Children's Research Institute (2018). Student Wellbeing, Engagement and Learning across the Middle Years, Canberra: Australian Government Department of Education and Training.

Thomson KC, Oberle E, Gadermann AM, Guhn M, Rowcliffe P, Schonert-Reichl KA (2018). Measuring social-emotional development in middle childhood: The Middle Years Development Instrument. Journal of Applied Developmental Psychology 55:107-118.

Töremen F, Demir S (2016). Sahip oldukları psikolojik sermayenin öğretmenlerin işten ayrılma niyetleri üzerindeki etkisi. Mustafa Kemal Üniversitesi Sosyal Bilimler Enstitüsü Dergisi 13(34):166-179.

TÜSİAD (2019). Sosyal ve Duygusal Öğrenme Becerileri: Yeni Sanayi Devriminin Eşiğinde İş ve Yaşam Yetkinliklerinin Anahtarı raporu. https://tusiad.org/tr/yayinlar/raporlar/item/10450-sosyal-ve-duygusal-ogrenme-becerileri.

Wolters CA, Hussain M (2015). Investigating grit and its relations with college students' self-regulated learning and academic achievement. Metacognition and Learning 10(3):293-311.

World Health Organization (2006). Opening address. Paper presented at the fifth workshop on practice of evaluation of the Health Promoting School–Concepts, indicators and evidence. Sigriswil, Switzerland.

Yıldız M, Kaman Ş (2016). İlköğretim (2-6. sınıf) öğrencilerinin okuma ve yazma tutumlarının incelenmesi. Türkiye Sosyal Araştırmalar Dergisi 20(2):507-522.

Yockey RD (2011). SPSS demystified: A step-by-step guide to successful data analysis. New York: Prentice Hall.

Yukay-Yüksel M (2009). Okul Sosyal Davranış Ölçeklerinin (OSDÖ) Türkçeye uyarlanması. Kuram ve Uygulamada Eğitim Bilimleri 9(3):1605-1650.

Zins JE, Weissberg RP, Wang MC, Walberg HJ (Eds.) (2004). Building academic success on social and emotional learning: What does the research say? New York:Teachers College Press.

Zins JE, Payton JW, Weissberg RP, O'Brien MU (2007). Social and emotional learning for successful school performance. In G. Matthews, M. Zeidner, & R. D. Roberts (Eds.), Series in affective science. The science of emotional intelligence: Knowns and unknowns (pp. 376–395). Oxford University Press.

AJ ACADEMIC JOURNALS
expand your knowledge

Educational Research and Reviews

Full Length Research Paper

Investigation of life satisfaction and interpersonal problem-solving skills of high school students according to their sports status

Fatih Öztürk and Elif Karagün[*]

Department of Recreation, Faculty of Sport Sciences Kocaeli University, Kocaeli, Turkey.

The aim of this work is to examine the life satisfaction and problem solving skills of high school students according to their sports status. Life satisfaction and problem-solving inventories were applied to 1100 voluntary students from 37 high schools selected from the 128 high school population in Turkey's Kocaeli province by cluster sampling method. Since the data showed normal distribution when analyzed in SPSS 21 package program, the parametric test of Independent Sample T test was used to compare binary groups and One Way Anova test was used to compare multiple groups. Significance level was accepted as 0.05. When the data were analyzed, it was seen that being insistent and unwilling to take responsibility approaches in problem-solving and life satisfaction increased in males and in those who do sports; pessimistic and insistent approaches to problems increased as age and grade level increased and constructive approach to problems and life satisfaction increased as parental education level increased. It is seen that the interpersonal problem-solving skills and life satisfaction perceptions of students increase significantly with regular participation in sports. In this respect, it is suggested that sports opportunities in schools should be increased and participation should be encouraged.

Key words: Interpersonal problem-solving skill, life satisfaction, sports, high school students.

INTRODUCTION

Everybody faces different problems while realizing their goals and communicating throughout their life and try to solve the problems they encounter in a healthy way. Problem solving is defined as a complex process that people carry out by using their cognitive, affective and behavioral skills from feeling the problem until finding a solution (Demirtaş and Dönmez, 2008). Problem-solving skill used in problem solving is a necessary element for a happy and satisfied life. It is stated that some adolescents have emotional and behavioral problems since they have difficulties in coping with their problems while experiencing life and these problems can grow into

problematic behaviors (Meyers et al., 2011; Tiabashvili et al., 2015). Adolescence is a period of rapid changes in physiological and psychological terms. Adolescents may experience emotional negativities in the adaptation process to the effects of physical growth and hormones on the one hand and in the career planning process due to uncertainties on the other hand. In all these changes, life satisfaction defined with interpersonal problem-solving and meeting expectations is also important. It is stated that life satisfaction indicates the cognitive aspect of subjective well-being in relation to the happiness of individuals and is determined by the symptoms of mental and physical health (Diener, 1984).

Exercise and sports are also recommended for mental and physical health, which are the bases of life satisfaction (Maher et al., 2014; Müftüoğlu, 2005; Penedo and Dahn, 2005). In the studies examined, it is stated that exercise and sports change the hormone level in the blood by creating chemical changes; and exercises that last longer than 30 min increase the level of natural happiness hormone 'endorphine' and improve the problem solving-skill increasing attention and some positive emotions (Baltaş and Baltaş, 2008; Basso and Suziki, 2017). Sport, which is a kind of game performed with relaxation and relief, helps children to manage their impulses and emotions, decreases their anxiety levels and supports them in dealing with trauma and ultimately increases their life satisfaction as it creates a relaxing effect in short and long term (Baltaş and Baltaş, 2008; De Vries, 1981; Erden and Gürdil, 2009; Müftüoğlu, 2005).

In order for young people to protect their health during adolescence and to cope with their problems, it was considered important for them to participate in a sports activity which they are interested in, suits their abilities and increases the feeling of "I can" in their free time. Participation in an activity, which they like and believe that they can achieve, would be supportive in life satisfaction and dealing with problems that may arise (Karagün, 2016). Considering all this literature information, it was wondered whether life satisfaction and problem-solving skills of high school students in adolescence varied by the status of their sports participation, which is said to bring mental and physical health. In this regard, an answer was sought for the question of whether there is a difference in life satisfaction and problem-solving skills among high school students who do and do not do sports.

The purpose of the study

The purpose of this study is to determine the problem-solving skills and life satisfaction of high school students according to their sports participation. It aims also to evaluate whether these traits vary significantly by age, gender, grade, parental education and economic condition.

Research questions

In line with the main purpose, answers to the following sub-problems were sought:

(i) Does life satisfaction vary by sports participation status?
(ii) Does life satisfaction vary by socio-demographic variables?
(iii) Do interpersonal problem-solving skills vary by sports participation status?
(iv) Do interpersonal problem-solving skills vary by socio-demographic variables?

MATERIALS AND METHODS

Subjects

This work is a descriptive survey study. The population consists of 9th, 10th, 11th and 12th grade students studying in high schools in Kocaeli province. The permissions required for the research were obtained from Kocaeli University Human Research Ethics Committee (KÜ GOKAEK 2018/168) and Kocaeli Provincial Directorate of National Education. After obtaining the permissions, the types and numbers of schools in high school level were determined from the official website of Turkey's Kocaeli Provincial Directorate of National Education. For this research; 37 high school samples representing 128 high school population in Kocaeli Province were selected by cluster sampling method (Karasar, 2005). Meetings were held with students on the days and time determined by the managers of different types of high schools. After explaining the purpose of the research, the scales were distributed to the students who volunteered to participate in the study and approximately 30 min were given for the answering process.

Data collection

Information questionnaire

In the light of literature information, a 10-question questionnaire consisting of variables that may affect life satisfaction and interpersonal problem-solving skills prepared by the researchers was applied.

Life satisfaction scale (LSS)

It was developed by Diener et al. (1985) as a 7-point likert to determine life satisfaction of individuals. It was adapted to Turkish by Köker (1991). Since the 7-point likert is not suitable for Turkish culture, it was changed to five-point Likert type. The highest score that can be obtained from the scale is 35 and the lowest is 5. Low scores indicate low satisfaction with life. Alpha was found as 0.86 in the reliability study of the scale. The cronbach alpha value for this study is 0.81.

Interpersonal problem-solving inventory

The inventory was developed by Çam and Tümkaya. It is a five-point Likert type consisting of not suitable at all, not suitable, slightly suitable, suitable, most suitable, and completely suitable. The fifty-item scale has 5 sub-dimensions including constructive approach, pessimistic approach, lack of self-confidence approach, unwilling to

take responsibility approach and insistent-persevering approach to problems. In the validity study of the scale, the alpha values are between .67 and .84 (Çam and Tümkaya, 2008). The alpha value for this study was found between 0.70 and 0.87.

Statistical analysis

Since the data showed normal distribution when analyzed in SPSS 21 package program, the parametric test of Independent Sample T test was used to compare binary groups and One Way Anova test was used to compare multiple groups. Significance level was accepted as 0.05.

RESULTS

In this research, 1100 students had participated. There were 672 female students (61.21%), and 428 male students (38.78%). While 39.6% of high school students do regular sports, 60.2% do not. When Table 1 was examined, it was seen that life satisfaction of high school students did not vary significantly by age and grade level, whereas there were significant differences in terms of monthly income and paternal education level (Table 1). When Table 2 was examined, life satisfaction scores were found to be significantly higher in males compared to females and in those who do sports compared to those who do not. In the insistent-persevering approach and unwilling to take responsibility approach sub-dimensions of the interpersonal problem-solving skills scale, the scores of male students were significantly higher than female students in terms of gender. No significant difference was found in terms of gender in the constructive approach, pessimistic approach and unwilling to take responsibility approach sub-dimensions.

In the insistent-persevering approach and unwilling to take responsibility approach sub-dimensions of the interpersonal problem-solving skills, the scores of those who do sports were significantly higher than those who do not. There was no significant difference in the sub-dimensions of constructive approach, pessimistic approach and unwilling to take responsibility approach (Table 2).

In Table 3, no significant difference was found in terms of the age of the students in the constructive approach, lack of self-confidence approach and unwilling to take responsibility approach sub-dimensions of the interpersonal problem-solving skills scale. The scores of 15-year-old students were significantly lower than those in the 17-year-old group in the sub-dimension of pessimistic approach to problems, and than those in the 18-year-old group in the sub-dimension of insistent-persevering approach to interpersonal problems. There was no significant difference in terms of the grade levels of the students in the constructive approach, lack of self-confidence approach and unwilling to take responsibility approach sub-dimensions of the interpersonal problem solving skills; whereas the averages of the 9th grade

students were lower than those in the 11th grade in the pessimistic approach sub-dimension; the scores of the 9th grade students were significantly lower than those in the 12th grade in the insistent-persevering approach sub-dimension (Table 3). When interpersonal problem-solving skills were examined in terms of parental education level, no significant difference was found in the sub-dimensions of insistent-persevering approach, pessimistic approach, lack of self-confience approach, and unwilling to take responsibility approach, whereas it was observed that the constructive approach increased significantly in parallel with the increase in education level (Table 3).

DISCUSSION

When the life satisfaction data in Table 1 were examined, no significant difference was found in terms of age and grade level. However, a significant increase was determined in life satisfaction as monthly income and parental education level increased. In the literature, it is stated that life satisfaction increases in parallel with the increase in the education level (Crede et al., 2015; Plagnol and Easterline, 2008). When the findings of the research were interpreted with these explanations, parents were thought to be a kind of role model for their children by experiencing life satisfaction as a result of realizing their own educational expectations with the increase in their education level. It was determined that the students' life satisfaction increased with the increase in their families' income. There is a significant difference between the life satisfaction scores of those who have a family with a salary of 2000 TL or less and those who have a family with a salary of 3501 TL or more. It is reported in the literature that there is a close relationship between students' monthly expenditures and their life satisfaction (Kabasakal and Uzbaş, 2013; Shim et al., 2010) and life satisfaction increases with socio-economic satisfaction (Chow, 2005), supporting the research findings. Considering the explanation that it is the result of the comparison between the expectations of individuals and what they have in the definition of life satisfaction (Özer and Karabulut, 2003), it was thought that life satisfaction increased as a result of meeting the expectations with the increase in income status.

In Table 2, life satisfaction data were found to be significantly higher in those who do sports. It is reported the literature that physical activity and sports are effective in increasing life satisfaction (Maher et al., 2014; Toros et al., 2010), supporting our research findings. In addition, when evaluated with the literature information that physical health affects life satisfaction, and sports and exercise have contributions in terms of physical health (Müftüoğlu, 2005; Penedo and Dahn, 2005), the life satisfaction of students increased as a result of fulfilling their various expectations about life and feeling emotionally well with participation in sports. However, it is

Table 1. Variance analysis of life satisfaction scale according to socio-demographic variables.

Variable		N(%)	X	Sd	F	P	Difference
Age	15[1]	443(42.51)	16.03	4.984	1.478	0.219	
	16[2]	309(29.65)	15.83	4.770			
	17[3]	195(18.71)	15.85	4.601			
	18[4]	95(9.12)	14.87	5.032			
Grade	9th Grade[1]	335(32.15)	16.15	4.971	0.477	0.878	
	10th Grade[2]	416(39.92)	15.79	4.777			
	11th Grade[3]	153(14.68)	15.47	4.830			
	12th Grade[4]	138(13.24)	15.63	4.869			
Maternal education level	Primary School[1]	333(31.96)	15,16	4,882	4.790	**0.003**	1-3, 1-4
	Secondary School[2]	291(27.93)	15,73	4,758			
	High School[3]	281(26.97)	16,27	4,678			
	University[4]	137(13.15)	16,80	5,172			
Paternal education level	Primary School[1]	185(17.75)	14.41	4.984	9.121	**0.000**	1-2, 1-3, 1-4, 2-4
	Secondary School[2]	281(26.97)	15.53	4.617			
	High School[3]	356(34.17)	16.29	4.803			
	University[4]	220(21.11)	16.67	4.882			
Monthly income	2000 and below[1]	153(14.68)	14.23	4.521	10.258	**0.000**	1-3,1-4, 1-5, 2-5
	2001-2500[2]	219(21.02)	15.05	4.838			
	2501-3000[3]	228(21.88)	16.12	4.762			
	3001-3500[4]	152(14.59)	15.94	4.523			
	3501 and above[5]	290(27.83)	16.99	4.991			

Table 2. Analyses of the scores of life satisfaction and interpersonal problem-solving scale sub-dimensions according to the gender and sports status of the students (t test).

Problem solving sub-dimensions and life satisfaction	Female N=643 %=61.71	Male N=399 %=38.29		Doing sports N=404 %=38.77	Not doing sports N=638 %=61.23	
	Mean±Sd	Mean±Sd	P	Mean±Sd	Mean±Sd	p
Constructive approach	45.98±10.72	46.02±11.59	0.958	46.45±11.404	45.76±10.78	0.327
Pessimistic approach	31.49±10.71	32.48±11.73	0.173	32.12±11.98	31.78±10.53	0.595
Lack of self-confience approach	22.03±7.46	21.36±6.63	0.128	21.30±7.42	22.05±6.95	0.100
Insistent- persevering	22.34±6.26	23.41±6.49	**0.008**	23.48±6.82	22.26±5.98	**0.003**
Unwilling to take responsibility	13.56±4.45	14.24±4.06	**0.012**	14.29±4.34	13.53±4.28	**0.005**
Life satisfaction	15.56±4.73	16.29±5.04	**0.018**	16.57±4.82	15.37±4.82	**0.000**

important to conduct detailed studies in terms of precise results.

No significant difference was found in the constructive approach, negative approach, and lack of self-confidence approach sub-dimensions of the interpersonal problem-solving inventory in terms of sports participation. However, in the sub-dimensions of insistent-persevering approach and unwilling to take responsibility approach to

the problem; the scores of those who do sports were found significantly higher. This result shows that those who do sports are insistent, patient and more flexible in solving problems but do not take responsibility when they experience interpersonal problems. It is stated in the literature that people who do sports approach problems more comfortably and flexibly than those who do not (Işık et al., 2016). It is also stated that those who do sports

Table 3. Variance analysis of interpersonal problem-solving skills sub-dimensions scores by socio-demographic variables.

Variable		Constructive approach	Pessimistic approach	Lack of self-confience approach	Insistent-persevering approach	Unwilling to take responsibility approach
		Mean±Sd	Mean±Sd	Mean±Sd	Mean±Sd	Mean±Sd
Age	15	46.42±11.00	30.77±10.65	21.38±7.31	22.14±6.15	13.59±4.21
	16	45.86±10.87	32.17±11.16	21.94±7.07	22.76±6.47	14.15±4.44
	17	46.08±10.64	34.13±11.69	22.54±7.13	23.38±6.21	13.91±4.24
	18	44.28±12.70	31.34±11.36	21.49±6.75	24.24±6.992	13.67±4.54
	p	0.393	**0.005**	0.269	**0.01**	0.354
Grade Level	9th Gare[1]	46.65±11.09	30.89±10.77	21.94±7.16	23.07±6.05	13.87±
	10th Grade[2]	45.52±11.06	31.59±10.73	21.26±7.38	22.01±6.64	13.77±
	11th Grade[3]	44.85±9.96	34.10±11.47	22.46±6.81	22.63±5.99	14.07±
	12th Grade[4]	46.99±12.01	32.41±12.25	22.17±6.83	24.37±6.41	13.56±
	p	0.118	**0.006**	0.389	**0.004**	0.85
Maternal Education Level	Primary School	44.20±11.15	32.10±10.55	22.26±7.37	22.08±6.43	13.80±4.24
	Secondary School	46.07±10.63	31.68±11.40	21.42±6.79	22.99±5.99	14.07±4.13
	High School	47.26±11.06	31.10±10.77	21.16±6.86	22.97±6.37	13.63±4.36
	University	47.68±11.27	33.28±12.5	22.63±7.91	23.48±6.87	13.76±4.79
	p	**0.003**	0.428	0.181	0.088	0.815
Paternal Education Level	Primary school	44.03±11.57	32.11±12.06	21.49±7.59	22.58±6.81	13.74±4.51
	Secondary school	45.47±10.99	31.95±11.08	21.83±6.94	22.52±5.85	13.89±4.11
	High school	46.59±10.78	31.69±10.77	21.70±7.1	22.73±6.35	13.74±4.4
	University	47.61±10.83	31.88±10.92	21.89±7.13	23.12±6.57	13.96±4.33
	p	**0.003**	0.991	0.216	0.421	0.945

feel good with the secretion of happiness hormone 'serotonin' (Baltaş and Baltaş, 2008; Penedo and Dahn, 2005; Bond et al., 2002). Considering these explanations in the literature, young people doing sports are more patient as a result of feeling good with the effect of sports; their approach to problems is more flexible and they make efforts to solve problems with an insistent approach.

In Table 2, life satisfaction of boys was significantly higher than girls. It is seen that there are also studies finding women's life satisfaction scores higher in the literature (Ata, 2019), contrary to the studies supporting the results of the research (Albayrak, 2016). Studies not determining a significant difference between the life satisfaction scores of female and male students are also encountered (Chow, 2005; Gilman and Huebner, 2006; Kabasakal and Uzbaş, 2013). When problem-solving skills of high school students were evaluated in terms of gender, no significant difference was found in the sub-dimensions of constructive approach, pessimistic approach and lack of self-confidence approach to problems. In the unwilling to take responsibility sub-dimension, boys' scores were found to be significantly higher than girls'. In this regard, it can be said that boys

avoid taking responsibility for problem-solving. In some studies in the literature, there is no difference in terms of gender (Işık et al., 2016; Gupta et al., 2015); whereas girls' scores are higher than boys' in the insistent-persevering approach and the negative approach to problems in some other studies (Çam and Tümkaya, 2008; Vekli and Paliç, 2012). There are also studies suggesting that boys' pessimistic approaches are higher than girls' and girls perceive themselves more effectively in problem-solving (Coşkun, 2019; Serin and Derin, 2008).

When the results were interpreted with the information that girls are given more responsibility from a young age in teaching social gender roles (Karagün, 2013), it was thought that girls also take more responsibility in problem-solving than boys with the effect of gender roles. In addition, the high level of insistent-persevering approach of men was explained as males behave insistently and perseveringly in solving a problem with the effect of learnings in social gender role teaching such as men should be fighters, go-getter, complete a job and get what they want (Karagün, 2013).

In Table 3, interpersonal problem-solving skills were not foıund significant in terms of the age variable in the

sub-dimensions of constructive approach, lack of self-confidence approach and unwilling to take responsibility approach. However, in the pessimistic approach to the problem, the 15-year-old students' scores were lower than the 17-year-old students' scores. It is seen that students in the age group of 17 are more pessimistic in problem-solving. In the literature, there are studies which find students' problem solving-skills significant in favor of the younger ones (Pakaslahti et al., 2002; Yıldırım et al., 2011), as well as studies finding no difference by age (Coşkun, 2019). Normally, as the age increases, problem-solving skills are expected to improve depending on the experiences. The fact that the study group was at the age of making professional choices and the uncertainty in their career planning was thought to have an effect on finding a result contrary to this expectation in the studies conducted. In the insistent-persevering approach, the scores of 15-year-old students were lower than the 18-year-old group. Finding positive results in favor of 18-year-old group were evaluated as more efforts were made more patiently as experience increased.

Problem solving-skills were not found significant in terms of grade level in the sub-dimensions of constructive approach, lack of self-confidence approach and unwilling to take responsibilty approach. Significantly higher scores were found in the 11th grade in the pessimistic approach and in the 12th grade in the insistent-persevering approach. In some studies, problem-solving skill scores of lower grade students were found higher than the 11th grade students (Vekli and Paliç, 2012; Yıldırım et al., 2011). In some studies, problem solving-skills in the 9th and 12th grades were lower than in the 10th and 11th grades. This is because students try to adapt to a new environment in the process of starting high school, and the students in the process of university preparation only reach the information they need and they do not display an attitude focused on solving the problem apart from that due to the increase in their anxiety level (Işık et al., 2016). In the insistent-persevering approach, the scores of the 12th grades were found higher than the scores of the 10th grades. In the literature as age grows, the perception of problem-solving increases (Tümkaya and İflazoğlu, 2000). This is because the scores of pessimistic approach to problems increased in the 11th grade, when adolescence is experienced intensely; it might be that a decision in the choice of profession had not yet been clarified and there was uncertainty towards the future. The reason why the scores of insistent-persevering approach increased in the 12th grade might be that they were in the process of university preparation and they experienced that they needed to solve problems approaching them more insistently in academic terms.

Problem-solving was not found significant in terms of parental education status in the sub-dimensions of pessimistic approach, lack of self-confidence approach, insistent-persevering approach and unwilling to take responsibility approach. Considering the education level

of both mother and father, as education level increased, constructive approach increased. It was thought that it is because educated parents become role models for their children as a result of raising conscious children and their rational and more systematic approach to the events. Besides the studies supporting these findings (Tümkaya and İflazoğlu, 2000; Yıldırım et al., 2011), there are also studies reporting that the educational status of the mother and father has no effect (Elkin and Karadağlı, 2015; Serin and Derin, 2008). It is thought that a constructive approach is developed as a result of the development of a different perspective on problems as education level increases.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

REFERENCES

Albayrak E (2016).The relationship between the physical activity's level and the life satisfaction level of undergraduate. Unpublished Master's thesis. Amasya Univesity Social Sciences Institute, Department of Physical Education and Sports Teaching Amasya.

Ata N (2019). İnvestigation of life satisfaction and exercise perceptions of university students according to exercise behavior. Unpublished Master's thesis. Tekirdağ Univesity Health Sciences Institute, Department of Physical Education and Sports. Tekirdağ.

Baltaş A, Baltaş Z (2008). Stress and coping styles. 24th Edition, İstanbul: Remzi Bookstore.

Bond DS, Lyle RM, Tappe MK, Seehafer RS, D'Zurilla TJ (2002). Moderate aerobic exercise, t'ai chi and social problem-solving ability in relation to stres. İnternational Journal of Stres Management 9(4):329-343.

Basso JC, Suzuki WA (2017). The effects of acute exercise on mood, cognition, neurophysiology, and neurochemical pathways: A review. Brain Plasticity 2(2):127-152. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5928534/

Chow HPH (2005). Life satisfaction among university students in a Canadian prairie city: A multivariate analysis. Social Indicators Research 70:139-150.

Coşkun Z (2019). Investigation of interpersonal problem-solving skills and trait anger styles in elite dancers. Unpublished Master's thesis. Muğla Sıtkı Koçman University, Institute of Social Sciences, Department of Recreation. Muğla.

Crede J, Wirthwein L, Mc Elvany N, Steinmayr R (2015). Adolescents' academic achievement and life satisfaction: The role of parents' education. Frontiers in Psychology 6:52.

Çam S, Tümkaya S (2008). Validity and reliability study of interpersonal problem-solving inventory for high school students. International Journal of Human Sciences 5(2):1-17.

Demirtaş H, Dönmez B (2008). Secondary school teachers' perceptions about their problem-solving abilities. İnönü University Journal of the Faculty of Education 9(16):177-198.

De Vries HA (1981). Tranquilizer effect of exercise; A critical review. The Physician and Sports Medicine 11:45-54.

Diener E (1984). Subjective well-being. Psychological Bulletin 95(3):542-575.

Diener ED, Emmons RA, Larsen RJ, Griffin S (1985). The satisfaction with life scale. Journal of Personality Assessment 49 (1):71-75.

Elkin N, Karadağlı F (2015). Evaluation of problem-solving skills of university students. Adıyaman University Health Science Journal 1(1):11-18.

Erden G, Gürdil G (2009). Trauma reactions observed in children and adolescents after their war experiences and psycho-social

assistance suggestions. Turkish Psychology Articles 12(24):1-13.

Gilman R, Huebner ES (2006). Characteristics of adolescents who report very high life satisfaction. Journal of Youth and Adolescence 35(3):293-301. https://www.deepdyve.com/lp/springer-journals/characteristics-of-adolescents-who-report-very-high-life-satisfaction-JqVkfLf0JY

Gupta M, Pasrija P, Kavita (2015). Effect of problem-solving ability on academic achievement of high school students: A comparative study. Bhartiyam International Journal of Education and Research 4(II):45-59. http://www.gangainstituteofeducation.com/NewDocs/vol-4/issue-3/2.pdf

Işık M, Kılıç İ, Kaplan O (2016). The role of sports on problem-solving skills of high school students: An application in Afyonkarahisar, Journal of Human Sciences 13(3):5449-5459.

Kabasakal Z, Uz Baş A (2013). Problem-solving skills as a predictor of life satisfaction in teacher candidates. Journal of Education and Training Researches 2(1):27-35.

Karagün E (2013). Karagün E. gender, women and sports. İn Tekcan M. (Eds), Women's book. Kocaeli, Turkey: Umuttepe Publications pp. 301-328.

Karagün E (2016). Physical education and sports course in terms of youth mental health. A. Görgün-Baran, M. Çakır (Eds.). İn The hope of youth, expectations of the society with an inter-disciplinary approach, Ankara, Turkey: Hacettepe University Press, pp. 391-413.

Karasar N (2005). Scientific Research Method. Ankara, Turkey: Nobel Publishing.

Köker S (1991). Comparison of normal and problematic adolescents' life satisfaction levels. Unpublished Master's thesis, Ankara University, Institute of Social Sciences, Ankara.

Maher JP, Doerksen SE, Elavsky S, Hyde AL, Conroy DE (2014). Daily satisfaction with life is regulated by physical activity and sedentary behavior. Journal of Sport and Exercise Psychology 36(2):166-78.

Meyers RJ, Roozen HG, Smith JE (2011). The community reinforcement approach: An update of the evidence. Alcohol Research and Health 33(4):380-388.

Müftüoğlu O (2005). Long Live Life. 35th Edition. İstanbul, Tukey: Doğan Bookstore.

Özer M, Karabulut ÖÖ (2003). Life satisfaction in elderly. Turkish Journal of Geriatrics 6(2): 72-74.

Pakaslahti L, Karjalainen A, Keltikangas-Järvinen L (2002). Relationships between adolescent prosocial problem-solving strategies, prosocial problem-solving strategies, prosocial behaviour, and social acceptance. International Journal of Behavioral Development 26(2):137-144.

Penedo FJ, Dahn JR (2005). Exercise and well-being: A review of mental and physical health benefits associated with physical activity. Current Opinion in Psychiatry 18:189-193.

Plagnol AC, Easterline RA (2008). Aspirations, attainments and satisfaction: Life cycle differences between American women and men. Journal of Happiness Studies 9:601–619.

Serin NB, Derin R (2008). The factors affecting primary school students' perceptions of interpersonal problem-solving skills and levels of locus of control. International Journal of Human Sciences 5(1):1-18.

Shim S. Barber BL, Card NA, Xiao J J, Serido J (2010). Financial socialization of first-year college students: The roles of parents, work, and education. Journal of youth and adolescence 39(12):1457-1470.

Tiabashvili T, Mirtskhulava R, Japaridze M (2015). Increasing emotional intelligence among early adolescents: Mythodrama group psychotherapy approach. Problems of Education in The 21st century 66:67-74. http://www.scientiasocialis.lt/pec/files/pdf/vol66/67-74.Tiabashvili_Vol.66_PEC.pdf

Toros T, Akyüz U, Bayansalduz M, Soyer F (2010). Investigation of the relationship between task and ego oriented goals and life satisfaction (A Study on those doing mountaineering sports). International Journal of Human Sciences 7 (2):1039-1050.

Tümkaya S, İflazoğlu UA (2000). Examination of automatic thought and problem-solving levels of classroom teaching students of Çukurova University according to some socio-demographic variables. Journal of Çukurova University Institute of Social Sciences 6(6):143-158.

Vekli GS, Paliç G (2012). Determination of problem-solving skills perceptions of high school students. Journal of Educatıonal and Instructıonal Studıes in The World 2(1):89-95.

Yıldırım A, Hacıhasanoğlu R, Karakurt P, Türkleş S (2011). Problem-solving skills of high school students and affecting factors. International Journal of Human Sciences 8(1):905-921.

Related Journals:

International Journal of
Educational Administration and Policy Studies

International Journal of
English and Literature

Journal of Languages and Culture

Journal of
Fine and Studio Art

International Journal of
Library and Information Science

Journal of Media and Communication Studies

Philosophical Papers and Review

Journal of
African Studies and Development

Journal of
Music and Dance

www.academicjournals.org