

# Educational Research and Reviews

Volume 11 Number 19 10 October, 2016

ISSN 1990-3839



## ABOUT ERR

Educational Research and Reviews (ISSN 1990-3839) is published bi-monthly (one volume per year) by Academic Journals.

**Educational Research and Reviews (ERR)** is an open access journal that publishes high-quality solicited and unsolicited articles, in English, in all areas of education including education policies and management such as Educational experiences and mental health, the effect of land tenure system on resource management, Visualization skills and their incorporation into school curriculum, Gender, education and child labour etc. All articles published in ERR are peer-reviewed.

### Contact Us

Editorial Office: [err@academicjournals.org](mailto:err@academicjournals.org)

Help Desk: [helpdesk@academicjournals.org](mailto:helpdesk@academicjournals.org)

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

Submit manuscript online <http://ms.academicjournals.me/>.

## Editors

**Dr. Peter W. Wong**  
*Southern Cross University*  
*Australia.*

## Associate Editors

**Dr. Melissa Vick**  
*School Of Education*  
*James Cook University*  
*Townsville,*  
*Australia.*

**Dr. Maniam Kaliannan**  
*Faculty of Administrative Science & Policy Studies*  
*Universiti Teknologi MARA (UiTM)*  
*Selangor,*  
*Malaysia.*

**Dr. Tavis D. Jules**  
*Cultural and Educational Policy Studies*  
*School of Education*  
*Loyola University Chicago*  
*Chicago,*  
*USA.*

**Dr. Adams Onuka**  
*Centre for Peace and conflict Studies (CEPACS)*  
*University of Ibadan*  
*Nigeria.*

**Dr. Yambo John M. Onyango**  
*University of Eastern Africa*  
*Kamagambo Adventist College Campus*  
*Baraton,*  
*Kenya.*

**Dr. Tolga Gök**  
*Torbali Vocational School of Higher Education*  
*Dokuz Eylul University*  
*Izmir,*  
*Turkey.*

**Assoc. Prof. Manjula Vithanapathirana**  
*Faculty of Education*  
*University of Colombo*  
*Colombo,*  
*Sri Lanka.*

**Dr. Ahmet Basal**  
*Yıldız Technical University*  
*Education Faculty*  
*Foreign Languages Education Department*  
*İstanbul,*  
*Turkey.*

**Prof. Lazarus Ndiku Makewa**  
*University of Eastern Africa*  
*Baraton,*  
*Kenya.*

**Prof. Ogunsakin R. Ebenezer**  
*Department of Statistics*  
*Ekiti State University*  
*Ado Ekiti,*  
*Nigeria.*

**Dr. A. Kadir Maskan**  
*Dicle University*  
*Ziya Gokalp Education Faculty*  
*Department of Physics Education*  
*Diyarbakir,*  
*Turkey.*

**Dr. Mohd Akhtar Siddiqui**  
*Institute of Advanced Studies in Education*  
*Faculty of Education*  
*Jamia Millia Islamia Central University*  
*New Delhi,*  
*India.*

## Editorial Board

**Prof. García Mayo, María del Pilar**

*Departamento de Filología Inglesa y Alemana y de Traducción e Interpretación  
Universidad del País Vasco (UPV/EHU)  
Paseo de la Universidad 5  
Vitoria,  
Spain.*

**Prof. Frank Witlox**

*Ghent University  
Department of Geography  
Gent,  
Belgium.*

**Prof. Georgios D. Sideridis**

*University of Crete  
Department of Psychology  
Rethimno,  
Greece.*

**Prof. Andreas Veglis**

*Department of Journalism and Mass Media  
Aristotle University of Thessaloniki  
Thessaloniki,  
Greece.*

**Prof. Mutendwahothe Walter Lumadi**

*Curriculum & Instructional Studies  
College of Education  
UNISA,  
South Africa.*

**Dr. Miriam McMullan**

*Faculty of Health and Social Work  
University of Plymouth  
Plymouth,  
UK.*

**Prof. Moshe Barak**

*Graduate Program for Science and Technology Education  
Ben-Gurion University of the Negev,  
Beer Sheva,  
Israel.*

**Dr. Hiam Zein**

*Psychology and Education  
Lebanese American University  
Chouran-Beirut,  
Lebanon.*

**Dr. Joel O. Eriba**

*Faculty of Education  
Benue State University  
Makurdi,  
Nigeria.*

**Prof. Bingjun Yang**

*School of Foreign Languages  
Southwest University  
Chongqing,  
China.*

**Dr. Ernest W. Brewer**

*The University of Tennessee  
Educational Administration and Supervision  
Tennessee,  
USA.*

**Prof. Gail Derrick**

*Regent University  
School of Education  
Virginia Beach,  
USA.*

**Dr. Evridiki Zachopoulou**

*Department of Early Childhood Care and Education  
Thessaloniki,  
Greece.*

**Dr. Francesco Pastore**

*Seconda Università di Napoli  
Italy,*

**Dr. Syed Iftikhar Hussain Shah**

*Technical Education and Vocation  
TEVTA Secretariat  
Lahore,  
Pakistan.*

**Dr. Ravi Kant**

*College of Teacher Education  
Maulana Azad National Urdu University  
Darbhanga,  
India.*

**Dr. Dibakar Sarangi**

*Directorate of Teacher Education and State Council for  
Educational Research and Training  
(DTE & SCERT)  
Odisha,  
India.*

**Dr. Elisa Backer**

*Faculty of Business  
Federation University Australia  
Australia.*

**Dr. Ahmad Alkhalwaldeh**

*Department of Curriculum and instruction  
University of Jordan  
Jordan.*

## Educational Research and Reviews

Table of Contents: Volume 11 Number 19 10 October, 2016

### ARTICLES

- |  |             |
|--|-------------|
| <b>The development effectiveness management model for sub-district secondary school</b><br>Akachai Butsanom, Chaiyuth Sirishuthi and Preeda Lammana                  | <b>1790</b> |
| <b>Challenging segregational practices in a Spanish secondary school: Results from an ethnographic research</b><br>Joan-Anton Sanchez-Valero and Paulo Padilla-Petry | <b>1805</b> |
| <b>Examining the values of students in the physical education and sport departments</b><br>Mehmet Gullu  | <b>1812</b> |
| <b>Comparison of the physical education and sports school students' multiple intelligence areas according to demographic features</b><br>Cem Sinan Aslan             | <b>1823</b> |
| <b>Needs analysis of responsibility curriculum for primary school students</b><br>Semra Güven, Aysun Öztürk and Serap Nur Duman                                      | <b>1831</b> |
| <b>Analysis of analogy use in secondary education science textbooks in Turkey</b><br>Süleyman Akçay  | <b>1841</b> |
| <b>Comparison of sports sciences and education faculty students' aggression scores</b><br>Tülin Atan   | <b>1852</b> |

*Full Length Research Paper*

# The development effectiveness management model for sub-district secondary school

Akachai Butsankom<sup>1\*</sup>, Chaiyuth Sirishuthi<sup>1</sup> and Preeda Lammana<sup>2</sup>

<sup>1</sup>Faculty of Education, Mahasarakham University, Thailand.

<sup>2</sup>Roi-Et Wittayalai School Roi-Et Province, Thailand.

Received 5 May, 2016; Accepted 14 September, 2016

The purposes of this research were to study the factors of effectiveness management model for sub-district secondary school, to investigate current situations and desirable situations of effectiveness management model for sub-district secondary school, to develop the effectiveness management model for sub-district secondary school and to study the effects of effectiveness management model for sub-district secondary school. This study was conducted in 4 phases which include first, studying the factors of effectiveness management model for sub-district secondary school, secondly investigating current situations and desirable situations of effectiveness management model for sub-district secondary school, thirdly developing effectiveness management model for sub-district secondary school and the last examining the results of usage of the effectiveness management model for sub-district secondary school. The target group consists of 33 teachers at Dongmafaiwittaya School, Secondary Educational Service Area Office 23, which was the research field. The instruments used in this study were two types: Firstly manual of development effectiveness management model, Secondly instruments used for data collection: questionnaire, non-structure interview and evaluation form. The statistics used for data analysis were percentage, mean and standard deviation. The findings of the research were as follows: The factors of effectiveness management model for sub-district secondary school comprised of input, process and output; the current situations and desirable situations of effectiveness management model for sub-district secondary school were in the 'highest' level in every aspect; the development effectiveness management model for sub-district secondary school found that the factors of effectiveness management model for sub-district secondary school comprised of 3 aspects, 18 main factors and 102 sub-factors; the results of using the effectiveness management model for sub-district secondary revealed that it was suitability and feasibility in overall.

**Key words:** Effectiveness management, sub-district secondary school, development effectiveness.

## INTRODUCTION

School is the most important educational organization created for the development of quality learners and the

\*Corresponding author. E-mail: akachai.but@gmail.com.

quality of schools. These are the most important mission of Ministry of Education, especially in the development of local schools. Most students in these schools lacked the chance of getting entrance in schools. The World Bank reported that the results of operation in the development of education in Thailand about the educational opportunity expansion were very successful. However, the quality of education tended to reduce except only schools in Bangkok area that had learning achievement as average value of America. But most schools in local area were distressed.

The research findings showed the essence of quality educational management is to develop disadvantaged students in local areas, which in turn will lead to good economic returns for countries, and it can reduce social problems and develop people's way of life. Thus, educational reform has the development principles in terms of "quality, opportunity and participatory" (Office of the Basic Education Commission, 2010). Ministry of education and office of the basic education commission realize the importance of operation supporting educational development area according to educational reform guideline in the second decade about quality development and participatory opportunity.

This lead to the project "A Good School in Tambon (sub-district)" it is set up to develop 'School Quality' in local area because it could be a place to service quality education and to support educational management of early childhood and special education. And it can be one stop service center and community learning sources. It will make communities to be part of the school and have sense of self belonging, trust school and send their children to study at school. Besides, it reduces parent's expenses and builds people's good quality. Schools and communities can provide the useful and effective activities in order to get good image of 'A Good School in Tambon (sub-district)' in terms of "Lively school, good teachers, quality students, cooperative communities, sharing taking a rest" (Office of the Basic Education Commission, 2010).

The research involved in effectiveness management model in Thailand was studied in many schools in Jarunee. Mukprom (2002) mentioned that the study of the effectiveness of middle secondary school, Department of General Education, khon-kean province was in "much" level as follows: atmosphere, administrator leadership, process and resource, except making decision which was in "moderate" level.

This is related to the research of Sridadej (2006) reporting that the effectiveness management model of the administrators of office of the Basic Education Commission of Thailand revealed that the effectiveness management model of administrators comprised of four factors which are social system factor including with four sub-factors: adjustment, the objectives, integration and treatment schemes. Secondly, management skill factor

including with nine sub-factors: techniques skill, human skill, conceptual skill, ethics skill, academic skill, technology skill, diagnostic skill, communicative skill and political skill. Thirdly, administration duty factor which consists of seven sub-factors: planning, organization management, mastery, leader, coordination or liaison, the budget and controlling. Lastly, management roles factor which comprised of three main factors that is, first, relational person role including four sub-factors: organization symbolic role, organization leader role, organization relationship builder role and team builder role. Second, information technology role which consists of four sub-factors: follower, publisher information, public relations person and supervisor. Thirdly, making decision role consisting of five sub-factors: operator, disturbance handler, trouble shooter, resource manager and negotiator.

Besides, as Ruenthong (2007) stated, the research of effectiveness school management model aims to study the factors and the model of effectiveness school management. The research procedures had four stages; the first, analysis to define the conceptual framework under principles, effectiveness school management theory. The second, analysis of the feasibility and model development of effectiveness school management, The third, checking and designing the effectiveness school management model. And the fourth, improving and presenting the effectiveness school management model. The findings found that firstly, the factors of the effectiveness school management model comprised of eight factors: learning organization; professional administrator and teacher; quality assurance in education, accountability and reliability; learning environment; vision and common purpose; focusing on teaching and learning; purposive learning; high expectation towards students. Secondly, the effectiveness school management model had the important factors as follows: accuracy, suitability, feasibility and useful application.

Therefore, developing education in sub-district secondary school can be perfect, it can increase opportunity to access quality education by students in local areas and can support cooperation or participation of communities and local organizations. However, schools have to be effective and to develop in all aspects in order to improve students' life quality. Sergiovanni (1991) pointed that quality school management helps quality learning. Office of the Basic Education Commission wants sub-district secondary schools to develop students to be morally sound, academic leaders, good students of Tambon and to catch up with the changing social world.

According to the reasons earlier mentioned, the researcher realizes that it is necessary to develop effectiveness management model for sub-district secondary schools to be an effective management and to help administrators, teachers and educational personnel; this

model could be used to be a guideline in developing school management in sub-district secondary schools effectively.

### Purposes of the research

The purposes of this research are as follows:

1. To study the factors of effectiveness management model for sub-district secondary school.
2. To investigate current situations and desirable situations of effectiveness management model for sub-district secondary school.
3. To develop the effectiveness management model for sub-district secondary school.
4. To examine the results of using the effectiveness management model for sub-district secondary school.

### METHODOLOGY

The procedure of the study comprised 4 phases:

Phases 1: Studying the factors of effectiveness management model for sub-district secondary school.

Phase 2: Investigating current situations and desirable situations of effectiveness management model for sub-district secondary school.

Phases 3: Developing effectiveness management model for sub-district secondary school.

Phase 4: Examining the results of using the effectiveness management model for sub-district secondary school (Figure 1).

### RESULTS

The findings of the research were divided into 4 parts:

1. The results of studying the factors of effectiveness management model for sub-district secondary school consisted of 2 steps:

First, the results of analysis of the documents and research involved the theory of effective factors and effective school management by content analysis found that the factors of effectiveness management model for sub-district secondary school comprised of: learners quality consisting of 11 sub-factors, teachers and personnel quality consisting of 15 sub-factors, professional administrator consisting of 15 sub-factors, learning center consisting of 7 sub-factors and the last atmosphere and environment of school consisting of 8 sub-factors.

2. The findings of interviewing three administrators of 'Best Practice Secondary School' that is, School's King Award, School, a warranted school from the Office of Education Standard and Quality Assessment and a Good

School in Tambon (sub-district), found that the factors of effectiveness management model for sub-district secondary school comprised of:

**Input:** The strategic plan, mission, school's goal, school's policy; The human resource, equipment and fund sources; the environment for learning.

**Process:** Planning the strategy; providing school management infrastructure actively; curriculum management; the strategy of providing learners development activities; the suitable personnel management; the leadership of administrator; the coordinating internal and external school; the supporting learning atmosphere in physical and social; the participation of teachers, parents and community; the internal quality education assurance.

**Output:** The quality of learners; the quality of teachers and educational personnel; the professional administrator; the learning center; the school atmosphere and environment

2. The findings of current situations, desirable situations of school management for sub-district secondary school, and the questionnaire were distributed to a sample group of 244 administrators, and 185 questionnaires responses were collected respecting 75.9%. Most of them were 105 school administrators, representing 56.8%, and they have had experience for 16 years up. They were 62 persons (33.5%). The school location found that most of schools were in the Northeast, (58 schools (31.4%)). The current situations of effectiveness management model for sub-district secondary school in input aspect was in 'much' level ( $X=4.2$ ), considering each aspect found that every aspect was 'much'. And the desirable situations of effectiveness management model for sub-district secondary school in input factor was in 'very much' level in over all ( $X=4.6$ ). Considering each aspect found that it was 'very much' in overall. The current situations of effectiveness management model for sub-district secondary school in process aspect was in 'much' level in overall ( $X=4.0$ ). Considering the aspects were ranked from 'very much' to 'little' that is, coordinating internal and external school was in 'much' level ( $X=4.1$ ), providing school management infrastructure was in 'much' level ( $X=4.1$ ), providing suitable personnel management was in 'little' level ( $X=3.9$ ). And the desirable situation in process aspect was in 'very much' level ( $X=4.5$ ) in overall. Considering the aspects were ranked from 'very much' to 'little' that is, coordinating internal and external school ( $X=4.6$ ), leadership administrator ( $X=4.6$ ) and strategic planning ( $X=4.5$ ) respectively. The current situation of effectiveness management model for sub-district secondary school in output aspect was in 'much' level in overall ( $X=4.1$ ). Considering each aspect was in 'much' level in every aspect. The desirable situation in output



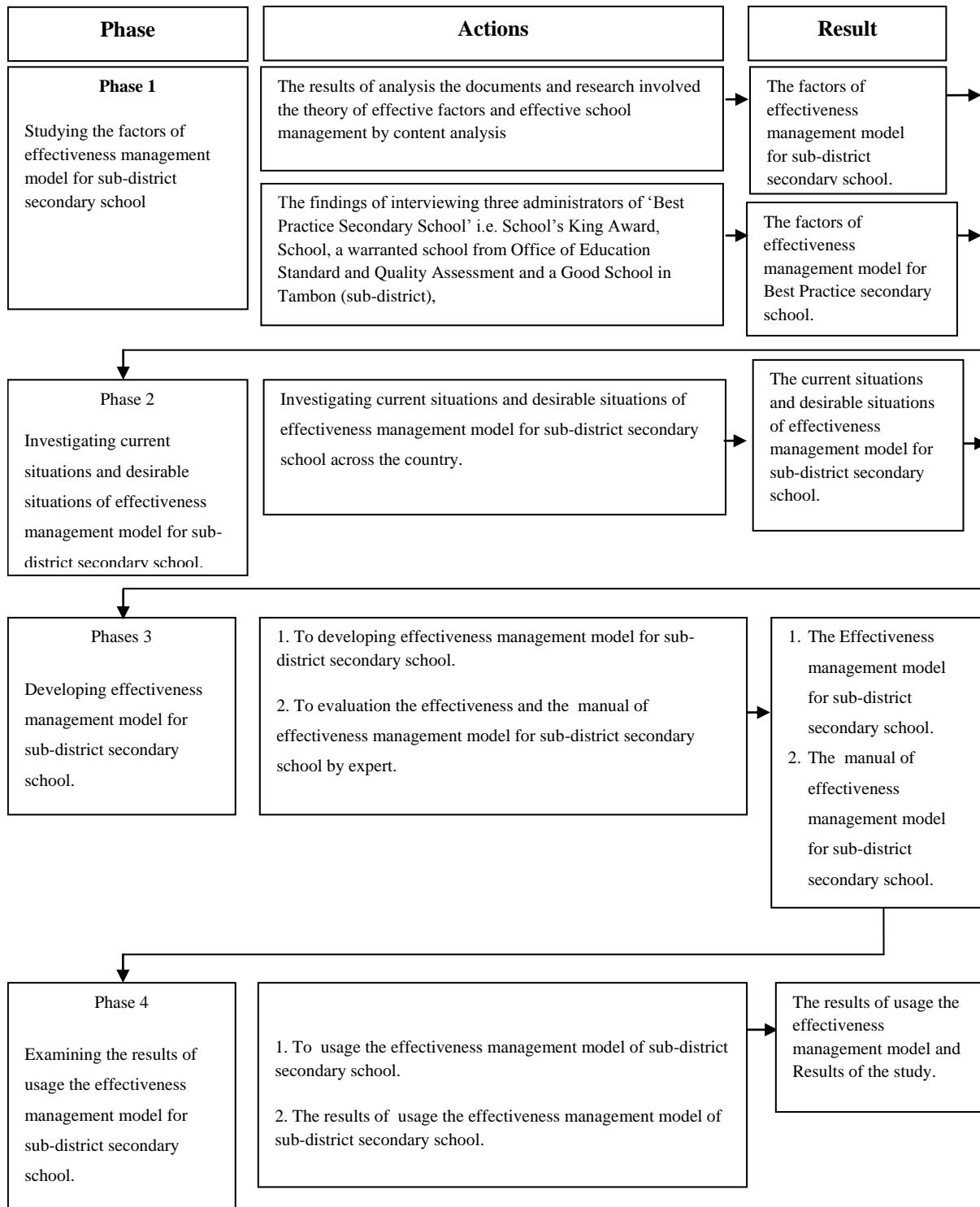


Figure 1. Steps of study.

aspect was in ‘very much’ in overall (X=4.5). Considering each aspect was in ‘much’ level every aspect.

3. The results of development effectiveness management model for sub-district secondary school consisted of three

aspects which include 18 factors and 102 sub-factors as follows:

### **Input**

1. Strategic plan, mission and school's policy comprise three sub-factors which are administrators' leadership skill; schools' strategic plan, mission, goal and policy; schools' target for developing students' knowledge and moral to live in the society happily.
2. Human sources, equipment and funds consist of three sub-factors: Schools' knowledge and personnel; schools having enough equipment and funds for educational management; school having strategic budget and facilities for effective management.
3. Environment for learning comprises three sub-factors which are school with clean, neat communities; school having fresh, beautiful and natural environment; schools without vices.

### **Process**

1. Strategic plan comprises five sub-factors: Schools having prepared strategic plan, schools having analysis environment, schools evaluating current situations, schools with defined target and goal, schools applying strategic plan.
2. Providing infrastructure of active school management consisted of five sub-factors: Schools with defined command line, clear criterion, schools having map of school and clarifying clear responsibility and duty, schools defining relations between personnel and organization clearly, schools having formal communication, schools dividing personnel's burdens based on their ability.
3. Curriculum management consisted of five sub-factors: Schools having curriculum management supporting objectives and learning standards, schools with defined goal and directions for development of students' personality and characteristics, schools with vision, target, learners' competencies, desirable characteristics, learning standard and clear indicators, schools having directions for curriculum and learning development in different class levels, schools having defined learning time outline for each subject group yearly.
4. Strategy of learner's activities development comprised five sub-factors; learners developed to complete humans and intelligent in the society, learners built to be morally and ethically sound, learners taught to be discipline, learners trained and given public consciousness, learners managing themselves and living with others happily.
5. A suitable personnel management comprises five sub-factors: Schools developing personnel to increase their knowledge and ability, schools evaluating the results of working systematically, schools motivating all personnel to work continuously, schools supervising teachers

teaching in order to follow up students' advancement, effectiveness management for teachers and administrators.

6. Leadership skills of administrators comprise five sub-factors which are administrators as leaders in teaching and learning and administrators as builders of inspiration,
7. Coordination of internal and external school comprises sub-factors as follows: schools and other organizations working together in order to get the same goal, schools having a related work process in order to be efficient, schools co-operating and having working facilities, schools building up cooperation between teachers and parents, schools providing network with others in order to use learning resources together.
8. Supporting learning atmosphere, the society comprises sub-factors as follows: school providing basic facilities that is, providing media and equipment for learning, schools producing responsible students in the physical environment, schools creating the atmosphere for learning and teaching, schools having suitable environment, schools providing suitable buildings for learning.
9. Participation of teachers, parents and communities consisted of sub-factors as follows: Schools promoting variety of participatory styles, schools promoting teachers, parents and communities' participation, cooperative working plan between schools and parents, budget administration focusing on participation of schools and parents, implementation, follow up and evaluation by schools and parents.
10. Internal quality assurance comprises sub-factors as follows: Schools with internal quality assurance, schools providing committee with internal quality assurance, schools following quality administration system, schools evaluating internal quality assurance, schools reporting the evaluation of internal quality assurance to agencies and communities.

### **Output**

1. Learners quality comprised sub-factors as follows: Student has skills of self access learning and more learning achievement; Student is able to adjust themselves to environment and to live in the society happily; student has a responsibility to themselves, school and community; student has a thinking process systematically and a creative thinking and a solving-problem thinking reasonably; student has a rule and a discipline; Student loves learning and self-development; Student has knowledge and fundamental skills, he is able to study further in higher education; student has ethics and morality and the desirable values; student has knowledge and essential skill on curriculum criterion provided; student has a good attitude to honest job and seeks for interested job; lastly student has ability to play

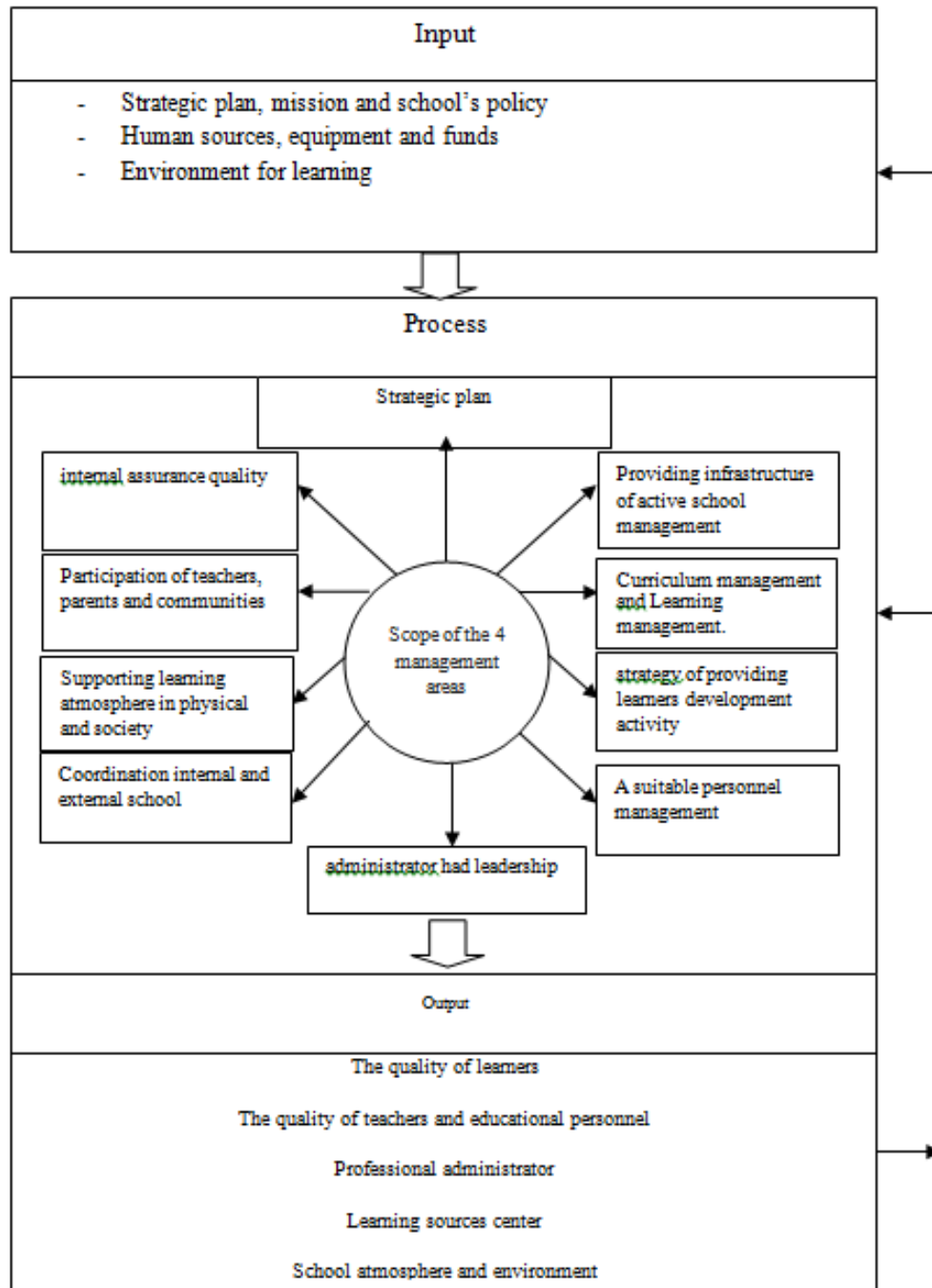


Figure 2. Model of effectiveness management model for sub-district secondary school.

music, sports, entertainment and technology information.  
 2. The quality of teachers and educational personnel comprised sub-factors as follows: Satisfaction of teachers and education personnel; co-planning about student's caring between teachers and education personnel; teacher and personnel development efficiency; student's

caring closely; time-learning management to be extreme usefulness; co-goal and co -expectation explicitly; following up student's progress regularly; searching and selecting personnel to match knowledge, ability and a suitable position; usage system of morality to get people to work; focusing on training and personnel development

in all level thoroughly and continuously; supporting personnel to advance in his job and position; all personnel level has motivation in working; teachers and personnel have knowledge and understanding curriculum and learning and teaching activity management that focus on learner-center; teachers and personnel have evaluation for learning development of learners with variety techniques.

3. Professional administrator consisted of sub-factors as follows: Administrator has a vision, a leadership and a creative thinking; Administrator is usually able to change, develop school; administrator has ability to solve school's problems efficiently; Administrator has clearly defined a vision, a mission and a goal of working; administrator has encouraged the group-relationship; administrator is a participatory leader; administrator has planned the administration in annual action plan in terms of short plan and long plan; administrator has properly changed an action plan with the current situation; administrator has defined the decentralized structure that is relevant to the principle of democracy; administrator has defined the clear structure that is flexible, convenient and rapid coordination; administrator has the system and the process to follow up, check teachers' and personnel's operation; administrator has properly authorized in diagnose, command and making decisions to subordinators; administrator has change agent to convince the school's progress; administrator has created the cooperation inside and outside school, administrator has the responsibility and devotes himself in working.

4. Learning sources center comprised sub-factors as follows: School has a learning management to support learners' learning; School is a learning community; school has provided a permanent learning environment; school has an opportunity for personnel to exchange learning to develop learning and teaching management together; School is a learning source for developing the quality of learners; school has the academic exchanging system inside and outside school; and school uses the participatory system to create knowledge network.

5. Atmosphere and environment of school comprised sub-factors as follows: School has environment for learning; there is neat, fresh, clean and beautiful building management; school has parents' support and participation; there is a positive relation between home and school; school is without the vices; school has completed building, laboratories and sport field; school has learning atmosphere in and out of classroom.

4. The findings of examining the results of usage of the effectiveness management model for sub-district secondary school.

The results on the use of effectiveness management model for sub-district secondary school revealed that the suitability of effectiveness management model in input aspect was in 'very much' level in overall ( $X=4.6$ ).

Considering each aspect, it was suitable in every aspect, it was in 'very much' level. And the feasibility of effectiveness management model in input aspect was in 'very much' level in overall ( $X=4.6$ ). Considering each aspect, the feasibility was in 'very much' level in every aspect. And the suitability of process aspect of effectiveness management model found that was in 'very much' level in overall ( $X=4.6$ ). Considering the aspects were ranked that is, administrator had leadership and strategy of providing learners development activity, ( $X=4.6$ ), internal assurance quality ( $X= 4.6$ ) accordingly.

The feasibility of effectiveness management model for sub-district secondary school in process aspect was in 'very much' level in overall ( $X=4.6$ ). Considering the aspects were ranked that is, internal assurance quality and strategy of providing learners development activity ( $X=4.7$ ), coordinating internal and external school and a high leadership administrator ( $X=4.6$ ). The suitability of effectiveness management model for sub-district secondary school in input aspect found that it was in 'very much' level ( $X=4.6$ ) in overall. Considering each aspect was suitable in every aspect. The feasibility of effectiveness management model in output aspect was in 'very much' in overall ( $X=4.6$ ). Considering each aspect, it was feasible in every aspect. Comparing pre-and post treatment of usage the effectiveness management model for sub-district secondary school revealed that there was a significant difference. The level of significance is 0.05. And the operation manual of effectiveness management model for sub-district secondary school was also suitable in 'very much' level.

## DISCUSSION

According to this study, the conclusions of the research findings found that there were interesting issues for discussion which are:

1. The findings of studying the factors of effectiveness management model for sub-district secondary school demonstrated that the factors of effectiveness management model in Input aspect consisted of three factors: Strategic plan, mission, school goal and policy of school; human resources, equipment and funds; environment for learning; Process aspect comprised ten factors that is: strategic plan; providing infrastructure of active school management; curriculum management; the strategy of learner's activities development; a suitable personnel management; leadership administrator; coordination internal and external school; supporting learning atmosphere in physical and society; participation of teachers, parents and communities; internal quality assurance; Output aspect consisted of five factors which are: the quality of learners; the quality of teachers and educational personnel; professional administrator;

Learning sources center; school atmosphere and environment. This was supported by Ruenthong (2007) in "A Study Effectiveness School Management Model" which consists of 8 factors which are professional administrator; defining vision and school goal cooperatively; high expectation to students; focusing on learning and teaching; teaching objectively; environment for learning; quality assurance, accountability and reliability, and learning organization. As Edmonds (1979) mentioned that an effective school consisted of these factors: strength leadership of administrator; specialist of basic skills; clean, neat and safe environment situations; teacher's high expectation to students; and following up student's advancement continuously. This is also supported by Sammons et al. (1995) in a study on the factors of effectiveness school which comprised of professional administrator, defining vision and school goal cooperatively, environment for learning, strength of learning and teaching, the lesson plan of clear learning objectives, high expectation to school and students, teacher's motivation, following up student's advancement and school improvement, the responsible students, cooperation between school and parents, and learning organization. As Sergiovanni (1991) said that an effective institution has the following factors as follows: focusing on learner –center; a good academic plan; providing learning and teaching to support learner's learning; providing a positive school atmosphere; supporting the interaction among groups; providing personnel development widely; participatory leadership; supporting problem solving creatively; and participation of parents and communities.

The results of each factor were as follows:

1. The quality of students revealed that the factor of learning achievement was higher; students could adapt themselves to environment situations and had responsibility to own self and school. And they had the best of academic, had self-discipline, positive thinking in education and basic skills. Besides, they could learn further in higher education. And they had morality and ethics and desirable values on basic educational curriculum and they had known basic profession relating to community. Furthermore, they had also ability in sports, music and information technology. It was supported by Office of Education Standards and Quality Assessment (2012: 17) mentioned the quality of learners that learners had aesthetics, it implied that learners realized in value of virtue and they had a good motion and appreciated in training variety of learning activities of curriculum provided that is, arts, music, performing arts, literature, entertainments. Learners had morality, ethics and desirable values. It meant that they were good children of their parents, good students of school and community. Besides, they were eager for knowledge

and learning continuously, they could seek for the knowledge and access learning the lesson learned by using technology in various styles that is, listening, watching and note-taking on printing Medias, brochures, advertisements and electronic Medias, etc. Besides, they could think analysis, synthesis, systematically, critically, creatively. So, these helped them build up the learning concept by themselves and could help them make decision by own self and solve their problems and society suitably.

2. The quality of teachers and educational personnel found that the factors of working satisfaction were as follows: cooperative planning for the students caring and support between teachers and personnel, teacher development effectively, caring students closely, learning time management maximize the benefits, clear goal and expectations cooperatively, following up advancement' learners continuously, learning management focusing on learner center, providing the good governance for personnel application, personnel recruitment on their own knowledge and ability, development all personnel continuously, supporting personnel to advancement in career and position, building up motivation to personnel's working, teachers and personnel could know and understand the curriculum and learning and teaching management in terms of learner center and teachers an personnel had measured and evaluated for various learning development. As Office of Education Standards and Quality Assessment (2012 ) referred that teachers could have the effective learning and teaching management focusing on learner-center, define the learning target of learners in process skills in terms of learning concept, principle, interaction and desirable values. Teachers could analyze learners individually and provide various activities on their own pace, and design learning styles and various evaluation styles to suit them best. Besides teachers could provide learning atmosphere and medias for learners and provide local knowledge to integrate with their lesson. The teachers could evaluate learner's advancement and got feedback to improve learners learning, then teachers could do the classroom based research.

3. Professional administrator consisted of sub-factors as follows: administrator had vision, leadership and creative thinking, administrator could adapt and develop school continuously, administrator was able to solve the problems within school effectively, administrators defined vision, mission and goal of clear operation, administrator supported group interaction within school, administrator was participatory leadership, administrator had planned operation management in an annual plan: a short plan and a long plan, administration adapted an operation plan to suit the current situations, administrator defined infrastructure of decentralization and related to democracy principle, administrator defined clear and active infrastructure in order to coordinate convenient and fast

working, administrator had editing process for teachers and personnel systematically, administrator decentralized for making decision to teachers, administrator was change agent, administrator built up relation and cooperation internal and external school, administrator had their responsibility and were devoted to work. This was supported by Office of the Basic Education Commission (2001) who mentioned that administrator has accepted to be a change agent, developers, leadership, a decentralized administrator, a participatory and creative administration, a good governance administrator and so on. As Sammons et al. (1995) in "A Study Professional Administrator" said that there were factors as follows: Firstly the sustainable and clear target goal of organization and proactive administration and the ability of building the administration team, Secondly, participation of teachers to manage curriculum, make decision and to use the school's policies, Thirdly, building up teachers to be an academic leader.

4. Learning sources center comprised of the following factors as follows: school provided learning and teaching to support learners' learning, school is a learning community, school provided a sustainable learning environment, school had an opportunity for personnel to exchange learning in order to develop co-learning management, school is a resource center for the quality of learners development, school exchanged academic internal and external school systematically, school used participatory system for knowledge network. Office of the Ministry of Education (2010) mentioned that a Good School in Tambon (sub-district) provided atmosphere for learning to be livable, to love learning for learners' learning and adjusted the school landscape for teaching and learning. As Prasertsung (2010) said that the environment was an important factor to develop for learners' learning because teaching and learning process aimed at enabling the learners to develop themselves at their own pace and to the best of their potentiality (National Education Act, 1999, Chapter 4, Section, 22). Thus, school should adjust and adapt environment for the modern learning in order to be the quality of learning sources center for learners and community. That means students could learn in both at school and local important places that is, Watyaisrisuphan school, Thonburi district office, waterfall, children field, school flag, etc.

5. Atmosphere and environment of school consisted of factors as follows: there is a place for learning and teaching, school provided a neat, fresh, clean and beautiful building, school provided a high expectation atmosphere to learners, there was a participatory and support parents, there was a positive relation between school and community, school was a non-vices place, school had enough learning building, laboratories, sport field, school had atmosphere in the classroom and out of classroom for learners' learning. It was related to Ministry of Education (2010: 25-26) mentioned that a Good

School in Tambon (sub-district) provided atmosphere for learning to be livable, to love learning for learners' learning and adjusted the school landscape for teaching and learning. As Office of Education Standards and Quality Assessment (2012) reported that atmosphere and environment of school should be clean, healthy, beautiful, neat, convenient and relaxing.

6. The findings of investigating current situations and desirable situations of effectiveness management model for sub-district secondary school. The results of investigating current situations and desirable situations of the effectiveness management model for sub-district secondary school, and the questionnaires were distributed to a sample group in all the country of 244 questionnaires, and 185 questionnaires responses were collected. This constitutes 75.8% response yield from the total number distributed. It was classified by current position found that most of them were 105 school directors (56.8%), by position experience showed that most of them had more 16 years up, it was 62 persons (33.5%). And the situated school showed that most were in the Northeast, they had 56 schools (31.4%).

The current situations of the effectiveness management model for sub-district secondary school was in 'much' level in overall ( $X=4.05$ ). Considering each aspect, there was in 'much' level in every aspect. As Ruenthong (2010) in "A Study Effectiveness School Management Model" mentioned that the samples of the study were school directors, assistant directors, teachers and school boards, consisted of the factors as follows that is, professional administrator, quality assurance, accountability and reliability, environment for learning, providing co-vision and co-target goal, focusing on learning and teaching, learning objectively, high expectation to students, the results found that it was in 'much' level in overall. This was supported by Samrit (2011) in a research "A Study Influence Management Factors towards Effectiveness of School: Development and Accountability of Analysis Model the Factors Levels of Administration and Level of Effectiveness of School" classified on Size of schools, it was in 'much' level in overall.

The desirable of the effectiveness management model for sub-district secondary school was in 'very much' level in overall ( $X=4.6$ ). Considering each aspect, it was in 'very much' in every aspect. It was related to Sammons, Hillman and Mortimore (1995 : 8) , the indicators analysis of school effectiveness consisted of related factors as follows; Change agent, environment for learning, empowerment in learning and teaching, high expectation of teaching, motivation, following up the advancement, discipline and responsibility of students, participation between home and school, learning organization. Jit-sanguan (2014) in "A Study Strategic Leadership Development for Secondary Administrators" found that the current situations of strategic leadership development for secondary administrators, they were in 'much' level.

Considering each aspect, it was in 'much' level in every aspect. And the desirable situations were in 'much' level in overall. Considering each aspect, it was in 'much' level in every aspect.

3. The findings of developing the effectiveness management model for sub-district secondary school found that the factors of the effectiveness management model had three aspects, including with 18 main factors and 114 sub-factors as follows:

i. Input comprised the factors as follows: Strategic plan, mission, school's goal, school's policy; Human resource, equipment and fund sources; Environment for learning.

ii. Process consisted of the factors as follows : Planning the strategy; Providing school management infrastructure actively; A curriculum management; Strategy of providing learners development activities;\A suitable personnel management; Leadership of administrator; Coordinating internal and external school; Supporting learning atmosphere in physical and social; Participation of teachers, parents and community; Internal quality education assurance.

iii. Output comprised of the following factors as follows: The quality of learners; The quality of teachers and educational personnel; Professional administrator; Learning center; And School atmosphere and environment. It was supported by Hanson (1996: 35) said that the factors of the effectiveness management consisted of: Improving learning achievement; Providing atmosphere supporting learners' learning; Following up and evaluating learning and teaching process; an efficient personnel; promoting students' discipline, and providing environment and welfares of working. Sergioivanni (1991) mentioned that the effectiveness of school comprised the factors as follows: Focusing on learner center; Providing a good academic plan; The learning and teaching activities supporting learners' learning; Providing positive school atmosphere; Promoting interaction among groups; Providing personnel development widely; Participatory leadership; Promoting problem-solving creatively; And Participation of parents and communities.

4. The findings of the effectiveness management model for sub-district secondary school found that the suitability of the effectiveness management model was in 'very much' level in overall ( $X=4.6$ ) Considering each aspect, it was in 'very much' in every aspect. And the feasibility of the effectiveness management model was in 'very much' level in overall ( $X=4.6$ ) Considering each aspect, it was in 'very much' in every aspect. It implied that the effectiveness management model for sub-district secondary school was developed by researcher had implemented in various phases suitably i.e. to study the factors of the effectiveness management, to study the current situations and desirable situations of the effectiveness management, to draft the effectiveness

management and to examine the results of the effectiveness management for sub-district secondary school. Besides, There was a manual of the effectiveness management for sub-district secondary school was the clear steps that administrators could applied to use in their own situations. It was related to Payom (2010) in a study operation management model for basic education schools revealed that the model was the most suitability, feasibility and usefulness. It pointed that the operation management model developed had implemented in various phases suitably, especially interviewing the opinion of administrators about the factors of administration. Furthermore, the processes of the study had reflected and commented by the specialists. So, this made the operation management model was completed, comprehensive operation of Basic Education Schools. And, there was a manual of Operation Management Model for Basic Education Schools was the clear steps that administrators could adapt and adopt to use in their own situations.

## Conclusion

Actually, the results of The Development Effectiveness Management Model for Sub-District Secondary found that there were five successful factors under accomplishing the research as follows. Firstly, the quality of students was shown that students had increased higher self-responsibility to their own learning and school. It meant they loved learning and they did not miss the class besides, they were proud that they were a part of school. Secondly, the quality of teachers and educational personnel was found that they could have variety techniques in learning management on school curriculum for example, problem-based learning, problem solving, task-based learning, etc. Next, is the learning center, which means that the school became the learning resource for the school and community. Community could make use of the school to carry out. Fourthly, the atmosphere and environment makes the school a lovely place for learning making the students eager to come and learn.

Lastly, the four successful factors supported a school administrator to be professional in terms of being a good organizer in the school and community, a good exemplary leader of organization and having good responsibilities to carry out.

## RECOMMENDATIONS

According to this study, the recommendations were as follows:

1. The use of effectiveness management model for sub-

district secondary school were as follows:

- i. The researchers need to study clearly more details of manual and model of effectiveness management for Sub-District Secondary School.
- ii. All school personnel should clearly study and understand the activity in every steps of effectiveness management model.
- iii. The research of effectiveness management for Sub-District Secondary School would be really efficiency, if the administrators followed up the operation closely and continuously.
- iv. The secondary educational service area office should support and precipitate secondary schools to do the research and developments about school management model continuously in order to develop the quality of secondary schools.

### **Conflict of Interests**

The authors have not declared any conflict of interests.

### **REFERENCES**

- Edmonds (1979). Effective schools for the Urban poor, Educational Leadership.
- Office of Education Standard and Quality Assessment (Public Organization) (2012). Manual Internal Quality assessment, the third round (2011-2015), Basic Education Level for School Issue, (Improves Issue; November, 2011). Offset Plus LTD., Samutprakarn.
- Payom R (2010). The Operation Administration Model of Basic Education Schools, Office of the Basic Education Commission, Doctoral Research, Ed, D., Naresuan University, Pitsanulok.

- Ruenthong N (2007) The Effectiveness School Management Model, Doctoral Research, Ph.D., Administration Department, Silapakorn University .
- Samrit K (2011). A study influence management factors towards effectiveness of school: Development and accountability of analysis model the factors levels of administration and level of effectiveness of school. Khonkhan University. Thailand P 188.
- Sammons P, Hillman J, Mortimore P (1995). Key characteristics of effective Schools a review of school effective research, "A report by the institute of education for the office for standards in education.
- Sergiovanni T (1991). The Principleship: A Reflective Practice Perspective 2<sup>nd</sup> ed. Zeedham Heights: Allyn and Bacon.



**Appendix 1.** The factors of effectiveness management for sub-district secondary school by experts' interview found that there were three aspects: input, process and output consisting of 18 factors and 114 sub-factors as follows:

| Aspects       | Factors   | Sub-factors   |
|---------------|---|---|
| Input         | Strategic plan, mission, goal and school policy | <ol style="list-style-type: none"> <li>1. Administrator is a leader of organization</li> <li>2. School has strategic plan, mission, goal and school policy</li> <li>3. School has a development goal for learners to be ethics and to live in society happily</li> </ol>  |
|               | Human resource, equipment, fund source          | <ol style="list-style-type: none"> <li>1. School has a personnel proficiency</li> <li>2. School has enough equipments and materials for learning management</li> <li>3. School has the techniques of budget and facilities management for management efficiency.</li> </ol>   |
|               | Environment for learning                        | <ol style="list-style-type: none"> <li>1. Everyone has a part to make a neat, clean, nice environment.</li> <li>2. There is a fresh and beautiful environment.</li> <li>3. There is a safe place and no addicts and vices.</li> </ol>   |
| Input Aspects | 3 factors<br>Factors                            | 9 sub-factors<br>Sub-factors  |
|               | Strategic planning                              | <ol style="list-style-type: none"> <li>1. Preparing strategic plan</li> <li>2. Analysis environment</li> <li>3. Evaluating the current situations</li> <li>4. Defining school's directions</li> <li>5. Usage strategic plan to practice</li> </ol>  |
|               | Flexible school structure management            | <ol style="list-style-type: none"> <li>1. School has provided command line including with clear regulations</li> <li>2. School has a school structure and divides in duty responsibility</li> <li>3. School has defined the relationship between personnel and organization clearly</li> <li>4. School has a formal communication</li> <li>5. School has divided duty on practitioner's ability</li> </ol>  |
| Process       | Curriculum management                           | <ol style="list-style-type: none"> <li>1. School curriculum management has achieved to the goal and learning standard</li> <li>2. School has defined goal and direction framework for development the quality of students I terms of good person, an intellectual person, a good quality of life</li> <li>3. School has defined vision, objectives, competencies of learners, desired characteristics, learning standards and indicators</li> <li>4. School uses the curriculum management as the direction of learning and teaching syllabus for each level</li> <li>5. School has defined structure of time- learning for each subject group in each year.</li> </ol> |
|               | Strategic of learner development activities     | <ol style="list-style-type: none"> <li>1. Learner has been developed completed human in physical, mental health, emotion and society</li> <li>2. Learner has been supported to be ethics, morality</li> <li>3. Learner has self-discipline</li> <li>4. Learner has been motivated conscience to service their society</li> <li>5. Learner is able to live in harmony with other people</li> </ol>   |
|               | A suitable personnel management                 | <ol style="list-style-type: none"> <li>1. School has planned personnel development in more knowledge and ability</li> <li>2. School has systematically evaluated performance</li> <li>3. School has created motivation in working thoroughly and continuously</li> <li>4. School has regularly been a teaching supervision to follow students' advance</li> <li>5. There is a teacher and administrator management efficiently and effectively</li> </ol>   |

Appendix 1. Contd.

|         |  |   |
|---------|--|---|
|         | Factors  | Sub-factors   |
|         | Leadership   | <ol style="list-style-type: none"> <li>1. Administrator is a leader in learning and teaching</li> <li>2. Administrator is a person who creates inspiration and management competency</li> <li>3. Administrator has supported all personnel to participate in change</li> <li>4. Administrator has supported higher subordinate.</li> <li>5. Administrator has checked and cared personnel's operation and he lets them free and make decision suitably</li> </ol>   |
|         | Coordinator in and out of school                       | <ol style="list-style-type: none"> <li>1. School has cooperated in working with other people and organizations to achieve in common purpose.</li> <li>2. School has a continuous process to be success efficiently</li> <li>3. School has coordinated and facilitated with all involved person in and out of school</li> <li>4. School has created cooperation between teachers and parents</li> <li>5. School has school -net working with other schools to be the system in using resources together</li> </ol>   |
| Aspects | Aspects  |   |
|         | Supporting learning atmosphere in physical and society | <ol style="list-style-type: none"> <li>1. School has developed fundamental factors i.e. media and equipments for learning</li> <li>2. School has provided responsible person for learners and physical environment</li> <li>3. School has atmosphere for learning and teaching</li> <li>4. School has suitable environment</li> <li>5. School has managed the suitable buildings and learning places</li> </ol>   |
|         | Participatory teachers, parents and community.         | <ol style="list-style-type: none"> <li>1. School has supported various models of participation</li> <li>2. School has supported participatory teachers and parents</li> <li>3. School has corporately planned in working between school and parents</li> <li>4. Budget management has been emphasized participation of school and parents</li> <li>5. Parents and school has participated in school's operation and evaluation</li> </ol>   |
|         | Factors  | Sub-factors   |
|         | Strengthen Internal quality assurance                  | <ol style="list-style-type: none"> <li>1. School has a system of internal quality assurance efficiency</li> <li>2. School has provided the committee of internal quality assurance</li> <li>3. School has proceeded working on quality management system</li> <li>4. School has evaluated internal quality assurance</li> <li>5. School has reported the results of internal quality assurance to agencies</li> </ol>   |
| Process | 10 factors   | 50 sub-factors  |
| Aspects | Factors  | Sub-factors   |
|         | Output   | <ol style="list-style-type: none"> <li>1. Student has skills of self access learning and more learning achievement</li> <li>2. Student is able to adjust themselves to environment and to live in society happily</li> <li>3. Student has a responsibility to themselves, school and community</li> <li>4. Student has a thinking process systematically and a creative thinking and a solving- problem thinking reasonably</li> <li>5. Student has a rule and a discipline</li> <li>6. Student loves learning and self-development</li> <li>7. Student has knowledge and fundamental skills, he is able to study further in higher education</li> <li>8. Student has ethics and morality and the desirable values</li> <li>9. Student has knowledge and essential skill on curriculum criterion provided</li> <li>10. Student has a good attitude to honest job and he seeks for his interested job</li> <li>11. Student has ability in music, sports, entertainment and technology information</li> </ol> |

## Appendix 1. Contd.

| Aspects | Factors                              | Sub-factors  |
|---------|--------------------------------------|--|
| Output  | 2. Teacher and personnel quality     | <ol style="list-style-type: none"> <li>1. Satisfaction of teachers and education personnel</li> <li>2. Co-planning about student's caring between teachers and education personnel.</li> <li>3. Teacher and personnel development efficiency</li> <li>4. Student's caring closely</li> <li>5. Time-learning management to be extreme usefulness</li> <li>6. Co-goal and co –expectation explicitly</li> <li>7. Following up student's progress regularly</li> <li>8. Searching and selecting personnel to match knowledge, ability and a suitable position</li> <li>9. Usage system of morality to get people to work</li> <li>10. Focusing on training and personnel development in all level thoroughly and continuously</li> <li>11. Supporting personnel to progress in his job and position</li> <li>12. All personnel level has motivation in working</li> <li>13. Teachers and personnel have knowledge and understanding curriculum and learning and teaching activity management that focus on learner-center</li> <li>14. Teachers and personnel have evaluation for learning development of learners with variety techniques</li> </ol> |
|         | 3. Professional administrator        | <ol style="list-style-type: none"> <li>1. Administrator has a vision, a leadership and a creative thinking</li> <li>2. Administrator is usually able to change, develop school</li> <li>3. Administrator has ability to solve school's problems efficiently</li> <li>4. Administrator has clearly defined a vision, a mission and a goal of working.</li> <li>5. Administrator has encouraged the group-relationship</li> <li>6. Administrator is a participatory leader</li> <li>7. Administrator has planned the administration in annual action plan in terms of short plan and long plan</li> </ol>  |
| Aspect  | Factor                               | <p>Sub-factor</p> <ol style="list-style-type: none"> <li>8. Administrator has properly changed an action plan with the current situation</li> <li>9. Administrator has defined the decentralized structure that is relevant to the principle of democracy</li> <li>10. Administrator has defined the clear structure that is flexible, convenient and rapid coordination</li> <li>11. Administrator has the system and the process to follow up, check teachers' and personnel's operation</li> <li>12. Administrator has properly authorized in diagnose, command and making decisions to subordinators</li> <li>13. Administrator has change agent to convince the school's progress</li> <li>14. Administrator has created the cooperation inside and outside school</li> <li>15. Administrator has the responsibility and devotes himself in working</li> </ol>  |
|         | 4. learning center                   | <ol style="list-style-type: none"> <li>1. School has a learning management to support learners' learning</li> <li>2. School is a learning community</li> <li>3. School has provided a permanent learning environment</li> <li>4. School has an opportunity for personnel to exchange learning to develop learning and teaching management together</li> </ol>  |
|         | 5. School atmosphere and environment | <ol style="list-style-type: none"> <li>1. School has environment for learning</li> <li>2. There is neat, fresh, clean and beautiful building management</li> </ol>   |

**Appendix 1. Contd.**

---

|           |            |  |
|-----------|------------|--|
|           |            | 3. School has parents' support and participation               |
|           |            | 4. There is a positive relation between home and school        |
|           |            | 5. School is without the vices                                 |
|           |            | 6. School has completed building, laboratories and sport field |
|           |            | 7. School has learning atmosphere in and out of classroom      |
| Total     | 5 factors  | 43 sub-factors   |
| All total | 18 factors | 102 sub-factors  |

---

*Full Length Research Paper*

# Challenging segregational practices in a Spanish secondary school: Results from an ethnographic research

Joan-Anton Sanchez-Valero<sup>1\*</sup> and Paulo Padilla-Petry<sup>2</sup>

<sup>1</sup>Department of Teaching and Learning and Educational Organization, University of Barcelona, Spain.

<sup>2</sup>Department of Methods of Research and Diagnosis in Education, University of Barcelona, Spain.

Received 28 July, 2016; Accepted 27 September, 2016

**This article presents partial results of a multi-sited ethnographic study about the role of multiple literacies in young people's learning in and outside school. In one of the five participant secondary schools, fourth grade students were segregated in groups according to their special needs. We start with a critical review on segregated and inclusive education. Subsequently, we describe our ethnographic research about learning practices in and outside secondary schools with students in their last year of compulsory education. The results present the relationships between students who were either "failing" or "being successful" in school as well as the institutional reaction to our inclusive experience.**

**Key words:** Collaborative practices, ethnographic study, school segregation, young people.

## INTRODUCTION

Our research group has been trying to respond to the Spanish secondary education situation in which 30% of the students, mainly boys, leave school before taking their accreditation. In a previous review on school failure and early school leaving (Hernández and Tort, 2009), the dominant approach that emerged offered a negative view of those who do not follow the secondary school rules and expectations. Such perspective is founded on the theory of social reproduction (Bourdieu and Passeron, 1970) and a deficit view towards the students (McMahon

and Portelli, 2004). The later basically explains school failure through the student's lack of sociological or psychological conditions that would assure a successful academic career. Variables such as family structure, parents' studies, working conditions, class stratification, cultural background (e.g. being immigrants) and, in general, the lack of cultural capital emerge as determinants of school failure and dropout. Since previous researches (Hernández, 2011a), we adopted another perspective that considers the young people's relationship

\*Corresponding author. E-mail: joananton.sanchez@ub.edu. Tel: +34 93 403 50 52.

with *savoir*<sup>1</sup> (Charlot, 1997, 2001). Instead of searching for sociological or psychological variables that could explain why the dropout students do not meet the school requirements, we have been paying attention to the experiences of the students (Fielding, 2001, 2004, Hadfield and Haw, 2007), their relationships, interpretations of the world and their activities and interests not only in school but also beyond (Patel Stevens, 2005). For instance, an English teacher may describe a young boy as a complete failure while the same boy keeps a very popular blog on English poetry. Likewise, a girl may show very little motivation during her music classes in school while outside school she plays in a band and loves music.

In the narratives built by the young participants of our previous researches (Hernández, 2011a, b), we realised the importance of what is learned outside school and thought about the possible differences and boundaries between learning in and outside school. Another factor that emerged in our previous researches was the role of the Information and Communication Technologies (ICT) in the young people's lives, which brought up reflections on the new literacies that are developed by them. In order to investigate about the young people's learning in and outside school and the new literacies developed by them, we decided to carry on a multi-sited ethnographical study in 5 secondary schools. However, learning from previous researches about young people's experiences (Hernández and Padilla-Petry, 2011) and following a participative approach (Hadfield and Haw, 2007, Fielding, 2004), we decided to do research with young people rather than about young people. Because of this new approach, the young participants of our research would try to do their ethnographic research themselves. Thus, we had two types of ethnographic research: the one that the young participants tried to do with our help and our research. Actually, both of them were deeply interwoven and could not be separated since all of us were participants and researchers. Moreover, our roles as university researchers in the field were not limited to the research with the young participants because we also had to train them to carry on an ethnographic research. The five Catalan secondary schools that participated in our multi-sited ethnographic research had their differences and similarities. Four of them were public schools, one was a private school, four of them were urban schools in or within 15 kilometres from Barcelona and the other one was a semi-rural school located within 200 kilometres from Barcelona.

The present paper is about one particular public centre whose students were separated in groups according to their special educational needs and previous grades. Although, our research was not about the difference

between inclusive and special education, the particular reality of this centre called our attention since the youth that took part in our research came from two different groups: a special needs and a regular one. As the school's teachers told us, the special needs group was formed by a mix of youth who had psychopathological disorders diagnoses such as Attention-Deficit/Hyperactivity Disorder (ADHD), Conduct Disorder or Intellectual Disability and whose grades "lagged behind". As our research activities put the youth from both groups to work together, we ended up interfering somehow with the school's segregation routine and generating a different way of working with the youth.

### **Inclusive versus segregated education**

The field of education policies has been facing children and young people that have trouble fitting in the educational system for quite a long time. Lately, these learners have been considered by experts and policy makers (UNESCO, 1994) as having "special educational needs", a well-known term since the Warnock Report (Warnock, 1978). Nowadays, under the special educational needs' umbrella, we may find many different conditions from psychopathological disorders to sensorial impairments, from learning disabilities to social exclusion etc. How to deal with these special needs has been changing along with society's awareness of and sensibility towards them (Vislie, 2003). Currently, inclusive education (Booth and Ainscow, 2002) is majorly accepted as the best way to both educate those students and change the society in a way that other social barriers may be removed and prejudices eradicated (Torres, 2000). In fact, in dealing with people of any age who have any kind of disability, one of the main goals is to assure their participation in society as much as possible (WHO, 2001). The authority of the inclusive discourse in some circles, like the university, may create a somewhat false impression that there are no reasons for defending a special education that separates those who have special educational needs from those who are considered as normal students because they fit in the system without requiring changes or adaptations. In fact, there are many reasons to segregate that allegedly defend the rights and the best interests of the special needs' group.

One of the main reasons is the homogeneity of the group as something that would help facilitate a highly specialised educational intervention. Since the teacher's intervention would be more focused on the common needs of a precise group, it would help them progress better. Within this reasoning, the similarities among learners would be a group's desirable trait and the differences an obstacle to a good education. Another reason for segregating is to protect students with special needs from the prejudices and negative attitudes of the

<sup>1</sup>We deliberately use the French word *savoir* instead of knowledge to refer to a deeper, bodily, self-relationship with what someone knows.

“normal” kids. Nevertheless, one of the changes that gave rise to the overcoming of the special education as a segregation practice was the change of the educational model that considered the special educational needs as purely individual and independent from the others. Overcoming a medical and psychological view that usually considered individual deficiencies as a personal matter instead of interactions between personal and social conditions generated a change of paradigm clearly exposed in the World Health Organisation’s International Classification of Functioning, Disability, and Health (WHO, 2001). For instance, instead of talking about a particular person’s handicap, we would rather talk about how much society constrains this particular person’s participation in groups or activities. Following this new approach, society would not only accept the task to help reduce and overcome barriers that generate exclusion but would also recognise its responsibility in the creation of the special needs, misfit, and labels on what is odd. Thus, it is not only a matter of having an inclusive education but also rethinking which social practices and structures help to produce strangeness and, in the case of education, the so-called educational special needs.

## METHODS

In our multi-sited ethnographic research, two university researchers were assigned to each participant secondary school and each centre was asked to form a group of fourth grade young people with both students that met the school’s learning expectations and students who did not. Each school followed different criteria to choose the youth that would participate in our research. The school this paper is about decided to pick two students from their special needs group (group A) and four from a regular group (group B). Group A’s curriculum was an adaptation of the regular curriculum adopted in the other three groups (B, C and D) of students. Such adaptation basically implied fewer contents and more flexible evaluation goals. The group A was half the size of the other groups, which was repeatedly referred to by its teachers and students as a clear advantage over the other groups. Also, intentionally but not entirely successfully, the school tried to disguise the special needs group by giving it the first letter (A instead of D). Bringing them all together (students from groups A and B) in the group that would work with us made clear the differences between them as well as the educational precarity generated by the school’s policy on special educational needs. So, although, studying these differences and the educational consequences of a segregational educational policy were not part of the goals of our research, doing that was almost inevitable due to the context of this particular school.

As mentioned before, one of the main aspects of this project was the realisation of an ethnographical investigation, not about young people but with young people. The 6 young participants were 15 to 16 years old and their school accepted the research carried on by them during our time together as their fourth-grade final research project. On the one hand, the teachers that were in charge of orienting and assessing the students’ research projects took the school’s decision of accepting the young participants’ research as the project required by the curriculum. On the other hand, the students who participated in our project were offered and accepted the possibility of doing their research project about learning in and outside school guided by us (university teachers) instead of by their

teachers. We spent 4 months in the field having approximately one weekly work session with the students during school time. The school this paper is about is a large public secondary centre situated in an industrial town 20 kilometres from Barcelona with a population of 26,000 people. At the end of our time together, the young participants presented their research both at the school and at the university. In the first session, we asked the young participants to imagine and create a graphic representation, showing their interests in and outside school. We justified our request by explaining that the members of our investigation team always began a research by first reflecting on our own thoughts and feelings about the research theme. We also explained that they could create their representations as they preferred: using images, photographs, drawing, writing etc. In the next session, we introduced them to the necessity of having evidences in a research, such as a field journal where they would write down everything they did and learned. When asked about what kind of evidence they thought they would need, they said they would also need to conduct interviews, take photos and make videos.

In the following sessions, we worked on interviews and observations. Each young participant would interview another student from the group while another student would observe them. The focus of the interview was what they did and learned during the weekend. Once they were done with the interviews, the young participants wrote what they had learned from the experience. For instance, some mentioned that it would be important to have proper questions in order to obtain the desired information and that sometimes it is necessary to familiarize the interviewee with the interview in order not to change the meaning of the questions. In order to work on different ways of making observations, we asked a collaborator of our university research group to conduct a single session about techniques of observation. In the following sessions, we decided to carry out observations on different environments including the school playground, the streets and a classroom. Once the observations were completed, we told the young participants to group their notes together in different categories to help their analysis. When we examined and discussed their notes, they said that they had learned different types of observation, to carry out observations correctly, not to take things at face value, but to observe and question everything as if it were the first time they had witnessed it.

As the young participants were collecting evidences for their research through their field journals, photos, recordings and notes from their interviews and observations, we were doing quite the same. We both kept individual field journals, we took photos from our sessions with the young participants and we recorded the audio from some sessions. As the young participants had their data, we had ours, although our data also included the evidences recollected by them. From the beginning, we had a teacher who was our contact in our school. She had talked to the other teachers and the headmaster so that we arrived at the school with the project already explained, discussed and accepted. Nevertheless, our first talks with the teachers responsible for both groups of students (A and B) were about the project, what we would do and how the sessions would be. As we did not want to reproduce the usual classroom dynamics, one first concern arose when the teachers responsible for both groups demanded detailed information about each work session so that they could help. Despite our initial concerns, we opted for the maximum possible interaction with the teachers through regular meetings, although, one of them would never come. During these meetings, we would give information about the progress of the work and make all due arrangements for the future sessions. The group A teacher took part in these meetings while the group B teacher, who almost never talked to us, chose to keep herself apart from the project.

Her role in the project was basically limited to: a) allowing 4 of

her students to miss one hour of her class to work with us and b) accepting that their curriculum required research project would be the one they did with us. Work with the young participants may be divided into three different phases: a) the first phase was about learning how to do the research and recollecting the data, b) the second involved the writing of the reports and the preparation of the presentations for the school, c) the third comprehended the preparation of the presentation for the university. Our data included our field journals, audio recordings, photos and all the data produced by the young participants such as their interviews, observations and field notes. In order to analyse all our data, we built categories using the grounded theory. Thanks to that, inclusion and segregation emerged as a relevant topic, something that was not one of our goals. Thus, besides the categories built around the central themes of our research (learning in and outside school and new literacies), we were able to analyse the data related to the inclusion and segregation, but to do that, we had to recodify all the data we had, following the guidelines of the grounded theory (Charmaz, 2014).

## RESULTS

### Dealing with our own expectations and preconceptions

As university teachers, we always teach groups that have no clear distinctions between or within them. Although, we may hear comments from our colleagues such as “the afternoon groups work harder and ask more questions than the morning groups” or “the morning groups are a bit more immature than the afternoon groups”, there are really no objective criteria that separate one group of university students from the other or students inside a given group. Thus, whatever expectation we have towards our students at the university, they are not backed up by any solid evidence. Nevertheless, in our research we did previously know which young participants came from each group and how their school labelled them. Thus, we had to deal with our own expectations and prejudices. After the first session with our young participants, we commented that we could not distinguish between the young people from the two different groups (A and B). After the second session, however, we began to notice some differences. For example, the graphic representations of their interests were noticeably different in terms of the content, the depth of development and the level of imagination shown. The two young people from the group A presented graphic schemes clearly less elaborate than the others. At the end of that session, we decided to try: a) not to stigmatise any of the participants, b) to “forget” which groups they belonged to and c) to help the cohesion of the group.

Quite obviously, our good intentions were: a) a naïveté because we could not forget who was from which group; b) a sign of our own troubles dealing with the information provided by the school about the young participants; c) the expression of our own inclusive education ideals. As

mentioned before, the teacher responsible for the group B almost did not participate in the project, but we kept a constant contact with the group A teacher, who was frequently asking us about her students' participation and how well they were working. Once, for instance, she asked us to assess their Catalan<sup>2</sup> expertise since we all interacted in Catalan and they were missing Catalan classes to take part in the project. The comparisons between her students and the group B students seemed almost inevitable during our meetings. As she did participate much more than the other teacher and helped her students organise their journals and materials for the sessions, it sometimes seemed as if she was trying to help them working in a situation of supposed disadvantage. Although, her attitude towards the students sometimes seemed to be a little patronising and we felt like we should always give her good news about her students, she seemed quite open to learning from the experience and was very concerned about her students. It was clear to us that we did not want to repeat her attitude and show a patronising, protective, benevolent attitude towards the group A participants, but we had also noticed our own trouble in trying to “forget” who came from which group. Such tension between the protective, benevolent attitude and our inclusive ideals was always present in our field journals.

### The evolving relationship between the participants from A and B groups

The relationship between group A and group B participants proved challenging from the beginning. It is important to remember that they had never worked together before and that the differences between both groups were well known to all of them. In other words, the “special” nature of the youth from group A was no secret. An example of the troubles in the relationship between both groups happened when, asked by us, Ellen<sup>3</sup> from group A presented an observation she had done outside school during the weekend. Ellen was obviously not comfortable speaking to the group. She was nervous and her shyness finally turned into aggressiveness and hostility as some members of the group B kept talking and laughing while she spoke. Finally, we had to intervene demanding respect and attention. After that session we asked ourselves the question: why is it so difficult for these groups to work together in a situation like this? One possible answer came after another session: in a meeting with the school's course coordinator, she expressed her concerns about mixing students from such different groups, particularly about the welfare of

<sup>2</sup>In Catalonia, people speak both Spanish and Catalan and public schools use a Catalan immersion system in which all classes are given in Catalan, except for the other languages' classes such as Spanish or English.

<sup>3</sup>All names are pseudonyms.



group A. We explained that the small size of the group smoothed the integration of the students and that the group A participants had been more proactive than group B in keeping their journals.

As the project progressed, the integration of the group evolved in a positive direction and its heterogeneous character resulted in benefits for both groups. Members of group A conquered their feelings of inferiority and resistance to share ideas and opinions and group B ended up being influenced by the enthusiasm and hard work of group A. Initially, only group A kept their journals updated, much to the surprise of group B, who then started to show more interest. Anyway, during the first phase of their work, they learned to work together, share and distribute tasks. During the second phase of the investigation, when the participants had to write their reports, the dynamic built by and between them was interrupted. Impervious to the inclusive experience of our research, the school required that the students completed their fourth-grade academic research projects according to their original groups. Although, they had been working together all the time in the same research project, they were forced to present two different reports (one for the group A and another for the group B). For the first time since they had started working in our project, they had to work separately: the two participants from the group A and the four from the group B. As it could be expected, the group A participants were the ones that suffered the most from the return of the segregation. Despite our guidance, they presented a quite superficial report and their public presentation also suffered from the lack of details and clarity.

On the third and final phase of the project, the young participants were required by us to present their research at the university for teachers, families, friends and the participants of the other four schools. Once again, all six of them worked together as a single group because the presentation required the collaborative effort of all of them. They produced results that were highly satisfactory for everyone involved. At the post-presentation gathering, the young participants commented that the groups from other schools had read out their presentations whereas they had explained their project. Analysing the evolution of their relationship and their work together, we came to some certainties, questions and hypothesis. Comparing the different moments of their relationship, it seems clear that a segregation based schooling does not help to build a good convivial climate between students that are labelled as special needs and the ones who are considered as normal. More than feelings of shame or inferiority, the need for protection against the so-called normal students shocked us the most. Concretely, the fear and the correspondingly need for protection felt by the group A teacher and school's course coordinator made us wonder about the discourses surrounding a segregation environment. It was not only about getting a

special attention or a flexible evaluation, but also being protected from the others. As the evolution of our project showed, there was really nothing to be afraid of, nothing that could not be overcome by working inclusively together. As for the participants from group B who were surprised by the work done by the group A, finding common interests and experiences between them and the others seemed to be a pleasant surprise.

When the participants were forced to work separately again, the boy and the girl from group A were the ones that had more trouble writing their report and preparing their presentation. On the one hand, it was clear that they still needed their companions from group B to fully make sense of what they had done. On the other hand, when they got back together to prepare the final presentation, they were able to do much more, which reminds us of Vygotsky's zone of proximal development (Vadeboncoeur and Collie, 2013). The school's rules, rigidity and lack of interest were once more an obstacle to change or, in this case, a way to perpetuate segregation. Demanding separate reports of the same project done altogether by the participants from groups A and B is an example of rigidity that is hard to explain or understand. If they had required individual reports from each participant, it would be easier to understand, although, educationally conservative as well. Moreover, the lack of interest from the teacher of the group B could be understood as a random event or also as a resistance to change. We worked weekly with her students for 4 months and she never asked us anything. As the other teacher (group A) did quite the opposite, we cannot say which one better represents the school, but we can affirm that the school as an institution seemed unchanged by our project. Our main questions here are about the possible relations between the segregational practices and the teachers.

It is well known that segregating can be more easily accepted by teachers than inclusive practices. The challenge of working with heterogeneous groups within a traditional education framework can be overwhelming to most teachers and inclusive teaching with cooperative learning is yet too innovative for many of them. Both teachers affected by our project worked within a traditional segregational school. It is not known whether their opposite reactions to our project are related or not to the students with whom they worked. Would the concerned and protective teacher of group A show the same attitude and interest if her group were a "regular" one? Would the indifferent teacher of group B be more interested if she had a special needs group? How does having a special needs group affect a teacher? We obviously do not have the answers for these questions, as they were not actually part of our research goals. However, we can hypothesize that the special education tradition has its influence on the teachers that are assigned to the special groups. The need to give a specialized attention to the students' special needs may

translate into a high interest, a protective stance and a concern about how they interact with regular students. As for the regular students' teacher, she could certainly have shown more interest or even worry about what her students might be losing by working with their special needs' companions. Anyway, it seemed that the segregation was not limited to the students, as both teachers would not talk to each other either.

## Conclusion

Segregation in education is a very old schooling practice that can nevertheless find support in some medical, psychological and pedagogical discourses that try to identify, isolate and treat the causes of educational failure in a specialised way. These discourses tend to consider the causes as individual and not social ones. Although, a "good" specialised treatment of the individual educational needs could even be seen as proper educational attention, not only its assumptions (an individual and not a social problem) but its practices produce limitations and enforce social barriers that help to maintain those who do not fit in the system in a position in which they cannot integrate and fully participate in the society (Graham et al., 2010). Such precarious position is certainly not new and, as we could see in our research, may help reproduce well-known social barriers inside the school. Perhaps, the barrier that surprised us the most was the fear. In the past, many social prejudices and segregational policies were fed on fear of what was considered strange or abnormal. However, the fear we found was the fear of the "normal" kids. Of course, it may be well founded due to the common social hostile reactions against what is different, but it called our attention that a school's course coordinator and a teacher could end up being afraid of an inclusive process. Our research experience showed us that the special needs label has its impact on teachers, students and researchers as we ourselves had to deal with it. More than labels, inclusive education is about recognising the educational needs and motivations of everyone. Our inclusive experience shows that, when working together in an active cooperative learning environment, all the participants may profit from the experience, learn and build constructive relationships. Nevertheless, it is also clear that segregation affects both students and teachers in different ways. We think that it would be interesting to do further research about how special needs teachers are part of their institutions and how they relate to their colleagues. What does it mean to be a teacher in charge of a special needs' group inside a regular segregational school?

## Conflict of Interests

The authors have not declared any conflict of interests.

## ACKNOWLEDGEMENTS

1. This article presents partial results of the research project "Living and learning with new literacies in and outside school: contributions for reducing school dropout, exclusion and abandonment among youth" funded by the Spanish Ministry of Economy and Competitiveness (MINCO-EDU2011-24122).
2. The authors are grateful to the Office of the Vice-rector for Science Policy of the University of Barcelona for funding the programme to help members of the University of Barcelona community publish in Open Access scientific journals.

## REFERENCES

- Booth T, Ainscow M (2002). *Index for inclusion: developing learning and participation in schools*. Bristol: CSIE.
- Bourdieu P, Passeron JC (1970). *La reproducción*. Paris: Minuit.
- Charlot B (1997). *Da relação com o saber*. Porto Alegre, Brasil: Artmed.
- Charlot B (2001). *Os jovens e o saber: perspectivas mundiais*. Porto Alegre, Brasil: Artmed.
- Charmaz K (2014). *Constructing grounded theory*. London: Sage.
- Fielding M (2001). Students as radical agents of change. *J. Educ. Change*, 2:123-141. DOI: 10.1023/A:1017949213447
- Fielding M (2004). Transformative approaches to student voice: theoretical underpinnings, recalcitrant realities. *Bri. Educ. Res. J.* 30(2):295-311.
- Graham LJ, Sweller N, Van Bergen P (2010). Detaining the usual suspects : charting the use of segregated settings in New South Wales government schools, Australia. *Contemporary Issues in Early Childhood*, 11(3):234-248.
- Hadfield M, Haw K (2007). 'Voice', young people and action research, *Educ. Action Res.* 9(3):485-502, DOI: 10.1080/09650790100200165.
- Hernández F (2011a). ¿Qué nos cuentan los jóvenes? Narraciones biográficas sobre las relaciones de los jóvenes con el saber en la escuela secundaria. *Dipòsit digital de la UB*. <http://hdl.handle.net/2445/18348>
- Hernández F (2011b). Cap a una escola secundària inclusiva: sabers i experiències de joves en situació d'exclusió. *Dipòsit digital de la UB*. <http://hdl.handle.net/2445/15963>
- Hernández F, Tort A (2009). Cambiar la mirada sobre el fracaso escolar desde la relación de los jóvenes con el saber. *Revista Iberoamericana de Educación*, 49/8. <http://www.rieoei.org/deloslectores/3109Hernandez.pdf>
- Hernández F, Padilla-Petry P (2011). De investigador sobre jóvenes a investi- gar con jóvenes: relato de un proceso. *Jornadas Investigar con los Jóvenes: cuestiones temáticas, metodológicas, éticas y educativas*, 1. Retrieved in 6/15/2011 from [http://fint.doe.d5.ub.es/seminaris/jornadesjoves/docs/Fernando\\_Hernandez\\_y\\_Paulo\\_Padilla\\_Petry.pdf](http://fint.doe.d5.ub.es/seminaris/jornadesjoves/docs/Fernando_Hernandez_y_Paulo_Padilla_Petry.pdf)
- McMahon B, Portelli JP (2004). Engagement for what? Beyond popular discourses of student engagement. *Leadership and Policy in School*, 3(1):59-76.
- Patel L (2005). ReNaming "Adolescence": Subjectivities in Complex Settings. In: J. A. Vadeboncoeur, & L. Patel (eds), *Re/Constructing the Adolescent*. (271-282). New York: Peter Lang.
- Torres RM (2000). *Una década de educación para todos: la tarea pendiente*. Buenos Aires: IIPE Unesco.
- UNESCO (1994). *Declaración de Salamanca*. Paris: Unesco.
- Vadeboncoeur JA, Collie RJ (2013). Locating Social and Emotional Learning in Schooled Environments: A Vygotskian Perspective on Learning as Unified. *Mind, Culture, and Activity*, 20(3):201-225, DOI: 10.1080/10749039.2012.755205 .
- Vislie L (2003). *From integration to inclusion: focusing global trends and*

- changes in the western European societies. *Euro. J. Special Needs Educ.* 18(1):17-35.
- Warnock HM (1978). *The Warnock report – special educational needs. Report of the Committee of Enquiry into the Education of Handicapped Children and Young People.* London: Her Majesty's Stationery Office.
- World Health Organization (2001). *International Classification of Functioning, Disability and Health.* Geneva: World Health Organization.

*Full Length Research Paper*

## Examining the values of students in the physical education and sport departments

Mehmet Gullu

Inonu University, Malatya, Turkey.

Received 11 September, 2016; Accepted 28 September, 2016

In this study, the values of students in the physical education and sport departments were examined according to their gender, age, grade, and departments. The questionnaire method was used in the study. As the data collection tool, the Portrait Values Questionnaire was applied. The study group consisted of a total of 389 students 126 of whom were female, and 263 were male; and selected from 4 different universities according to the Cluster Sampling Method. The Mann-Whitney U Test and Kruskal Wallis H Tests, which are among the common statistical tests, were used in the study. The significance level was selected as  $\alpha=0.05$  in the tests. The effect size of the tests was determined to be generally medium-size. As a conclusion, the ranking of the values of the students studying at Physical Education and Sports Departments were determined as “benevolence, universalism, security, achievement, stimulation, self-direction, hedonism, conformity, power and tradition”. While the power, tradition, conformity and security value points of the female students were found to be higher than the male students, the hedonism and stimulation points of the male students were higher than the female students. A difference was determined between the achievement, stimulation and conformity values according to the ages of the students. Although there was no difference between the value points according to the departments of the students, there was a difference between the value points according to their ages.

**Key words:** Physical education, sports, value, university, student, department.

### INTRODUCTION

Humans are social creatures, and they stick to rules and norms in the society as a requirement of their nature. They are influenced by the beliefs, attitudes, habits and values of the environment they live in. Most of the time, they have to obey the rules and norms within the society in a compulsory manner. When they do not obey these rules and norms, they face punishment, exclusion or various sanctions. However, they sometimes care for the

social rules and apply them willingly and lovingly. In this sense, values are important for social order, and are gained with social interaction within the society (Grusec and Kuczynski, 1997; Rohan and Zanna, 1996).

The term “Value” was first used as a concept by Polish scientist Florian Witold Znaniecki, and was adopted in social sciences. It is derived from the Latin word “*valere*”, which means “*being valuable*” or “*being powerful*” (Bilgin,

Email: [mehmet.gullu@inonu.edu.tr](mailto:mehmet.gullu@inonu.edu.tr)

Authors agree that this article remain permanently open access under the terms of the [Creative Commons Attribution License 4.0 International License](https://creativecommons.org/licenses/by/4.0/)

1995). The term “value” is expressed with the words “good”, “beautiful” and “true” (Alavi and Rahimpour, 2010). Value may be defined as the aim that is desired as beyond the current situations with changing importance serving as guiding principles in the functioning of the social institutions or in the life of the individuals (Schwartz, 1994).

Rokeach (1973) defined values as permanent beliefs that determine whether the behaviors of a person or the results of a situation are acceptable or not for the individuals or for the society. Values are abstract and generalized behavioral principles that appear with the formation of a standard intended for special aims and actions with a strong emotional bond of the members of a social group (Theodorson and Achilles, 1969). Values are the beliefs that underlie in the intellectual and behavioral processes, and guide the continuous behaviors of an individual in certain situations about the latest status desired (Connor and Becker, 2003).

Values are related with cultural norms; however, they are more universal and abstract than the norms (Frouzanfar et al., 2012). It is accepted that on the one hand, values influence the individual attitudes and cognitive processes; and on the other hand, they also reflect the cultural patterns (Inglehart, 2008; Rokeach, 1973; Schwartz, 1996). Meanwhile, value priorities have an important role in predicting and understanding the behavioral decisions and attitudes of people (Myyry, 2008). Values are upper-level structures that guide the attitudes and behaviors independently from the situations and conditions (Schwartz, 1996); and they may motivate behaviors just like it is the case in needs (Bardi and Schwartz, 2001). Schwartz and Bilsky (1990, p.879) expressed the properties of values as follows:

- “1. Values are concepts or beliefs.
2. Values are pertain to desirable end states or behaviors
3. Values transcend specific situations
4. Values are guide selection or evaluation of behavior and events
5. Values are ordered by relative importance”

Many scientists have developed Value Hypotheses by investigating the existence, formation and properties of the value concept. Allport (1937 as cited in Allport, Vernon and Lindzey, 1960) who expressed the first Value Hypothesis, claimed that value was a system consisting of six dimensions, and there were values in each system according to the individual differences of people. These values determine the lifestyles of people, guide them, and to determine their aims for living. Then, Graves (1965) developed a hypothesis, and separated human life into seven hierarchical stages and examined the roots of values with an existentialist approach at each level.

Rokeach (1973) divided the values into two dimensions as *instrumental* and *terminal* in his value hypothesis, and

grouped eighteen values under each dimension. He also developed a scale for this values relation. In his hypothesis, Schwartz (1992) determined 10 basic values that were applicable to all social structures, and that covered the basic needs of people. He also developed a measurement tool for these values. Hofstede (2001) who claimed the latest hypothesis on values, developed a method in which values are measured with a mental program, which is the software of the mind. He investigated the mental program by dividing it into three parts as “*universal*”, “*collective*” and “*individual*”.

In this study, the value hypothesis of Schwartz has been taken as the basis, and more information is given for this reason. Schwartz (1992, 1996) conceptualized the values as cognitive representatives of three universal needs. These needs are, biological needs of individuals, the needs pertaining to regulating social interactions, and the needs about fulfilling the responsibilities as a group or society. Each group and individual reveals 56 universal values, which are the cognitive representatives of the relevant needs, in order to explain and justify their behaviors and establish coordination among them. The basic assumption of Schwartz is that there should not be any contradiction between each value and the other value following it in terms of psychological applications and social consequences (Schwartz and Boehnke, 2004).

Schwartz collected these 56 values under 10 main values (power, success, hedonism, stimulation, self-direction, universalism, benevolence, traditionalism, conformity and security); and collected these 10 main values under 4 different dimensions (Self-enhancement, Self-transcendence, Openness to Change and Conservatism). He explained the 10 value types that were positioned according to all compliances and contrasts with a circular arrangement (Figure 1) (Schwartz, 1992, 1996). Then, Schwartz et al. (2001) developed the Portrait Values Questionnaire by taking this hypothesis as the basis.

It has been observed recently that many studies have been conducted on developing measurement tools for values. It is also observed that the studies intensify especially on educational institutions and teachers and students. Densford (1961) considered the education system or educational institutions as an important tool reflecting the values of the society. For this reason, countries teach universal values as well as the values that reflect their own cultures in their educational systems. For example, the following expression is given place among the aims of the Turkish Higher Education Institutions “*Raising students, who consider the benefits of the society over their own benefits and full of love for their family, country and nation (Item 3), who know their duties and responsibilities for the State of Republic of Turkey, and who adopt these as behaviors (Item 4), who have free and scientific thinking power and a wide worldly*

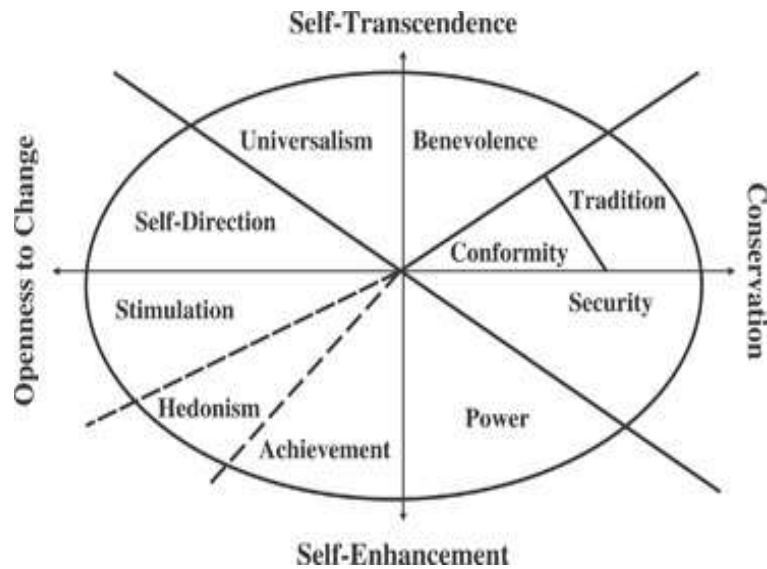


Figure 1. Schwartz's (1994, p.24) circular value hypothesis.

view and are respectful for human rights (Item 5)" (Turkish Official Gazette [TOG], 1981, p. 5350).

Here, both universal values and the values that are specific for the country are emphasized. Students are made to acquire knowledge, skills, behaviors and values with the help of the educational programs run with the guidance of the aims and values of the higher educational institutions. When the studies conducted with university students on values are examined, it is observed that the values such as student security, helpfulness, universalism (Bacanli, 1999; Bulut, 2012; Coskun and Yildirim, 2009; Yildiz and Kapu, 2012) are focused on. Again, Gumus (2009) conducted a study and determined that self-direction, benevolence and universal values were high in university students in America; and benevolence, universalism and self-direction values were high in university students in Turkey. Zavalsiz (2014) determined that the value priorities of the university students, who received optional Value Education Classes, were as follows; "religious, moral, social, political, aesthetical, theoretical-scientific and economic values".

Values may vary in universities in terms of general aims and values as well as in faculties and departments. The differences in the curricula in the departments or faculties may also influence the students' values as well. For example, the universalism or self-direction values of a student studying at a musical faculty may develop more while the traditionalism or security values of a student studying at faculty of theology may develop more. The purpose of this study is examining the values of the students studying at physical education and sports departments at universities according to their gender,

grade, age and departments.

## MATERIALS AND METHODS

The Questionnaire Method, which is one of the descriptive study methods, was used in this study. In the Questionnaire method, the participants answer the questions asked in the interviews and questionnaires, and these answers are described (Jackson, 2009) and presented in meaningful tables.

### Study group

The Portrait Value Questionnaire ([PVQ], Schwartz et al., 2001) was applied to 40 university students studying at Physical Education and Sports School (PESS) prior to the determination of the Study Group; and the highest standard deviation value ( $M=4.78$ ,  $SD=\pm 0.81$ ) of the sub-dimensions of the scale was found in the "stimulation" sub-dimension. For the continuous data, the sampling size of the study should be at least 370 students according to the Cochran's sampling size determination formula ( $M=4.78$   $SD=\pm 0.81$ ; Confidence Interval= %98  $d=\pm 0.04$  point scale=6) (Bartlett et al., 2001). The Clustering Sampling Type was determined as the sampling type in the study. In the Clustering Sampling Type, the sub-clusters of the main body are taken to the sampling according to their representation rates (Kothari, 2004). In this study, the students were included in the study in an equal amount by considering the fact that they came basically from 3 departments (Physical Education and Sports Teachers, Trainer Education and Sports Management); which are Physical Education and Sports Schools, and Sports Sciences Faculty in Turkey. The grades (1, 2, 3 and 4<sup>th</sup> Grades) and the gender rates in the grades (25% female and 75% male) were cared for 460 students, who were studying at PESS Departments of Inonu University, Bartin University, Dumlupinar University and Fırat University Sports Sciences Faculty in Turkey in 2015 to 2016 Academic year, and who volunteered to participate in the study, were included in the study.

### Data collection tool

The portrait values questionnaire (PVQ), which was developed by Schwartz et al. (2001), and which was adapted into Turkish by Demirutku and Sumer (2010), was used in the study as data collection tool. Smallest Space Analysis (SSA) was used to analyze the configuration of values by using the correlation matrix of 40 PVQ items as a similarity matrix for validity of PVQ. SSA analysis revealed that the theoretical model was confirmed by the empirical model. The coefficient of alienation was 0.21. Test-retest reliability coefficients of the all sub-dimensions were ranged between 0.65 and 0.81. Cronbach alpha coefficients of the all sub-dimensions were ranged between 0.61 and 0.84. The scale consisted of 40 questions, and was given points according to the 6-Point Likert Scale as "This is quite unlike me (1)", "This is unlike me (2)", "This is like me a little (3)", "This is barely like me (4)", "This is like me (5)" and "This is quite like me (6)". There are 10 sub-dimensions in the scale, and the values of these sub-dimensions are defined as follows (Schwartz et al., 2001):

**Power:** This dimension expresses the auditing of the social position and respectability on people and resources; and consists of 2, 17 and 39<sup>th</sup> Items.

**Achievement:** This dimension expresses the individual success direction that takes the social standards as bases; and consists of 4, 13, 24 and 32<sup>nd</sup> Items.

**Hedonism:** This dimension expresses the individual satisfaction on pleasure and senses; and consists of 10, 26 and 37<sup>th</sup> Items.

**Stimulation:** This dimension expresses the excitement, challenging to life, and the search for innovation; and consists of 6, 15 and 30<sup>th</sup> Items.

**Self-direction:** This dimension expresses the preference of independent thinking and action, being an explorer, and creativity; and consists of 1, 11, 22 and 34<sup>th</sup> Items.

**Universalism:** This dimension expresses the notions like being understanding, admiring, tolerant, and caring for the interests of people and the nature; and consists of 3, 8, 19, 23, 29 and 40<sup>th</sup> Items.

**Benevolence:** This dimension expresses the notions like caring for, developing and protecting the benefits of people with whom the individual is in frequent relation; and consists of 12, 18, 27 and 33<sup>rd</sup> Items.

**Tradition:** This dimension expresses the acceptance, devotion and respecting some traditions and ideas of a religion or a traditional culture; and consists of 9, 20, 25 and 38<sup>th</sup> Items.

**Conformity:** This dimension expresses the limitations of motives and inclinations that bring the individual to actions like acting contrary to the social rules and expectations, disturbing others, or breaking-injuring them; and consists of 7, 16, 28 and 36<sup>th</sup> Items.

**Security:** This dimension expresses the security, peace and stability of the society, relations and the individual; and consists of 5, 14, 21 31 and 35<sup>th</sup> Items.

### Data analysis techniques

The data of the 389 students, who completed the questionnaire

form accurately and without any missing parts, were loaded into the statistical package program. The data of the students on the sub-dimensions of the PVQ were tested with the Kolmogorov-Smirnov Test (KS), and it was observed that the data of the sub-dimensions were not distributed normally (Table 1). For this reason, the Mann-Whitney U Test was used for pair wise comparisons, which is one of the nonparametric tests in statistical analyses; the Kruskal-Wallis H Test was used for multiple comparisons, and the Bonferroni Correction Mann-Whitney U Test was used for post-hoc test. The significance value for the critical point was determined as  $\alpha=0.05$ . The effect size of the statistical tests was examined with Went's Rank-Biserial Correlation ( $r_{rb}$ ) (Wendt, 1972 as cited in Kerby, 2014). It was observed in the study that the effect size of the 47 statistical tests varied between 0.15 and 0.84; and the average value was 0.47. According to Cohen (1988) (*between 0.10 to 0.30 is accepted as "small"; between 0.30 to 0.50 "medium" and between 0.50 to 1 "high" effect size*), the average effect size of the statistical test results is at "medium" level.

## RESULTS

The ranking of the value points of the physical education and sports department students is observed in Table 1. While it is observed that the students' benevolence value points ( $\bar{X}=5.04$   $SD=\pm 0.59$ ) are at the highest level, it is also observed that traditionalism values are at the lowest level. The ranking of the students' values from the highest to the lowest is as follows; Benevolence ( $\bar{X}=5.04$   $SD=\pm 0.59$ ), Universalism ( $\bar{X}=5.02$   $SD=\pm 0.48$ ), Security ( $\bar{X}=5.02$   $SD=\pm 0.54$ ), achievement ( $\bar{X}=4.97$   $SD=\pm 0.70$ ), Stimulation ( $\bar{X}=4.80$   $SD=\pm 0.80$ ), Self-direction ( $\bar{X}=4.79$   $SD=\pm 0.69$ ), Hedonism ( $\bar{X}=4.68$   $SD=\pm 0.59$ ), Conformity ( $\bar{X}=4.63$   $SD=\pm 0.58$ ), Power ( $\bar{X}=4.56$   $SD=\pm 0.45$ ) and Tradition ( $\bar{X}=3.97$   $SD=\pm 0.79$ ).

As observed in Table 2, the power ( $\bar{X}=4.71$   $SD=+0.54$ ), tradition ( $\bar{X}=4.22$   $SD=+0.76$ ), conformity ( $\bar{X}=4.78$   $SD=+0.62$ ) and security ( $\bar{X}=5.11$   $SD=+0.52$ ) value points of the female students studying at physical education and sports departments are higher than those of the male students. The hedonism ( $\bar{X}=4.76$   $SD=+0.48$ ) and stimulation ( $\bar{X}=4.94$   $SD=+0.64$ ) points of the male students are higher than those of females. These results are statistically significant ( $p<0.05$ ). However, it is observed in Table 2 that there are no statistical differences between the success, self-direction, universalism and benevolence value points of the university students according gender ( $p>0.05$ ).

As observed in Table 3, there is a statistical difference between the achievement value points of the students studying at physical education and sports departments ( $H=21.500$   $p<0.05$ ). It is also observed that this difference stems from the difference between the value points of 18-19-year-old students and 20-21-year-old students, and between the value points of 18-19-year-old and 22-27-year-old ones ( $p<0.016$   $r_{rb}=0.29$ ). In Table 3, there is a

**Table 1.** Distribution of the values of students in the Departments of the Physical Education and Sports.

| Sub-dimensions | N   | $\bar{X}$ | SD   | Min. | Max. | KS    | p      | Ranking |
|----------------|-----|-----------|------|------|------|-------|--------|---------|
| Power          | 389 | 4.56      | 0.45 | 3.33 | 5.67 | 3.270 | 0.000* | 9       |
| Achievement    | 389 | 4.97      | 0.70 | 3.50 | 6.00 | 3.022 | 0.000* | 4       |
| Hedonism       | 389 | 4.68      | 0.59 | 3.00 | 5.67 | 2.970 | 0.000* | 7       |
| Stimulation    | 389 | 4.80      | 0.80 | 2.67 | 6.00 | 3.579 | 0.000* | 5       |
| Self-direction | 389 | 4.79      | 0.69 | 3.25 | 6.00 | 2.786 | 0.000* | 6       |
| Universalism   | 389 | 5.02      | 0.48 | 3.67 | 6.00 | 2.073 | 0.000* | 2       |
| Benevolence    | 389 | 5.04      | 0.59 | 3.75 | 6.00 | 2.546 | 0.000* | 1       |
| Tradition      | 389 | 3.97      | 0.79 | 1.50 | 5.50 | 1.628 | 0.010* | 10      |
| Conformity     | 389 | 4.63      | 0.58 | 3.25 | 5.75 | 4.080 | 0.000* | 8       |
| Security       | 389 | 5.02      | 0.54 | 4.00 | 6.00 | 2.107 | 0.000* | 3       |

\*p&lt;0.05 (Non-normal distribution).

**Table 2.** Distribution of the values of students in the Departments of the Physical Education and Sports according to Gender.

| Sub-dimensions | Gender | n   | $\bar{X}$ | SD   | MR     | SR       | U        | p     | r <sub>rb</sub> |
|----------------|--------|-----|-----------|------|--------|----------|----------|-------|-----------------|
| Power          | Female | 126 | 4.71      | 0.54 | 223.17 | 28119.50 | 13019.50 | 0.00* | 0.24            |
|                | Male   | 263 | 4.49      | 0.39 | 181.50 | 47735.50 |          |       |                 |
| Achievement    | Female | 126 | 4.93      | 0.70 | 187.90 | 23675.50 | 15674.50 | 0.38  |                 |
|                | Male   | 263 | 4.99      | 0.70 | 198.40 | 52179.50 |          |       |                 |
| Hedonism       | Female | 126 | 4.52      | 0.74 | 176.12 | 22190.50 | 14189.50 | 0.02* | 0.15            |
|                | Male   | 263 | 4.76      | 0.48 | 204.05 | 53664.50 |          |       |                 |
| Stimulation    | Female | 126 | 4.52      | 1.05 | 172.85 | 21779.00 | 13778.00 | 0.00* | 0.17            |
|                | Male   | 263 | 4.94      | 0.64 | 205.61 | 54076.00 |          |       |                 |
| Self-direction | Female | 126 | 4.84      | 0.72 | 208.21 | 26234.00 | 14905.00 | 0.10  |                 |
|                | Male   | 263 | 4.76      | 0.68 | 188.67 | 49621.00 |          |       |                 |
| Universalism   | Female | 126 | 5.03      | 0.54 | 186.51 | 23500.50 | 15499.50 | 0.29  |                 |
|                | Male   | 263 | 5.01      | 0.45 | 199.07 | 52354.50 |          |       |                 |
| Benevolence    | Female | 126 | 5.07      | 0.62 | 204.56 | 25775.00 | 15364.00 | 0.24  |                 |
|                | Male   | 263 | 5.03      | 0.57 | 190.42 | 50080.00 |          |       |                 |
| Tradition      | Female | 126 | 4.22      | 0.76 | 232.79 | 29332.00 | 11807.00 | 0.00* | 0.29            |
|                | Male   | 263 | 3.84      | 0.78 | 176.89 | 46523.00 |          |       |                 |
| Conformity     | Female | 126 | 4.78      | 0.62 | 235.36 | 29655.00 | 11484.00 | 0.00* | 0.31            |
|                | Male   | 263 | 4.55      | 0.54 | 175.67 | 46200.00 |          |       |                 |
| Security       | Female | 126 | 5.11      | 0.52 | 215.05 | 27096.50 | 14042.50 | 0.01* | 0.15            |
|                | Male   | 263 | 4.97      | 0.55 | 185.39 | 48758.50 |          |       |                 |

\*p&lt;0.05.

statistical difference between the stimulation value points according to the ages of the students ( $H=7.493$   $p<0.05$ ). It is observed that this difference stems from the value points of the 18-19-year-old and 20-21-year-old students ( $p<0.016$   $r_{rb}=0.20$ ). In addition, there is a difference between the conformity value points according to the ages of the students ( $H=7.845$   $p<0.05$ ). It is also observed that this difference stems from the value points of the 18-19-year-old students and 20-21-year-old ones ( $p<0.016$   $r_{rb}=0.23$ ).

It is observed in Table 4 that there are no statistically significant differences among the power, achievement, hedonism, stimulation, self-direction, universalism, benevolence, tradition, conformity and security values of the students studying at physical education and sports departments ( $p>0.05$ ).

As observed in Table 5, there are statistically significant differences among the power ( $H=49.850$   $p<0.05$ ), achievement ( $H=132.746$   $p<0.05$ ), hedonism ( $H=38.739$   $p<0.05$ ), stimulation ( $H=37.015$   $p<0.05$ ), self-direction



**Table 3.** Distribution of the values of students in the Departments of the Physical Education and Sports according to Age.

| Sub-dimensions | Age       | n   | $\bar{X}$ | SD   | MR     | H      | p      | Groups  | p       | $r_{rb}$ |
|----------------|-----------|-----|-----------|------|--------|--------|--------|---------|---------|----------|
| Power          | 18-19     | 89  | 4.53      | 0.36 | 184.91 | 4.184  | 0.123  |         |         |          |
|                | 20-21     | 146 | 4.63      | 0.48 | 209.63 |        |        |         |         |          |
|                | 22-27     | 154 | 4.51      | 0.47 | 186.96 |        |        |         |         |          |
| Achievement    | 18-19 (1) | 89  | 5.28      | 0.48 | 241.33 | 21.500 | 0.000* | (1)-(2) | 0.000** | 0.33     |
|                | 20-21 (2) | 146 | 4.81      | 0.77 | 172.82 |        |        |         |         |          |
|                | 22-27 (3) | 154 | 4.94      | 0.69 | 189.26 |        |        |         |         |          |
| Hedonism       | 18-19     | 89  | 4.79      | 0.39 | 209.98 | 2.494  | 0.287  |         |         |          |
|                | 20-21     | 146 | 4.62      | 0.62 | 186.52 |        |        |         |         |          |
|                | 22-27     | 154 | 4.67      | 0.65 | 194.39 |        |        |         |         |          |
| Stimulation    | 18-19 (1) | 89  | 5.08      | 0.48 | 223.24 | 7.493  | 0.024* | (1)-(2) | 0.010** | 0.20     |
|                | 20-21 (2) | 146 | 4.70      | 0.89 | 185.77 |        |        |         |         |          |
|                | 22-27 (3) | 154 | 4.73      | 0.84 | 187.43 |        |        |         |         |          |
| Self-direction | 18-19     | 89  | 4.94      | 0.62 | 206.30 | 1.427  | 0.490  |         |         |          |
|                | 20-21     | 146 | 4.71      | 0.75 | 188.48 |        |        |         |         |          |
|                | 22-27     | 154 | 4.77      | 0.67 | 194.65 |        |        |         |         |          |
| Universalism   | 18-19     | 89  | 5.02      | 0.41 | 188.75 | 1.763  | 0.414  |         |         |          |
|                | 20-21     | 146 | 4.97      | 0.52 | 189.02 |        |        |         |         |          |
|                | 22-27     | 154 | 5.06      | 0.47 | 204.28 |        |        |         |         |          |
| Benevolence    | 18-19     | 89  | 5.04      | 0.48 | 181.20 | 2.967  | 0.227  |         |         |          |
|                | 20-21     | 146 | 5.06      | 0.64 | 206.27 |        |        |         |         |          |
|                | 22-27     | 154 | 5.03      | 0.59 | 192.29 |        |        |         |         |          |
| Tradition      | 18-19     | 89  | 3.83      | 0.78 | 175.92 | 3.799  | 0.150  |         |         |          |
|                | 20-21     | 146 | 4.04      | 0.79 | 205.05 |        |        |         |         |          |
|                | 22-27     | 154 | 3.98      | 0.81 | 196.50 |        |        |         |         |          |
| Conformity     | 18-19 (1) | 89  | 4.54      | 0.50 | 170.35 | 7.845  | 0.020* | (1)-(2) | 0.003** | 0.23     |
|                | 20-21 (2) | 146 | 4.69      | 0.63 | 211.64 |        |        |         |         |          |
|                | 22-27 (3) | 154 | 4.62      | 0.56 | 193.47 |        |        |         |         |          |
| Security       | 18-19     | 89  | 5.06      | 0.41 | 189.21 | 0.349  | 0.840  |         |         |          |
|                | 20-21     | 146 | 5.00      | 0.55 | 195.42 |        |        |         |         |          |
|                | 22-27     | 154 | 5.01      | 0.60 | 197.95 |        |        |         |         |          |

\* $p < 0.05$ ; \*\* $p < 0.016$  after Bonferroni correction.

( $H=86.008$   $p < 0.05$ ), universalism ( $H=123.088$   $p < 0.05$ ), benevolence ( $H=77.342$   $p < 0.05$ ), tradition ( $H=15.337$   $p < 0.05$ ), conformity ( $H=30.553$   $p < 0.05$ ) and security ( $H=117.422$   $p < 0.05$ ) values of the physical education and sports departments students according to grades.

Upon the Bonferroni Correction Mann-Whitney U test, which was conducted to determine among which this difference was detected, it was determined that there were differences nearly among all paired groups ( $p < 0.008$ ).

It was observed that the effect size of the statistical analysis conducted between the paired groups was between 0.24 and 0.84; however, it was also observed that the majority of the effect sizes were at the medium and high levels.

## DISCUSSION

It is observed in Table 1 that the ranking of the value points of the physical education and sports department students according to the highest values are benevolence, universalism and security values, respectively. It is meaningful that the highest values of the students are observed in the benevolence value. Schwartz (1992, p.11) explained "benevolence value" as "This is a more narrowly defined version of the earlier prosocially value type. Whereas prosocially referred to concern for the welfare of all people in all settings, benevolence focuses on concern for the welfare of close others in everyday interaction". In addition, he also stated that it was among the universal needs of an individual as an organism

**Table 4.** Distribution of the values of students in the Departments of the Physical Education and Sports according to Age.

| Sub-dimensions | Department       | n   | $\bar{X}$ | SD   | MR     | H     | p     |
|----------------|------------------|-----|-----------|------|--------|-------|-------|
| Power          | PE Teacher       | 139 | 4.57      | 0.45 | 195.93 | 0.686 | 0.710 |
|                | Sport Trainer    | 138 | 4.54      | 0.45 | 189.37 |       |       |
|                | Sport Management | 112 | 4.59      | 0.47 | 200.78 |       |       |
| Achievement    | PE Teacher       | 139 | 4.98      | 0.71 | 196.19 | 2.188 | 0.335 |
|                | Sport Trainer    | 138 | 4.91      | 0.72 | 184.98 |       |       |
|                | Sport Management | 112 | 5.05      | 0.68 | 205.86 |       |       |
| Hedonism       | PE Teacher       | 139 | 4.71      | 0.60 | 201.06 | 0.668 | 0.716 |
|                | Sport Trainer    | 138 | 4.67      | 0.61 | 192.51 |       |       |
|                | Sport Management | 112 | 4.67      | 0.58 | 190.55 |       |       |
| Stimulation    | PE Teacher       | 139 | 4.84      | 0.81 | 201.37 | 0.790 | 0.674 |
|                | Sport Trainer    | 138 | 4.77      | 0.80 | 189.71 |       |       |
|                | Sport Management | 112 | 4.80      | 0.83 | 193.60 |       |       |
| Self-direction | PE Teacher       | 139 | 4.80      | 0.71 | 197.70 | 1.599 | 0.449 |
|                | Sport Trainer    | 138 | 4.74      | 0.70 | 185.83 |       |       |
|                | Sport Management | 112 | 4.85      | 0.69 | 202.95 |       |       |
| Universalism   | PE Teacher       | 139 | 5.04      | 0.49 | 199.21 | 1.800 | 0.406 |
|                | Sport Trainer    | 138 | 4.98      | 0.48 | 184.89 |       |       |
|                | Sport Management | 112 | 5.06      | 0.48 | 202.23 |       |       |
| Benevolence    | PE Teacher       | 139 | 5.06      | 0.59 | 197.99 | 1.330 | 0.514 |
|                | Sport Trainer    | 138 | 5.00      | 0.60 | 186.48 |       |       |
|                | Sport Management | 112 | 5.09      | 0.58 | 201.78 |       |       |
| Tradition      | PE Teacher       | 139 | 3.98      | 0.80 | 196.81 | 0.818 | 0.664 |
|                | Sport Trainer    | 138 | 3.93      | 0.81 | 188.43 |       |       |
|                | Sport Management | 112 | 4.01      | 0.80 | 200.84 |       |       |
| Conformity     | PE Teacher       | 139 | 4.64      | 0.59 | 196.36 | 0.917 | 0.632 |
|                | Sport Trainer    | 138 | 4.59      | 0.61 | 188.36 |       |       |
|                | Sport Management | 112 | 4.68      | 0.55 | 201.50 |       |       |
| Security       | PE Teacher       | 139 | 5.04      | 0.55 | 197.51 | 2.703 | 0.259 |
|                | Sport Trainer    | 138 | 4.96      | 0.56 | 183.37 |       |       |
|                | Sport Management | 112 | 5.08      | 0.53 | 206.21 |       |       |

$p < 0.05$ .

(Schwartz, 1992).

This situation may stem from the belief of the university students that the universal knowledge they learn and the skills they acquire in classes at university will be helpful for the society in which they live or for the individuals; and this knowledge and skill will take the society to a further point from the present point. This situation may also be valid for the universalism and security values. In order for a society to develop, the individuals must live in security; have a wide viewpoint, and a sense of social justice. It is no surprise that the university students understand this situation in the best way and have the benevolence, universalism and security as the highest beliefs. Studies conducted so far also support the results of this study. Yildiz and Kapu (2012) conducted a study and found that the security, helpfulness and universalism values were

at the highest level for university students.

Bacanli (1999) reported in his study that the security, charity and universalism values of the students, who studied at educational faculties, were higher than the other values. Demirutku (2007) conducted a study and found that the highest values in university students were self-direction, universalism, hedonism and benevolence. Gumus (2009) conducted a study and found that the self-direction, benevolence and universal values of the American university students were high, while the benevolence, universalism and self-direction values were high in Turkish university students. These results show that although university students study at different universities, in different countries and even in different faculties, their values are close to each other.

It is observed in Table 2 that the power, tradition,

**Table 5.** Comparison of the values of students in the Departments of the Physical Education and Sports according to Grades.

| Sub-dimensions | Grade                 | n   | $\bar{X}$ | SD   | MR     | H       | p     | Groups  | p       | r <sub>rb</sub> |
|----------------|-----------------------|-----|-----------|------|--------|---------|-------|---------|---------|-----------------|
| Power          | 1 <sup>st</sup> Grade | 93  | 4.41      | 0.25 | 153.83 | 49.850  | 0.00* | (1)-(2) | 0.000** | 0.53            |
|                | 2 <sup>nd</sup> Grade | 101 | 4.81      | 0.44 | 251.96 |         |       | (1)-(3) | 0.001** | 0.26            |
|                | 3 <sup>rd</sup> Grade | 98  | 4.59      | 0.55 | 207.01 |         |       | (2)-(4) | 0.000** | 0.46            |
|                | 4 <sup>th</sup> Grade | 97  | 4.42      | 0.40 | 163.03 |         |       |         |         |                 |
| Achievement    | 1 <sup>st</sup> Grade | 93  | 5.09      | 0.55 | 211.61 | 132.746 | 0.00* | (1)-(3) | 0.000** | 0.74            |
|                | 2 <sup>nd</sup> Grade | 101 | 5.25      | 0.66 | 242.11 |         |       | (2)-(3) | 0.000** | 0.73            |
|                | 3 <sup>rd</sup> Grade | 98  | 4.26      | 0.48 | 84.61  |         |       | (3)-(4) | 0.000** | 0.81            |
|                | 4 <sup>th</sup> Grade | 97  | 5.27      | 0.55 | 241.54 |         |       |         |         |                 |
| Hedonism       | 1 <sup>st</sup> Grade | 93  | 4.70      | 0.49 | 190.74 | 38.739  | 0.00* | (1)-(3) | 0.000** | 0.30            |
|                | 2 <sup>nd</sup> Grade | 101 | 4.82      | 0.46 | 221.18 |         |       | (2)-(3) | 0.000** | 0.40            |
|                | 3 <sup>rd</sup> Grade | 98  | 4.32      | 0.70 | 139.71 |         |       | (3)-(4) | 0.000** | 0.43            |
|                | 4 <sup>th</sup> Grade | 97  | 4.88      | 0.51 | 227.69 |         |       |         |         |                 |
| Stimulation    | 1 <sup>st</sup> Grade | 93  | 4.96      | 0.50 | 202.49 | 37.015  | 0.00* | (1)-(3) | 0.000** | 0.34            |
|                | 2 <sup>nd</sup> Grade | 101 | 5.05      | 0.76 | 225.41 |         |       | (2)-(3) | 0.000** | 0.44            |
|                | 3 <sup>rd</sup> Grade | 98  | 4.28      | 0.94 | 137.69 |         |       | (3)-(4) | 0.000** | 0.40            |
|                | 4 <sup>th</sup> Grade | 97  | 4.91      | 0.71 | 214.06 |         |       |         |         |                 |
| Self-direction | 1 <sup>st</sup> Grade | 93  | 4.83      | 0.56 | 185.32 | 86.008  | 0.00* | (1)-(2) | 0.000** | 0.35            |
|                | 2 <sup>nd</sup> Grade | 101 | 5.03      | 0.79 | 247.07 |         |       | (1)-(3) | 0.000** | 0.43            |
|                | 3 <sup>rd</sup> Grade | 98  | 4.29      | 0.50 | 113.93 |         |       | (1)-(4) | 0.001** | 0.27            |
|                | 4 <sup>th</sup> Grade | 97  | 5.01      | 0.63 | 231.97 |         |       | (2)-(3) | 0.000** | 0.62            |
|                |                       |     |           |      |        |         |       | (3)-(4) | 0.000** | 0.62            |
| Universalism   | 1 <sup>st</sup> Grade | 93  | 4.92      | 0.44 | 158.89 | 123.088 | 0.00* | (1)-(2) | 0.000** | 0.59            |
|                | 2 <sup>nd</sup> Grade | 101 | 5.26      | 0.34 | 262.43 |         |       | (1)-(3) | 0.000** | 0.33            |
|                | 3 <sup>rd</sup> Grade | 98  | 4.66      | 0.39 | 110.05 |         |       | (1)-(4) | 0.000** | 0.47            |
|                | 4 <sup>th</sup> Grade | 97  | 5.23      | 0.48 | 245.24 |         |       | (2)-(3) | 0.000** | 0.77            |
|                |                       |     |           |      |        |         |       | (3)-(4) | 0.000** | 0.64            |
| Benevolence    | 1 <sup>st</sup> Grade | 93  | 4.91      | 0.41 | 155.49 | 77.342  | 0.00* | (1)-(2) | 0.000** | 0.50            |
|                | 2 <sup>nd</sup> Grade | 101 | 5.34      | 0.54 | 253.42 |         |       | (1)-(4) | 0.001** | 0.45            |
|                | 3 <sup>rd</sup> Grade | 98  | 4.69      | 0.58 | 136.37 |         |       | (2)-(3) | 0.000** | 0.59            |
|                | 4 <sup>th</sup> Grade | 97  | 5.22      | 0.57 | 231.29 |         |       | (3)-(4) | 0.000** | 0.44            |
| Tradition      | 1 <sup>st</sup> Grade | 93  | 3.70      | 0.97 | 168.73 | 15.537  | 0.00* | (1)-(2) | 0.000** | 0.30            |
|                | 2 <sup>nd</sup> Grade | 101 | 4.25      | 0.67 | 229.47 |         |       | (2)-(4) | 0.004** | 0.24            |
|                | 3 <sup>rd</sup> Grade | 98  | 4.02      | 0.78 | 194.56 |         |       |         |         |                 |
|                | 4 <sup>th</sup> Grade | 97  | 3.88      | 0.65 | 184.74 |         |       |         |         |                 |
| Conformity     | 1 <sup>st</sup> Grade | 93  | 4.43      | 0.48 | 147.66 | 30.553  | 0.00* | (1)-(2) | 0.000** | 0.42            |
|                | 2 <sup>nd</sup> Grade | 101 | 4.88      | 0.44 | 231.16 |         |       | (1)-(3) | 0.001** | 0.27            |
|                | 3 <sup>rd</sup> Grade | 98  | 4.52      | 0.60 | 187.38 |         |       | (1)-(4) | 0.001** | 0.28            |
|                | 4 <sup>th</sup> Grade | 97  | 4.66      | 0.66 | 210.43 |         |       | (2)-(3) | 0.003** | 0.24            |
| Security       | 1 <sup>st</sup> Grade | 93  | 4.96      | 0.50 | 170.70 | 117.422 | 0.00* | (1)-(2) | 0.000** | 0.54            |
|                | 2 <sup>nd</sup> Grade | 101 | 5.36      | 0.36 | 272.97 |         |       | (1)-(3) | 0.000** | 0.35            |
|                | 3 <sup>rd</sup> Grade | 98  | 4.63      | 0.37 | 109.69 |         |       | (1)-(4) | 0.000** | 0.30            |
|                | 4 <sup>th</sup> Grade | 97  | 5.11      | 0.62 | 223.30 |         |       | (2)-(3) | 0.000** | 0.84            |
|                |                       |     |           |      |        |         |       | (2)-(4) | 0.003** | 0.24            |

\*p&lt;0.05; \*\*p&lt;0.008 after Bonferroni correction.

conformity and security value points of the female students studying at physical education and sports

departments are higher than the male students; and the hedonism and stimulation values of the male students are

higher than the female students. This situation stems from the difference in the spiritual and perceptual levels of the students according to their genders. Female students may perceive values deeply due to their spiritual nature. The studies conducted so far (Coskun and Yildirim, 2009) show that the value perception levels of female university students are higher than the male students. Eagly (1995) explains this situation in his Social Role Theory as the different family and job roles given to the men and women within the society being the basis of these gender-based expectations. It is expected in the society that women are hot-blooded, friendly, maternal and helpful; while men are brave and kind.

When the studies similar to the one of this study are examined, it is observed that similar results are reported. For example Feather (1984) conducted a study and observed that women participants cared more about love, honesty, internal harmony and respectability. He also concluded that male participants cared more about a comfortable life and logic than women participants. Again, Bacanlı (1999) conducted a study and determined that female university students cared more about universal and peaceful values, and male university students cared more about being connected to traditions and being religious. Ryckman and Houston (2003) conducted another study and found that female university students cared more about helpfulness, universalism and security values. Schwartz and Rubel-Lifschitz (2005) reported that male participants cared more about power, stimulation, hedonism, achievement and self-direction values than female participants; and female participants cared less about helpfulness and universalism values.

Schwartz and Rubel-Lifschitz (2009) conducted a study in seventy countries and found that male participants cared more about power, stimulation, hedonism, achievement and self-direction values than female participants; and female participants cared more about helpfulness and humanism values more than the male participants. Dirilen-Gumus and Buyuksahin-Sunal (2012) conducted a study and reported that female university students cared more about hedonism, humanism, helpfulness and security values than female university students. Bulut (2012) conducted a study in the Educational Faculty, and observed that the stimulation values of male students were higher than the benevolence, conformity and security values of the female students.

It is observed in Table 3 that there is a differentiation among the achievement, stimulation and conformity value points according to the ages of the physical education and sports department students. It was determined that the main reason for this stemmed from the difference between 18 to 19 age group and 20 to 21 age group. Since the age group 18 to 19 is just after teenage years and high school years (Bacanli, 2002), their feelings may be stronger. In addition, Schwartz (1992) expressed that

success value is related with skills, efficiency, social and individual success; and the stimulation value is related with a brave, colorful and exciting life. For this reason, it is a natural result that students' success and stimulation values are high in 18-19 years of age, when the life energy of the individuals after teenage years are at the top level.

In Table 4, it is observed that there are no statistically significant differences between the value points of the physical education and sports department students according to their departments. Physical education and sports teachers department trains teachers; trainer department educates trainers; and Sports Management department raises sports managers. Although there are different programs in these departments, the curricula are similar to each other; and they continue education and training activities in the same sports facilities, in the same building, with the same lecturers and have similar conditions. The values' being similar in different departments might have stemmed from this situation.

In Table 5, it is observed that there are statistically significant differences between all the value points of the physical education and sports department students according to their grades. In the statistical process that was conducted in order to determine from which paired groups these differences stemmed from, it was observed that the differences existed nearly in all paired comparisons. This situation shows that the grade variable influences the student values at a significant and high level.

The basic aims of the Turkish higher education institutions are *"raising students, who consider the benefits of the society over his/her own benefits and full of love for their family, country and nation"* and *"who have free and scientific thinking power and a wide worldly view and respectful for human rights"* (TOG, 1981, p.5350). For this reason, students have internalized the values stated in these aims at a certain density in each year of their university education, which lasted for four years. These results show that students change their values in a different direction and at a different density with the help of the universal knowledge, skills and attitudes given throughout the university years. The studies conducted so far have shown that the values like empowering themselves and being open for changes of the young people are higher (Morsumbul, 2014).

## Conclusion

It has been determined that the ranking of the values in physical education and sports departments students are as follows; "benevolence, universalism, security, achievement, stimulation, self-direction, hedonism, conformity, power and tradition". It has also been determined that the power, traditionalism, conformity and security value points

of the female students are higher than the male students, and the hedonism and stimulation points of the males are higher than the females. Differences have also been observed among the achievement, stimulation and conformity values of the students according to their ages. Although no differences have been observed between the value points of the students according to their departments, differences have been observed between the value points of the students according to their ages.

Obedying the rules of the game is very important in Physical Education and Sports. However, in our study, the points of the Conformity Values were observed to be lower than the other values. For this reason, it is recommended that Conformity Value Education should be conducted for the students of Physical Education and Sports departments. In addition, it is also recommended that optional Values Education Classes should be added to the curricula of Physical Education and Sports departments by considering the genders and grades of the students. It is recommended to the researchers who will conduct similar studies to design detailed studies with the Mixed Method in which the qualitative and quantitative research methods are used together.

### Conflict of Interests

The authors have not declared any conflict of interests.

### REFERENCES

- Alavi HR, Rahimipoor T (2010). Correlation of Manager's Value Systems and Student's Moral Development in High School and Pre University Centers. *Educa. Manage. Adminis. Leader.* 38(4):423-442.
- Allport GW, Vernon P E, Lindzey G (1960). *Manual and Text Booklet, Study of Values* (3<sup>rd</sup> ed.). Boston: Houghton Mifflin.
- Bacanli H (1999). Value Choice of University Students. *Educ. Admin.: Theory Prac.* 5(4):597-610.
- Bacanli H (2002). *Learning and Development.* (6<sup>th</sup> ed.). Ankara: Nobel Publishing.
- Bardi A, Schwartz S H (2001). Values and Behavior: Strength and Structure of Relations. *Person. Social Psych. Bul.* 29:1207-1220.
- Bartlett JE, Kotlik JW, and Higgins CC (2001). Organizational Research: Determining Appropriate Sample Size in Survey Research. *Info. Tech. Learn. Perform. J.* 19(1):43-50.
- Bilgin N (1995). *Methods and Practical Training in Social Psychology.* Istanbul: Sistem Publishing
- Bulut SS (2012). Value Tendencies of the Students at the College of Education of Gazi University. *Intl. J. Turk. Liter. Cultu. Educ.* 1(3):216-238.
- Cohen J (1988). *Statistical Power Analysis for the Behavioral Sciences* (2<sup>nd</sup> ed.). Hillsdale-NJ: Lawrence Erlbaum Associates.
- Connor PE, Becker BW (2003). Personal Value Systems and Decision-Making Styles of Public Managers. *Pub. Person. Manage.* 32:155-180.
- Coskun Y, Yildirim A (2009). Examining the Value Levels of University Students' In Terms of Some Variables. *Yuzuncu Yil Uni. J. Educ. Fac.* 4(1):311-328.
- Demirutku K (2007). Parenting Styles, Internalization of Values, and the Self-Concept. (Unpublished Doctoral Thesis). Middle East Technical University, The Graduate School Of Social Sciences, Ankara.
- Demirutku K, Sumer N (2010). The Measurement of Basic Values: Turkish Adaptation of Portrait Values Questionnaire. *Turk. Psych. Artic.* 13(25):26-28.
- Densford JP (1961). Value theory as Basic to Philosophy of Education. *Peabody J. Educ.* 39(2):91-93.
- Dirilen-Gumus O, Buyuksahin-Sunal A (2012). Gender Differences in Turkish Undergraduate Students Values. *Sex Roles* 67(9):559-570.
- Eagly A (1995). The Science and Politics of Comparing Women and Men. *Am. Psych.* 50(3):145-158.
- Feather NT (1984). Masculinity, Femininity, Psychological Androgyny, and the Structure of Values. *J. Persona. Soc. Psych.* 47(3):604-620.
- Frouzanfar M H, Meimar S, Tagipour F (2012). The Role of Reference Groups on Student's Cultural Values. *Interdis. J. Contemp. Res. Bus.* 3(9):183-193.
- Graves CW (1965). Value Systems and their Relation to Managerial Controls and Organizational Viability. Presentation to the College of Management Philosophy, on the 3rd of February, The Institute of Management Sciences, Jack Tar Hotel, San Francisco, California.
- Grusec JE, Kuczynski L (1997). Parenting and children's internalization of values: A handbook of Contemporary Theory. New York: John Wiley & Sons.
- Gumus OD (2009). The Relationships among Culture, Values, Political Ideologies Personality: Intercultural Comparison (Turkey and USA). (Unpublished Doctoral Thesis). Ankara University, Social Science Institute, Ankara.
- Hofstede G (2001). *Culture's Consequences: Comparing Values Behaviors, Institutions and Organizations across Nations* (2<sup>nd</sup> ed.). London: Sage Publications.
- Inglehart R (2008). Changing Values among Western Publics from 1970 to 2006. *West Euro. Politic.* 31(1-2):130-146.
- Jackson SL (2009). *Research Methods and Statistics: A Critical Thinking Approach* (3<sup>rd</sup> ed.). Belmont- CA: Wadsworth.
- Kerby DS (2014). The Simple Difference Formula: An Approach to Teaching Nonparametric Correlation. *Innovati. Teac.* 3(1):1-9.
- Kothari CR (2004). *Research Methodology Methods and Techniques.* (2<sup>nd</sup> rev. ed.). New Delhi: New Age International Publisher.
- Morsumbul S (2014). Value Change across Generation. (Unpublished Doctoral Thesis). Hacettepe University, Social Science Institute, Ankara.
- Myrty L (2008) The Diversity of Value Meanings among University Students. *Scandina. J. Edu. Res.* 52(6):549-564.
- Rokeach M (1973). *The Nature of Human Values.* New York: Free Press.
- Rohan MJ, Zanna MP (1996). Value transmission in families. In Seligman C, Olson J M, Zanna, M P (Eds.), *The Psychology of Values: The Ontario Symposium.* 8: 253-276. Hillsdale, NJ: Erlbaum.
- Ryckman RM, Houston DM (2003). Value Priorities in American and British Female and Male University Students. *J. Soc. Psych.* 143(1):127-138.
- Schwartz SH (1992). Universals in the Content and Structure of Values: Theoretical Advances and Empirical Tests in 20 Countries. *Advan. Experi. Soc. Psych.* 25:1-65.
- Schwartz SH (1994). Are There Universal Aspects in the Content and Structure of Values? *J. Soc. Issu.* 50(4):19-45.
- Schwartz SH (1996). Value Priorities and Behavior: Applying of Theory of Integrated Value Systems. In Seligman C, Olson JM, Zanna, MP (Eds.), *The Psychology of Values: The Ontario Symposium.* 8:1-24. Hillsdale, NJ: Erlbaum.
- Schwartz SH, Bilsky W (1990). Toward A Theory of the Universal Content and Structure of Values: Extensions and Cross-Cultural Replications. *J. Personal Social Psych.* 58:878-891.
- Schwartz SH, Boehnke K (2004). Evaluating the Structure of Values with Confirmatory Factor Analysis. *J. Resear. Persona.* 38:230-255.
- Schwartz SH, Melech G, Lehmann A, Burgess S, Harris M, Owens V (2001). Extending the Cross-Cultural Validity of the Theory of Basic Human Values with A Different Method of Measurement. *J. Cross-Cultur. Psych.* 32:519-542.
- Schwartz SH, Rubel-Lifschitz T (2005). Sex Differences in Value Priorities: Cross-Cultural and Multimethod Studies. *J. Pers. Soc. Psych.* 89(6):1010-1028.
- Schwartz SH, Rubel-Lifschitz T (2009). Cross-National Variation in the

- Size of Sex Differences in Values: Effects of Gender Equality. *J. Persona. Soc. Psych.* 97(1):171-185.
- Theodorson GA, Achilles G (1969). *A Modern Dictionary of Sociology.* New York: Barnes and Nobel Books.
- TOG (1981) The Law on Turkish Higher Education: 2547 Number. *Turk. Offici. Gazett.* 21(3):5347-5394.
- Yildiz S, Kapu H (2012). The Relationship between Individual Values and Entrepreneurship Tendency of University Students: A Research on Kafkas University. *J. Econ. Adm. Sci. Fac.* 3(3):39-66.
- Zavalsiz YS (2014). University Students' Perception of Values (The Exemplar of Karabuk University) *Interna. Perio. Langua. Litera. Hist. of Turk.* 9(2):1739-1762.

*Full Length Research Paper*

# Comparison of the physical education and sports school students' multiple intelligence areas according to demographic features

Cem Sinan Aslan

The School of Physical Education and Sports, Mehmet Akif Ersoy University, Burdur, Turkey.

Received 15 March, 2016; Accepted 30 September, 2016

The aim of this study is to compare the multiple intelligence areas of a group of physical education and sports students according to their demographic features. In the study, "Multiple Intelligence Scale", consisting of 27 items, whose Turkish validity and reliability study have been done by Babacan (2012) and which is originally owned by McClellan and Conti (2008) has been used as the data collection tool. Moreover, together with the scale, students have been asked for fulfilling another information form of 10 items which are aimed at revealing their demographic structures. Scale has been applied to 285 students of 113 females and 172 males. Obtained data has been downloaded into SPSS (Ver. 22), a statistical packet program, and then evaluated. During the evaluation process, frequency and percentage values, ANOVA and Student-t test statistical methods have been used. Level of Alpha was set as 0.05 for statistical significance. Average age value of the participants is  $21.37 \pm 2.39$  year, which is shared between the female and male as  $20.67 \pm 1.96$  and  $21.84 \pm 2.54$ , respectively. In conclusion, there has been significant differences found among the intelligence areas according to the variables of gender, hometown and income level whereas, there haven't been any differences according to the variables of the colleges they graduated from, their grades in the school of physical education and sports, the educational level of their parents, being a licensed sportsman and training age.

**Key words:** Multiple intelligence, demographic features, physical education, sports.

## INTRODUCTION

Intelligence upon which numerous studies have been done for years is an abstract concept. For this reason, it turns out to be a feature which has always been a matter of curiosity, whose borders are to be drawn and to be questioned. Until present, researchers have put forward numerous ideas upon the intelligence by examining the mental structures and behaviours of the individuals

(Bumen, 2014). Piaget (1972) brought an explanation about intelligence on the basis of development. He revealed how the individual has adapted to the environment by assimilation and congruity at different ages and claimed that in order to understand the intelligence, how the knowledge is obtained and used should be examined. According to Piaget (1972),

E-mail: [sinancm@hotmail.com](mailto:sinancm@hotmail.com).

Authors agree that this article remain permanently open access under the terms of the [Creative Commons Attribution License 4.0 International License](https://creativecommons.org/licenses/by/4.0/)

intelligence is the power of adaptation to the surrounding in other words; it is a balancing process of balancing the mental development. From that point of his, the aim of realising the learning is to manage thinking as well. Because of the individual differences, there comes out differences in thought and in turn, differences in the intelligence areas. Multiple intelligence theory likes a window opening towards the brain and explains the specific functions of the various areas of the brain. In other words, multiple intelligence theory tries to explain how human intelligence reacts to the content of the world such as various concepts, events, sounds or objects and how he internalizes and interprets this content. In conclusion, from the point of multiple intelligence theory, intelligence is a multidimensional capacity, potential and an acquisition. Moreover, intelligence is shaped by the experiences of the individual with his ecological and cultural surrounding as well as his genetic heritage (Saban, 2005).

### The purpose of the study

Aim of this study is to compare the demographic features of the multiple intelligence areas of a group of Physical Education and Sports School (PES) students according to “age, gender, hometown, total household income, level of education of the parents, the high school they graduated from, their grades, being a licensed athlete and training age” variables.

### MATERIALS AND METHODS

This study has cross-sectional characteristics in a descriptive model. The participants have been fully informed about the procedures of the study. Written informed consent forms have been obtained from all participants. The study has been approved by the Cumhuriyet University Non-Interventional Clinical Studies Etic Commission Chairmanship, and has been conducted in a consistent manner with the institutional ethical requirements for human experimentation in accordance with the Declaration of Helsinki. Total 285 volunteer undergraduate students, 113 female 172 male, randomly have participated in the research. When the distribution of the participants according to their grades was examined, it is found that 80, 67, 68 and 70 of the students are from the first, second, third and fourth grades, respectively.

#### Data collecting tool

Data collection tool consists of two parts; one of which is an information form aiming at detecting the socio-economic and demographic information of the participants and the other one is the Multiple Intelligence Scale (MIS) which is used for revealing the multiple intelligence areas of the students.

In order to reveal the multiple intelligence areas in which the university students dominate “Multiple Intelligence Scale” of 3 subcategories with 9 items each and 27 items in total have been used, which was developed by McClellann and Conti (2008), and whose Turkish validity and reliability study was accomplished by

Babacan (2012). Socio-economic and demographic information part consist of information form of 10 items. In this form, participants are asked questions to help to determine the “age, gender, hometown, total household income, level of education of the parents, high school they graduated from, their grades in the school of physical education and sports, being a licensed athlete and training age” features.

While the participants are answering the Multiple Intelligence Scale, they are required to put the answers to the questions-given as expressions-in an order starting from the item that they totally agree on, which will be called as the nearest, to the one that they do not agree on, which will be called as the furthest option. Participants are supposed to give the score 1 for the nearest ones and 9 for the farthest ones. The fact that for which intelligence area the participant has the tendency most is revealed by the lowest scores they give for the answers, each of which stands for a different intelligence area. Scores for each area are calculated and the intelligence area with the lowest score is accepted as the person’s dominant intelligence area. The lowest score to get for each intelligence area in the scale is 3 point whereas, the highest is 27 point (Babacan, 2012).

#### Data analyses

The data has been evaluated by SPSS (Ver.22) statistic programme. While evaluating the data, “mean and standard deviation, frequency and percentage” statistical methods have been used; moreover, in order to explore the differences between the groups formed according to the variables, “Student’s t-test” and ANOVA have been used. Tukey test has been used to identify which groups have resulted in these differences. Before using the parametric tests, the assumption of normality has been verified using the “Shapiro-Wilk test”. Level of Alpha has been set as 0.05 for statistical significance. Inner consistency coefficient (Cronbach’s Alpha) of the scale used in this study has been found as 0.70. Based on the related literature (Altunisik et al., 2010; Nakip, 2006), the alpha value of MIS (0.70) is to be accepted as reliable.

### RESULTS

Average age value of the participants is  $21.37 \pm 2.39$  years, whose distribution is as  $20.67 \pm 1.96$  for female and  $21.84 \pm 2.54$  years for male. Average values of the other gathered data and the results of the comparison and contrast are listed in Table 1. When the distribution of the graduated schools of the participants are examined, it is found that 63.50% of them, which is the highest rate, have graduated from the General State High Schools, whereas 3.20% of them, the lowest rate, are the graduates of the “Other” (Table 2). Participants have ticked the “City” alternative most with the rate of 63.90% whereas the “Village” has been the least ticked with the rate of 9.80%. The highest level of the participants’ fathers’ education level is of “Primary School”, whereas the lowest level is of the “Uneducated” (Table 3). “Primary School” option is of the highest rate for the mothers’ education level, whereas the “University graduate” gets the lowest rate (Table 4). Among the options of the participants’ “Total Household Income Level”, “0-1000” TL level has got the highest rate, whereas, the “4001-5000” one has the lowest rate



**Table 1.** Distribution of the high school graduation of participants.

| <b>Graduation</b>         | <b>Frequency (n)</b> | <b>Percentage value (%)</b> |
|---------------------------|----------------------|-----------------------------|
| General state high school | 181                  | 63.50                       |
| Sports high school        | 43                   | 15.10                       |
| Vocational high school    | 38                   | 13.30                       |
| Anatolian high school     | 14                   | 4.90                        |
| Other                     | 9                    | 3.20                        |
| Total                     | 285                  | 100.00                      |

**Table 2.** Distribution of the participants' hometowns.

| <b>Hometown</b> | <b>Frequency (n)</b> | <b>Percentage value (%)</b> |
|-----------------|----------------------|-----------------------------|
| Metropolis      | 32                   | 11.20                       |
| City            | 182                  | 63.90                       |
| Town            | 43                   | 15.10                       |
| Village         | 28                   | 9.80                        |
| Total           | 285                  | 100.00                      |

**Table 3.** Distribution of the education level of participant's fathers.

| <b>Educational level</b> | <b>Frequency (n)</b> | <b>Percentage value (%)</b> |
|--------------------------|----------------------|-----------------------------|
| Primary School           | 126                  | 44.20                       |
| Secondary School         | 61                   | 21.40                       |
| High School              | 73                   | 25.60                       |
| University               | 22                   | 7.70                        |
| Uneducated               | 3                    | 1.10                        |
| Total                    | 285                  | 100.00                      |

**Table 4.** Distribution of the education level of participants' mothers.

| <b>Education level</b> | <b>Frequency (n)</b> | <b>Percentage value (%)</b> |
|------------------------|----------------------|-----------------------------|
| Primary School         | 185                  | 64.90                       |
| Secondary School       | 64                   | 22.50                       |
| High School            | 19                   | 6.70                        |
| University             | 0                    | 0.00                        |
| Uneducated             | 17                   | 6.00                        |
| Total                  | 285                  | 100.00                      |

(Table 5).

According to the results of the t test done by taking the gender variable as a base, there is a statistically significant difference between the female and male in "Bodily-Kinaesthetic, Interpersonal-Social and Verbal-Linguistic Intelligence" areas ( $p < 0.05$ ) (Table 6). In the rest six intelligence areas, there are no significant differences found ( $p > 0.05$ ). When the evaluation

technique of the scores gathered from the scale is taken into consideration, "Intra-personal, Existentialist, Logical-Mathematical, Interpersonal-Social and Bodily-Kinaesthetic Intelligence" areas bear similarities at the utmost level, whereas "Visual-Spatial, Naturalistic, Musical-Rhythmic and Verbal-Linguistic Intelligence" areas bear similarities at the least level between the female and male participants. When the intelligence area scores of the

**Table 5.** Distribution of the total house income of participants.

| Income (Turkish Lira-TL) | Frequency (n) | Percentage value (%) |
|--------------------------|---------------|----------------------|
| 0-1000                   | 167           | 58.60                |
| 1001-1500                | 61            | 21.40                |
| 1501-3000                | 42            | 14.70                |
| 3001-4000                | 6             | 2.10                 |
| 4001-5000                | 2             | 0.70                 |
| 5001+                    | 7             | 2.50                 |
| Total                    | 285           | 100.00               |

participants are examined according to the hometown variable, there is not a significant difference among groups except for the “Bodily-Kinaesthetic and Naturalistic Intelligence” (Table 7). However, according to Tukey test results, in the “Bodily-Kinaesthetic Intelligence” area, there is a significant difference between village and metropolis, and between village and city, in favour of village. When the intelligence area scores due to the income level of the participants are compared and contrasted, there arises a significant difference only between the groups of “1500-3000” and “5001+” for the “Visual-Spatial Intelligence” area (Table 8). Tukey test results present that this significance is in favour of “1500-3000” income group.

For the other eight intelligence areas, there are not any significant differences among the participants. Moreover, when the characteristics of the participants, that is, the high schools they graduated from, the grades in which they receive education in the School of Physical Education and Sports, the educational level of their parents, their ages, being a licensed athlete and training age features are classified and compared in ANOVA analysis, there are no statistically meaningful differences in their intelligence area points ( $p>0.05$ ).

## DISCUSSION

Average age value of all the participants is  $21.37 \pm 2.39$ , whereas it has been found that the female average is  $20.67 \pm 1.96$  years and male average is  $21.84 \pm 2.54$  years. When the literature was reviewed, most of the age values found in other studies among the university students (Bacak and Dalkiran, 2016; Karakollukcu et al., 2014; Ozdogan et al., 2012; Aslan et al., 2010) bear similarity with values found in this study. In this case, it can be said that the sample of this study has similar characteristics to other samples in the universe. In this study, when the secondary education institutions were examined, it is seen that, of the participants, 150 people equivalent to 63.50%, 43 people with the rate of 15.10%, 38 people with 13.30%, 14 people with 4.90% and 6

people with 2.10% have graduated from general state high school, sports high school, vocational high school, Anatolian high school and the other type of high school, respectively. In literature, when the results of the researches related with PES students and the secondary education institution they graduated (Kayisoglu et al., 2014; Karademir et al., 2010) are examined, even if the rates are different, it can be said that students are mostly the graduates from the general state high schools.

As for the hometown of the participants, it has been concluded that 63.90% (182 people), 15.10% (43 people), 11.20% (32 people) and 9.80% (28 people) have grown up in city, town, metropolis and village, respectively. It has been revealed that students have mostly grown up in the city centre, which is a harmonious result with the other studies (Babacan, 2012; Gul, 2011; Tepekoylu et al., 2009). When the education level of participant’s fathers was examined, the highest rate goes to the primary school graduates with 44.20% (126 participants), then 25.60% (73 participants), 21.60% (61 participants), 7.70% (22 participants) are the graduates of high school, secondary school and university, respectively. 3 participants with the rate of 1.10% have no education at all. Fathers are mostly the graduates of primary school, the result which corresponds with the literature (Kurt et al., 2013; Tepekoylu et al., 2009; Izci et al., 2007). When the education level of the participants’ mothers is examined, the highest rate goes to the primary school graduates with 64.90% (185 people), then 6.70% (19 people) the graduates of secondary school and high school, respectively. 17 people with the rate of 6.00% have no education at all and there are no university graduates among the mothers. As it is the case for the other studies, it is concluded that the mothers are highly the graduates of the primary school.

When the “Total household income” option was examined, income distribution was as follows; 167 participants with 58.60% was at the “0-1000 TL”, 61 participants with 21.40% at the “1001-1500 TL”, 42 participants with 14.70% at the “1500-3000 TL”, 6 participants with 2.10% at the “3001-4000 TL” and 7 participants with 2.50% at the “5001+”. Results of this

**Table 6.** Comparing the intelligence area scores according to the gender variable (t test).

| Intelligence areas    | Female $\bar{x}\pm ss$ | Male $\bar{x}\pm ss$ | t value | p value | Result |
|-----------------------|------------------------|----------------------|---------|---------|--------|
| Bodily-Kinaesthetic   | 13.53±4.72             | 12.27±4.99           | 2.124   | 0.035   | p<0.05 |
| Existential-spiritual | 11.45±4.30             | 11.83±4.25           | -0.724  | 0.470   | p>0.05 |
| Interpersonal-social  | 13.27±4.17             | 12.17±3.92           | 2.260   | 0.025   | p<0.05 |
| Intra-personal        | 10.29±3.75             | 10.36±4.01           | -0.144  | 0.885   | p>0.05 |
| Logical-mathematical  | 11.96±4.01             | 12.70±4.14           | -1.499  | 0.135   | p>0.05 |
| Musical-rhythmic      | 18.24±4.63             | 17.99±4.45           | 0.457   | 0.648   | p>0.05 |
| Naturalistic          | 18.14±3.80             | 17.62±3.89           | 1.113   | 0.267   | p>0.05 |
| Verbal-linguistic     | 20.01±4.64             | 21.63±4.74           | -2.855  | 0.005   | p<0.05 |
| Visual-spatial        | 18.10±4.26             | 18.24±4.21           | -0.275  | 0.784   | p>0.05 |

**Table 7.** Comparison of the intelligence scores according to the hometowns of the participants (ANOVA).

| Intelligence areas    | F value | Level of significance | Result |
|-----------------------|---------|-----------------------|--------|
| Bodily-kinaesthetic   | 3.241   | 0.023                 | p<0.05 |
| Existential-spiritual | 1.035   | 0.378                 | p>0.05 |
| Interpersonal         | 0.455   | 0.714                 | p>0.05 |
| Intra-personal        | 0.459   | 0.711                 | p>0.05 |
| Logical-mathematical  | 1.832   | 0.141                 | p>0.05 |
| Musical-rhythmic      | 0.364   | 0.779                 | p>0.05 |
| Naturalistic          | 2.770   | 0.042                 | p<0.05 |
| Verbal-linguistic     | 1.461   | 0.225                 | p>0.05 |
| Visual-spatial        | 1.973   | 0.118                 | p>0.05 |

**Table 8.** Comparison of the intelligence area scores according to the income level of the participants (ANOVA).

| Intelligence areas    | F value | Level of significance | Result |
|-----------------------|---------|-----------------------|--------|
| Bodily-Kinaesthetic   | 1.994   | 0.080                 | p>0.05 |
| Existential-Spiritual | 1.322   | 0.255                 | p>0.05 |
| Interpersonal         | 0.335   | 0.891                 | p>0.05 |
| Intra-personal        | 1.480   | 0.196                 | p>0.05 |
| Logical-Mathematical  | 0.978   | 0.432                 | p>0.05 |
| Musical-Rhythmic      | 0.344   | 0.886                 | p>0.05 |
| Naturalistic          | 0.527   | 0.756                 | p>0.05 |
| Verbal-Linguistic     | 0.727   | 0.604                 | p>0.05 |
| Visual-Spatial        | 2.480   | 0.032                 | p<0.05 |

study have revealed great similarity with the literature (Binbasioglu and Tuna, 2014; Özşaker, 2013; Gul, 2011; Bavli, 2009) According to the data given for the "Hunger and Poverty Border" by Turkish Worker Union/Turk-Is (2013), total household income level of the PES students participating in the study is at the "Hunger and Poverty" boarder level. In conclusion, it can be said that total household income level of participating PES students is at the low income group, which has consistency with the

other study results for the university students. Kahraman and Bavli (2014) found the intelligent areas near to students as "Intra-personal, Social and Bodily-Kinaesthetic" whereas the further ones found as "Musical-Rhythmic, Verbal-Linguistic, Naturalistic and Visual-Spatial" in order. Similarly, Cinkilic and Soyer (2013) give the order as follows; the nearest intelligence area is "Bodily-Kinaesthetic", whereas the furthest one is "Visual-Spatial". Gullu and Tekin (2009) put the

intelligence areas in order as “Bodily-Kinaesthetic, Social, Intra-personal, Verbal-Linguistic, Naturalistic, Visual-Spatial and Musical-Rhythmic” and concludes that first, Bodily-Kinaesthetic intelligence; secondly, Social and thirdly, Intra-personal intelligence has developed most among these students.

Kul et al. (2014), states that the nearest intelligence areas to the students are “Social and Bodily-Kinaesthetic” ones, whereas, the furthest ones are “Musical-Rhythmic and Visual-Spatial”. Kiremitci and Canpolat (2014) found the nearest intelligence areas as “Bodily-Kinaesthetic, Social and Intra-personal” in order, and the furthest ones are “Naturalistic, Verbal-Linguistic and Musical-Rhythmic”. Tuncer (2011) in his study states that while “Bodily-Kinaesthetic Intelligence” of PES students is supposed to be the highest among the others; “Naturalistic Intelligence” comes out to be the highest unexpectedly. The results of the studies related to the intelligence areas of PES students have presented both similarities and dissimilarities in various places, however they have consistency about the fact that the nearest intelligence areas are “Bodily-Kinaesthetic, Interpersonal-Social and Intra-personal”, whereas the furthest intelligence areas are “Naturalistic, Verbal-Linguistic and Musical-Rhythmic”. According to the results of t test which has applied on the PES students to comprehend whether intelligence areas of them present any differences due to the gender variable, there seems statistically significant difference at “Bodily-Kinaesthetic and Interpersonal-Social Intelligence” areas in favour of male and at “Verbal-Linguistic Intelligence” in favour of female. Among other remaining six intelligence areas there were no significant differences due to the gender variable. When the points gathered from the scale are taken into consideration, “Intra-personal, Existential-Spiritual, Logical-Mathematical, Interpersonal-Social and Bodily-Kinaesthetic Intelligence” have taken their places at the first rows, whereas, “Visual-Spatial, Naturalistic, Musical-Rhythmic and Verbal-Linguistic Intelligence” areas have remained at the background both in male and female similarly.

Cinkilic and Soyer in their study (2014) found that only “Intra-personal Intelligence” area was different between male and female, which was in favour of male and in other intelligence areas there were not any differences found from the point of gender variable. Izci et al. (2007) state that there is no significant difference in any of the intelligence areas. However, Gullu and Tekin (2009) determined significant differences among the “Verbal-Linguistic, Visual-Spatial, Musical-Rhythmic, Social and Intra-personal” intelligence areas in favour of female. Yazici and Acar (2010) found significant differences at “Musical-Rhythmic and Linguistic Intelligence” areas in favour of female, whereas, “Bodily-Kinaesthetic” intelligence areas in favour of male. Karakas et al. (2014) found out significant difference in all intelligence areas except the “Interpersonal-Social” one in favour of female.

When the results of the other studies in literature are examined, there occurs different finding about the differentiation of the intelligence areas according to gender; that is, there is no mutual agreement.

When the intelligence area scores related to hometowns are compared, there is no significant difference found among the groups except for the “Bodily-Kinaesthetic and Naturalistic Intelligence”. According to t test results, in the “Bodily-Kinaesthetic Intelligence” area between village-metropolis and village-city comparisons, there is significant difference in favour of village, whereas the difference in “Naturalistic Intelligence” area is in favour of city. There is not any study done among PES students comparing the multiple intelligence areas from the point of hometown variable. Yilmaz and Ozkan (2011) couldn't find any statistical significant difference among the intelligence scores of Health Academy students from the point of “Longest Lived Place” variable. The fact that there is a significant difference between metropolis, city and village in “Bodily-Kinaesthetic Intelligence” in favour of village can be explained by the point that physical activities in village life are far denser than city life. However, it is surprising that “Naturalistic Intelligence” has come out to be higher in city than in village. The reason for this might be the continuous longing of the city and metropolis habitants for the natural surroundings (Urgup and Aslan, 2015).

When it comes to the intelligence area scores of the participants according to the total household income level, there is not any significant difference among income level groups for eight intelligence areas, whereas only for “Visual-Spatial Intelligence” area there is a significant difference between “1500-3000 TL” income group and “5001+ TL” group. Tukey analyses results show that the difference is in favour of “1500-3000 TL” income group. Cinkilic and Soyer (2013) state that students have one or more than one intelligence area due to the income level variable, there exist differences among the individuals and intelligence areas are affected by the social, environmental and economic etc. situations. Karademir et al. (2010) and Abaci and Baran (2007) couldn't find any correlation between the income level and intelligence areas. From this point of view, while some study results have revealed differences in multiple intelligence areas or intelligence scores according to the income level variable, some study results have shown no statistically significant difference among the intelligence scores due to the income variable. Moreover, when the participants are grouped according to the variables of graduated high school, grade at PES, parents' education level, their ages, being a licensed sportsman and training age features and then compared by ANOVA analyses, there is not any significant difference among any intelligence areas. Karademir et al. (2010), in their study done according to the graduated high school variable, state that there is no statistical difference among the

groups in terms of self-respect and emotional intelligence level.

Delice and Odabasi (2013), state that there is a difference in intelligence levels due to class grades of the students, while claiming that there is no correlation between the parents' education level and emotional intelligence levels of the students. Abaci and Baran (2007) declare that there is a positive correlation between the parents' education and "Musical-Rhythmic, Verbal-Linguistic and Intra-Personal Intelligence" scores. Gullu and Tekin (2009) state that there are statistically significant differences between "Verbal-Linguistic, Logical-Mathematical, Interpersonal-Social and Intra-personal" intelligence areas in relation with the grades the students are being educated. As it can be understood from the literature on this subject matter, there exist differences among the research studies. Some research results reveal that there is a significant influence of the graduated high school, grade at PES and the parents' education level upon the intelligence areas of the people, whereas some others present that there is no correlation between the areas and the variables.

## SUGGESTIONS

The initial expectation of this study was to prove that PES students have the "Bodily-Kinaesthetic" intelligence area as the dominant intelligence area in mind within the frame of "Multi Intelligence Theory", however, it has been found that the students mentioned have the "Intra-personal Intelligence" area characteristics most. Moreover, while it was expected that "Naturalistic Intelligence" was to be dominant in mind of the student with the village and town background, the result has turned out to be the reverse; "Naturalistic Intelligence" area is dominant in those with the city background and it is thought that this might be the result of the longing of the city inhabitant for the natural life.

There are no statistically significant differences found between the scores of the intelligence areas and the ages, being a licensed sportsman, training age, graduated school, parents' education level, household income level and the grade they study. When it comes to the differences due to the gender, it has been detected that males are dominant in "Bodily-Kinaesthetic and Interpersonal-Social Intelligence", whereas females are dominant in "Verbal-Linguistic Intelligence". Since this study is a descriptive model, findings collected are not able to describe the "Reason-Result" relation precisely. The reasons of the results of this study can be explained best by the prospective studies in future.

## Conflict of Interests

The author has not declared any conflict of interest.

## ACKNOWLEDGEMENTS

The author is thankful to Dr. Ziyet CİNAR at Biostatistics Department of Cumhuriyet University for assisting in data analysing and to Gürsel AYRAK for the last review of the language of this manuscript.

## REFERENCES

- Abaci R, Baran A (2007). Üniversite öğrencilerinin çoklu zeka düzeyleri ile bazı değişkenler arasındaki ilişki. *Uluslararası İnsan Bilimleri Dergisi* 4(1):1-13. ISSN: 1303-5134.
- Altunisik R, Coskun R, Bayraktaroglu S, Yıldırım E (2010). Sosyal bilimlerde araştırma yöntemleri: SPSS uygulamalı (Research methods in social sciences: Applied with SPSS.) İstanbul: Sakarya Publishing. ISBN: 6054229093
- Aslan CS, Inan T, Akalan C (2010). Profesyonel bir futbol takımı ile beden eğitimi ve spor yüksekokulu öğrencilerinin bazı fiziksel ve fizyolojik özelliklerinin karşılaştırılması. *e-Journal of New World Sci. Acad.* 5(1):47-58.
- Babacan T (2012). Searching the correlation between metacognitive reading strategies and multiple intelligences of primary school teachers candidates. Cumhuriyet University Institute of Educational Sciences, Master of Science Thesis, Sivas, Turkey.
- Bacak C, Dalkiran (2016). A study for the evaluation of entrepreneurship level of fourth grade students in recreation and sports management department. *Int. J. Soc. Sci. Educ. Res.* 2(1):55-60.
- Bavli O (2009). Beden eğitimi ve spor yüksekokulu öğrencilerinin spora başlama, bolumu seçme nedenleri ve geleceğe yönelik beklentilerinin incelenmesi. *Nigde Üniversitesi Beden Eğitimi ve Spor Bilimleri Dergisi* 3(3):239-246.
- Binbasioglu H, Tuna H (2014). Üniversite öğrencilerinin boş zamanlarına yönelik tutumları: Doğu Anadolu Bölgesindeki MYO öğrencilerine yönelik bir araştırma. *Akademik Yaklaşımlar Dergisi* 5(2):74-93.
- Bumen NT (2005). Okulda çoklu zeka kuramı (Multiple intelligence theory in school). Ankara, Pegem A Yayıncılık. ISBN: 9756802731
- Cinkilic I, Soyer F (2013). An investigation the relation between multiple intelligence areas of pre-service physical education teacher and their problem solving skills. *Spor Yönetimi ve Bilgi Teknolojileri Dergisi* 8(1):4-16. ISSN: 1306-4371
- Delice M, Odabasi M (2013). Polis Meslek Yüksekokulu öğrencilerinin duygusal zeka düzeylerinin incelenmesi. *Polis Bilimleri Dergisi* 15(3):73-93.
- Gul M (2011). Üniversitelerde spor eğitimi alan öğrencilerin spor sponsorluğu hakkındaki görüşlerinin değerlendirilmesi. *Yüksek Lisans Tezi. Cumhuriyet Üniversitesi Sağlık Bilimleri Enstitüsü, Sivas, Türkiye.*
- Gullu M, Tekin M (2009). Comparison of multiple intelligence areas of students at sports high schools and public high schools. *Nigde University J. Physical Educ. Sport Sci.* 3(3):247-258. ISSN: 1307-6477.
- Izci E, Sucu HO (2014). Investigating multiple intelligence profiles of university students (Nevşehir University sample). *Inonu University J. Educ. Sci. Institute* 1(1):12-21.
- Kahraman DI, Bavli O (2014). Investigation the multiple intelligence areas of university students who study in different departments. *Int. J. New Trends in Arts, Sports Sci. Educ.* 3(3):65-71. ISSN: 2146-9466
- Karademir T, Dosiylmaz E, Coban B, Kafkas ME (2010). Beden eğitimi ve spor bolumu özel yetenek sinavına katılan öğrencilerde benlik saygısı ve duygusal zeka. *Kastamonu Eğitim Dergisi* 18(2):653-674.
- Karakas F, Ermis E, Erilli NA (2014). Polis meslek yüksekokulu öğrenci adaylarının fiziki yeterlilik parkur süresi ile çoklu zekaları ve cinsiyet arasındaki ilişkinin incelenmesi. *Spor ve Performans Araştırmaları Dergisi* 5(1):18-26.
- Karakollukcu M, Aslan CS, Paoli A, Bianco A, Sahin FN (2014). Effects

- of mini trampoline exercise on male gymnasts' physiological parameters: A pilot study. *The Journal of Sports Medicine and Physical Fitness* 55:730-734.
- Kayisoglu NB, Dogan I, Cetin M (2014). Genclik kampi lider adaylarinin duygusal zeka duzeyleri ve iletisim becerilerinin incelenmesi. *Spor metre Ankara Univ. Spor Bil. Fak. Derg.*, 12(1):43-50. DOI: 10.1501/Sporm\_0000000252
- Kiremitci O, Canpolat MA (2014). Determining the role of physical education and sports school students' multiple intelligences areas on metacognitive awareness and problem solving skills. *Hacettepe University J. Sport Sci.* 25(3):118-126. ISSN: 1300-3119
- Kul M, Bozkus T, Erol Z, Elci G (2014). A research on the comparison of the multiple intelligence types of the candidates who succeeded and failed in the entrance exams of physical education and sports school. *Int. J. Sci. Culture and Sport (Special Issue 1)*:891-897. ISSN: 2148-1148
- Kurt M, Gumus I, Temelli A (2013). Coklu zeka kuramina dayali ogrenme yonteminin ogrencilerin tutum ve akademik basarilarina etkisinin motivasyon stillerine gore analizi. *Mustafa Kemal Universitesi Sosyal Bilimler Enstitusu Dergisi* 10(22):135-153. ISSN: 1304-429X
- McClellan JA, Conti GJ (2008). Identifying the multiple intelligences of your students. *J. Adult Educ.* 37(1):13-32.
- Nakip M (2006). *Marketing research techniques and SPSS supported applications*. 2<sup>nd</sup> Ed., Ankara: Seckin Yayinlari.
- Ozdogan Y, Yardimci H, Ozcelik AO (2012). Yurttan kalan universite ogrencilerinin beslenme aliskanliklari. *Karadeniz Sosyal Bil. Dergisi* 4(15):139-149.
- Özşaker M (2013). Beden egitimi ve spor yuksekokulu ogrencilerinin iletisim becerileri ve benlik saygilarinin degerlendirilmesi. *Int. J. New Trends in Arts, Sports Sci. Educ.* 2(3):29-39.
- Piaget J (1972). Intellectual evolution from adolescence to adulthood. *Human Development* 15:1-15.
- Saban A (2005). *Coklu zeka teorisi ve egitim (Multiple intelligence theory and education)*. 5<sup>th</sup> ed., Ankara: Nobel Yayin Dagitim. ISBN:9789755912271
- Tepekoylu O, Soy Turk M, Camliyer H (2009). Beden egitimi ve spor yuksekokulu (Besyo) ogrencilerinin iletisim becerisi algilarinin bazi degiskenler acisindan incelenmesi. *Spor metre Beden Egiti mi ve Spor Bilimleri Dergisi* 7(3):115-124. DOI: 10.1501/Sporm\_0000000160
- Tuncer M (2011). The Evaluation of the replacement into the higher education programs made by OSYM from the perspective of the multiple intelligence theory. *Firat University J. Soc. Sci.* 21(1):89-111. ISSN: 1300-9702
- Turk-Is (2013). Kasim 2013 aclik ve yoksulluk siniri bulteni. 16 December 2013, www.turkis.org.tr.
- Urgup S, Aslan CS (2015). Investigation of students' multiple intelligence domains in three different departments of the school of physical education and sports. *Educ. Res. Rev.* 10(15):2068-2075. DOI:10.5897/ERR2015.2341
- Yazici EO, Acar E (2010). 1. Proje ve Yapim Yonetimi Kongresi: Yapim yoneticilerinin coklu zeka profillerinin belirlenmesi. Ankara: ODTU.
- Yilmaz E, Ozkan S (2011). Hemsirelik ogrencilerinin duygusal zeka duzeylerinin bazi degiskenler acisindan incelenmesi. *Maltepe Universitesi Hemsirelik Bilim ve Sanat Dergisi* 4(1):39-52.

*Full Length Research Paper*

# Needs analysis of responsibility curriculum for primary school students

Güven Semra\*, Öztürk Aysun and Duman Serap Nur

Department of Educational Sciences, Gazi Educational Faculty, Gazi University, 06500 Besevler-Ankara, Turkey.  
Department of Educational Sciences, Graduate School of Educational Sciences, Gazi University, 06500 Besevler-Ankara, Turkey.

Department of Educational Sciences, Educational Faculty, Kırıkkale University, 71450 Yahsihan-Kırıkkale, Turkey.

Received 24 April, 2016; Accepted 28 September, 2016

Responsibility is among the most basic concepts that are expected to be taught at early ages and directly affect our personal and social life. Although, it is regarded as a value with its affective dimension; responsibility, a fundamental skill that we should learn formally or informally, starts with the children's introduction to their immediate environment and continues with their school life. In this process, all the tasks that they need to fulfill in compatible with a lot of factors including their ages, the developmental stage and their social environment form and shape their area of responsibility. In these areas of responsibility, children's reactions, behaviors and attitudes should be known. For that reason, the purpose of this study, in which the opinions and thoughts of the parents and class teachers of the 3rd and 4th grade primary school students were taken, is to determine the needs towards responsibility. In this case study, the data collected through semi structured interview from 10 parents and 8 teachers were analyzed through content analysis. The results obtained from the content analysis were discussed in light of the related literature. According to the results, parents and teachers' opinions and thoughts were put into five categories, which are fulfilling their duties, having effective time management, interpersonal relationships and communication, protecting their health and values. It is thought that the results obtained from this study will shed light on curricula which will be developed to gain the skill of responsibility to 3rd and 4th grade students, and will serve for raising more responsible individuals for the future.

**Key words:** Responsibility, skill, needs analysis.

## INTRODUCTION

In our daily life, we witness people kicking street animals for fun; drivers hitting someone and running away and thus, causing that person's death or people causing fires by tossing out their cigarette butts; contractors wanting to earn much more money and thus, risking people's life by constructing buildings with no earthquake resistance; and people harming other people around, destroying their

environment and own life because they do not do their duties well enough and do not care what the outcome of these behaviors are. Knowing responsibilities and acting accordingly are among the duties that everybody should do in order to make themselves and everybody they interact with lead a quality life. People who are unaware of their personal and societal responsibilities are threats

\*Corresponding author. E-mail: [semraguven1@gmail.com](mailto:semraguven1@gmail.com). Tel: +90 533 669 1530.

to their environments. The concept of responsibility which plays an important role in people maintaining their personal and social life in a qualified way is defined in various ways. Primarily, Turkish Language Society (TDK, 2016) defines responsibility as "individual's acceptance and accountability for their behaviors and results of any event in their area of authority". Cevizci (1997) suggests that responsibility is the situation where individuals take on all the obligations required in their social status or occupations and accept being accountable for the results of their actions (p. 396). Yavuzer (2016), in his definition of responsibility, states that responsibility is children's implementation of the tasks and duties given according to their age, gender and developmental level from early childhood stage onwards (p. 107). Cüceloğlu (2001) defines responsibility as individuals' being ready to become accountable for the events and issues in their personal boundaries (p. 208). Lucas (1993) states that the core concept of responsibility is that one can be asked the question 'why did you do it?' and be expected to give an answer (p. 298). And Lickona (1991) identifies responsibility as one of the basic qualities that schools should develop in their own students.

According to him; Responsibility is an extension of respect. If we respect other people, we value them. If we value them, we feel a measure of responsibility for their welfare. Responsibility literally means ability to respond. It means orienting towards others, paying attention to them, actively responding to their needs. Responsibility emphasizes our positive obligations to care for each other (pp. 43-44). When the aforementioned definitions are examined, it can easily be seen that different attributes of responsibility are focused. Although, the main focus of these definitions is the same, some definitions emphasize taking the responsibility; some of them stress fulfilling the responsibility; and some others point out accountability. At this point, from Draz (2004)'s definition, it can be understood that this concept includes all these three different emphases: "Responsibility starts when you are called to do a task or perform a duty, and finishes when you accept the call, do the task, and account for it (p. 74)." Responsible people are happy, agreeable, hardworking, accountable, and successful individuals respectful to themselves and others, acting appropriately in every environment, doing their duties accurately and timely, accepting their own mistakes and faults, making their own decisions by themselves and taking the results of these decisions into account (Hayta-Önal, 2005). Unlike responsible people, irresponsible ones are unhappy, non-adaptive, selfish individuals who always complain about something, restrict their existential area, seem to be physically tired and bored with their everyday life, blame others for their own mistakes and faults, become extremely dependent to the others around, assign their own responsibilities to the others, and have little or minimum contact with their own

personal and social life (Geçtan, 1994: 100-104).

All the parents and educators want children to grow up as responsible individuals, and they pursue the possible ways to teach children how to become responsible (Özen, 2001: 13).

It is even stated in the literature, that there is a need for schools to produce more responsible citizens (Anderson et al., 1997; Bickmore, 1997). Also, "according to Lickona (1996), there is a crisis in character, the indicators of which include increases in youth violence, dishonesty, disrespect for traditional authority figures, cruelty to peers, bigotry and hate crime, self-destructive behaviour and a loss work of ethic. He also cites as a reason for concern decreases in the personal and civic responsibility of youth" (Lewis, 2001). As for that Houston (1998) states, "the real goal of education is to produce a total person—one who as a sense of efficacy and a sense of responsibility to self, as well as others." However, one of the most important points in teaching children how to become responsible is to start teaching it at an early age. As mentioned previously, the critical developmental period of teaching how to behave responsibly is the early childhood stage (Yavuzer, 2016: 107). In this stage, regarding their developmental characteristics and capabilities, children can be given tasks such as packing their toys after games or helping set the table before dinner; thus, they start learning how to act in a responsible way at an early age. However, if children are not allowed to do anything alone, they will possibly avoid taking responsibility in the following years and expect their parents to do things instead of them as they have always done.

Following the early childhood stage, children start school between the ages of 6 to 10 and when they enter school environment, they take new responsibilities in addition to the ones they have in their houses. During this period, children face the challenge of new responsibilities including obeying school rules, getting on well with their friends, having relationship with other adults besides their parents, and managing their time. When children make their own decisions and take the responsibility for their own behaviors as much as their developmental characteristics and capabilities enable them to do so, they start gaining their personal independence (Yeşilyaprak, 2012: 43). In the first year, children are expected to adapt themselves to this change and from the second year onwards, they are supposed to become aware of their new responsibilities. Starting from their third year at latest, they are expected to fulfil their responsibilities. The importance of "being responsible and acting responsively" has been stressed and highlighted by the Turkish Ministry of National Education (MNE) and thus, it has been reflected and instructed especially in the Life Sciences and Social Sciences Curricula (MNE, 2009, 2015). In these curricula, responsibility are underlined and presented as a



personal trait and value.

The effect of responsibility on personality and social development is highlighted in the related literature. Tozlu (1997) states that development of the societies is directly related to whether individuals develop a sense of responsibility (p.131-134). Similarly, Yontar and Yurtal (2009) suggest that a sense of responsibility is a helpful skill for children to maintain lifetime achievement, and for that reason; failure in developing a sense of responsibility can cause failure at school, at work and in human relations. In the related literature, there are some studies with a focus on the effect of sense of responsibility on individuals' life (Acar, 2012; Hayta-Önal, 2005; Yontar, 2007). However, there are few studies on to what extent children can develop a sense of responsibility and whether children should be given any education to learn to act responsively (Şahan, 2011). Responsibility is not regarded as a skill that is taught directly at home or at school but a personal trait learned indirectly. However, like other skills, responsibility can also be developed in a planned and programmed way. Curricula with a basic aim to teach responsible behaviors can be developed and the content and the teaching learning activities can be formed and prepared entirely to help children develop a sense of responsibility. Undoubtedly, before developing a curriculum, a needs analysis study should be conducted to determine whether there is a need for such a curriculum.

Needs analysis can be simply defined as specifying the real needs, and it is one of the important steps of curriculum development. Detecting what is really needed and specifying the real needs have great importance in testing whether the curriculum goals meet the real needs. Furthermore, determining whether the target curriculum is really necessary help avoid unnecessary expenses and effort and obtain the required data to plan and prepare the educational activities for the curriculum (Demirel, 2011). Before developing a curriculum, the conducted need analysis study puts forward how important the curriculum will be and lighten the whole curriculum development process by leading the curriculum objectives.

The importance of the needs analysis step has been emphasized in the previous curriculum development studies (Budak, 2009; Çalışkan and Çangal, 2013; Doğanay et al., 2014; Koçer, 2013). Determining whether responsibility, which is regarded as an important value in the related literature, should be taught will shed light on the prospective responsibility curricula. In education and teaching process, during studies on teaching children to become responsible and act responsively, initially, it is important to determine the educational needs about this issue. For that reason, the purpose of this study is to determine the needs and expectations from teaching 3rd and 4th grade primary school students how to become responsible individuals.

## METHOD

This research is a qualitative case study. The most basic feature of qualitative studies is to examine one or several cases in depth, so factors related to the case (environment, individual, event, process, etc.) are searched through a holistic approach, and how these factors affect and are affected by the related case are discussed (Yıldırım and Şimşek, 2013: 83).

In this research, case study method was preferred because the study focused on teachers and parents' opinions and thoughts about teaching children how to become responsible individuals and act responsively. Moreover, the results of the needs analysis were discussed in light of the related literature to apply a holistic approach in the study.

### Participants

In the study, criterion sampling method was utilized to determine the participants. The basic understanding of the criterion sampling method is to study all the cases that meet some predetermined criteria of importance (Yıldırım and Şimşek, 2013: 140). The criteria utilized to select the parents were having a child in the 3rd or 4th grade in primary school. The criteria utilized to select the teachers are being a class teacher. The participant of the study included 10 parents and 8 teachers who meet these criteria.

### Data collection tools

The research data was collected through semi structured interview forms prepared by the researchers. Two separate interview forms were prepared for the teachers and parents, and these separate forms had parallel questions. These forms included questions about definition of responsibility, sample responsible behaviors, methods to develop a sense of responsibility, and expectations about this issue. 11 experts (4 psychological counseling and guidance experts, 2 class teachers, 2 curriculum development experts, 2 child development experts, and 1 assessment and evaluation expert) were asked to examine the questions in the forms to test the validity and reliability of the forms. By making necessary adaptations and modifications in light of these experts' analysis and comments on the content and convenience of the interview questions, the final versions of the interview forms were given. The final version of the form designed for the teachers had 12 questions, and the one for the parents had 11 questions.

### Data collection

While collecting the research data, the participants were given informed consent about the study. Each participant was called to make an arrangement before the interview and the most appropriate and convenient time and place for the participants were determined in cooperation with them. These interviews were completed in approximately two weeks. The interviews with the teachers were recorded by means of a tape recorder. However, the interviews with the parents were not recorded because they preferred not to do so. During all the interviews, the researchers took notes.

Each interview lasted 20 to 25 min on average. In literature review process, the studies on responsibility and teaching it were reviewed. The main criteria in the choice of the studies in the related literature to be stated in our study were having scientific quality and focusing specifically on responsibility. There were no other criteria utilized for resources.

### Data analysis

After the interviews, audio recordings were transcribed and checked by the researchers by listening to the recordings in order to avoid any data loss. The notes taken by the researchers during the interviews with the parents were organized and recorded orderly immediately after the interviews and these organized recorded notes were shown to the parents in order to check whether the answers were true or not. The notes were finalized after each parent approved them. Interview notes and transcriptions were analyzed through QSR NVIVO analysis program. Generally, these programs facilitate researchers' tasks by forming hierarchical classifications, displaying the relationships among codes, and presenting the code structures and patterns in graphics (Glesne, 2013: 286). The main and first step in the content analysis is data encoding. In this research, encoding based on the research data was preferred. In encoding based on the research data, since there is no conceptual structure to help analyze the data, this conceptual structure formed by the researcher as a result of the inductive analysis of the data. In such research, the researcher reads the data line by line and tries to detect the important dimensions in terms of the purpose of the research. Based on the meaningful information observed in the data, researcher produces certain codes and these codes are formed directly from the research data (Yıldırım and Şimşek, 2013: 264). In this scope, in this study, all the notes and transcriptions collected from the interviews with the participants were read in every detail by the researchers; important points were detected and codes were formed. Codes were determined based on the data obtained from the interviews with the participants and common themes were formed based on these codes. Finally, analysis process was completed by stressing the relationship between codes and themes formed by the researchers based on the data collected.

To test the reliability of the research, before the content analysis, researchers coded a teacher interview transcription and a parent interview note. The researchers coded the same interview transcriptions and the notes separately. Then, these three encodings were compared and checked in terms of their similarities and differences. For this purpose, the intercoder agreement formula suggested by Miles and Huberman (1994) was utilized. Using Reliability = Coder agreement / (Coder agreement + Coder Disagreement) formula, reliability level was calculated as 0.74. The studies with the results higher than .70 from this calculation are accepted as reliable. During the literature review, all the reviewed data related to the responsible behaviors that 3rd and 4th grade primary school students should or can exhibit were systematically classified. In this process, similar behaviors stated in different resources were eliminated. For example, the first responsible behavior expected from the children at this age is to do homework. This responsible behavior was reached in more than one resources but the very first resource that this responsible behavior was stated was cited in order to avoid data repetition. After this elimination, the rest of the values/behaviors were classified according to categories formed as a result of the content analysis.

## RESULTS

The encoding diagram with respect to the findings as a result of the interviews with the participants can be seen in Figure 1. As a result of the content analysis, five primary themes were determined by analyzing the parents and teachers' opinions and thoughts together. These themes are using the time effectively, implementing tasks

and duties, interpersonal relationships and communication, protecting the health, and values. Based on these themes, secondary themes were formed for some primary themes. Based on the primary theme of using the time effectively, planning and time management secondary themes and codes based on these secondary themes were formed. Similarly, based on the primary theme of implementing tasks and duties, house, environment and society and school secondary themes were determined. The codes based on the primary theme of values are being sensitive, being helpful and being respectful. Moreover, effective listening, communication and cooperation codes were formed based on the primary theme of interpersonal relationships and communication. Lastly, secondary themes, being healthy and being clean and the related codes based on the primary theme of protecting the health were all presented in Figure 1. The data obtained through literature review was classified in terms of the categories formed as a result of the needs analysis and the findings were given in Table 1.

As can be seen in Table 1, most of the findings from the literature review are similar to the ones from the needs analysis. For example, in the scope of being respectful, showing respect to others and having self-respect are also among the findings from this analysis. Likewise, among other similar findings are helping the simple house chores, protecting the nature and environment, tidying the room, and doing homework. However, some findings which were different from the ones obtained through the needs analysis were also observed. For instance, although, some behaviors including keeping one's words, accepting one's faults and mistakes, using polite expressions, using and protecting collective goods attentively, recycling materials, and obeying rules of good manners are highly stressed in the related literature, such responsible behaviors were not observed in the needs analysis. These behaviors highlighted in the related literature but not found as a result of the needs analysis interviews were also added to the findings of this research. As a result of parents' and teachers' opinions and the findings in the related literature, the responsibilities that the students at this age should take can be summarized as in Figure 2.

Based on the parents' and teachers' opinions and thoughts and the related literature review towards teaching children to take responsibility, it can be said that "being responsible and acting responsibly" is a skill that is needed in individual and social dimensions, and children are expected to fulfil their responsibilities according to their ages and developmental stages in order to be able to become successful adults having high self-respect and being sensitive to their environment and society. According to the results, it is clear that students are expected to carry out their duties and tasks, use their time effectively, have good interpersonal relationships



Figure 1. The Encoding Diagram for the teachers and parents' opinions and thoughts about teaching responsibility.

**Table 1.** The findings from the literature review about teaching responsibility.

| Themes   | Categories            | Traits/behaviors   |
|--|-----------------------|--|
|  | Values                | Respectful to others<br>Respectful to himself/herself  |
| Characteristics of a responsible person (Hayta-Önal, (2005); Hellison (2014); Merdan (2013). | Implementing duties   | Not avoiding taking responsibility<br>The one fulfilling the given responsibility attentively and meticulously                                   |
|  | Time management       | Punctual<br>Organized  |
|  | Implementing duties   | Obeying school rules   |
| Developing responsibility in the first stage of primary education, Hayta-Önal (2005).        | Communication         | Having relationship with other adults out of the family<br>Getting on well with peers  |
|  | Time management       | Setting goals<br>Making and applying plans   |
| Personal responsibilities, Şahan (2011).   | Implementing duties   | Taking care of tasks and duties<br>Internalizing the tasks and duties  |
| Social responsibilities, Canfield & Siccone (1995); Şahan (2011).                            | Implementing duties   | Protecting the nature and environment<br>Participating in the school activities<br>Doing homework timely and orderly                             |
| 7-12 age period responsibilities, Akın-Bakanay (2016); Stanley (2009).                       | Implementing duties   | Tidying the study table at home<br>Preparing the necessary materials<br>Putting clothes into the wardrobe<br>Taking care of the school materials |
|  | Implementing duties   | Preparing for the classes<br>Being careful about class order   |
| Responsible behaviors expected from primary school students, Yurtal & Yontar (2006).         | Protecting the health | Being careful about personal hygiene<br>Having a healthy diet<br>Being careful about class hygiene   |
|  | Time Management       | Coming to the classes on time  |

Table 1. Cont'd

|   |                       |  |
|---|-----------------------|--|
| The concept of responsibility, Kepenekçi (2003).  | Value                 | Keeping his/her words<br>Visiting the elderly  |
|   | Communication         | Sharing tasks and duties<br>Using polite expressions<br>Greeting   |
| Levels of responsibility, Masser (1990)   | Implementing duties   | Delivering the equipment after classes<br>Helping set and clean the tables before and after meals<br>Looking after little siblings<br>Looking after pets |
|   | Value                 | Being volunteer<br>Being a good human  |
| Responsibilities of the 3rd grade students, Özerbaş & Gündüz (2014).                          | Value                 | Apologizing for his/her mistakes<br>Accepting his/her mistakes and faults  |
|   | Implementing duties   | Accepting the results of the things s/he does  |
| Responsibilities to take in at the age of 8-9, Personal Development and Guidance Unit (2015). | Implementing duties   | Informing the parents about the school messages<br>Shopping  |
|   | Time Management       | Organizing a birthday party<br>Making daily programs   |
| Third graders responsibility skills, Ministry of National Education (2015).                   | Implementing duties   | Garden care<br>Plant breeding<br>Recycling materials<br>Obeying rules of good manners  |
|   | Protecting the health | Using and protecting collective goods attentively<br>Obeying the hygiene rules in the common use areas<br>Buying healthy food and beverages              |
| Developmental duties and tasks in the late childhood stage; Nazlı (2011).                     | Communication         | Effective listening  |
| Responsibility education, Fisher & Frey (2014).   | Communication         | Cooperating  |
|   | Value                 | Being independent  |

Table 1. Cont'd

|   |       |  |
|---|-------|--|
| Responsibility education, MacKenzie (2013). | Value | Self-control<br>Respect to the authority |
| Responsible behaviors, Douglass (2002).     | Value | Helping each other                       |

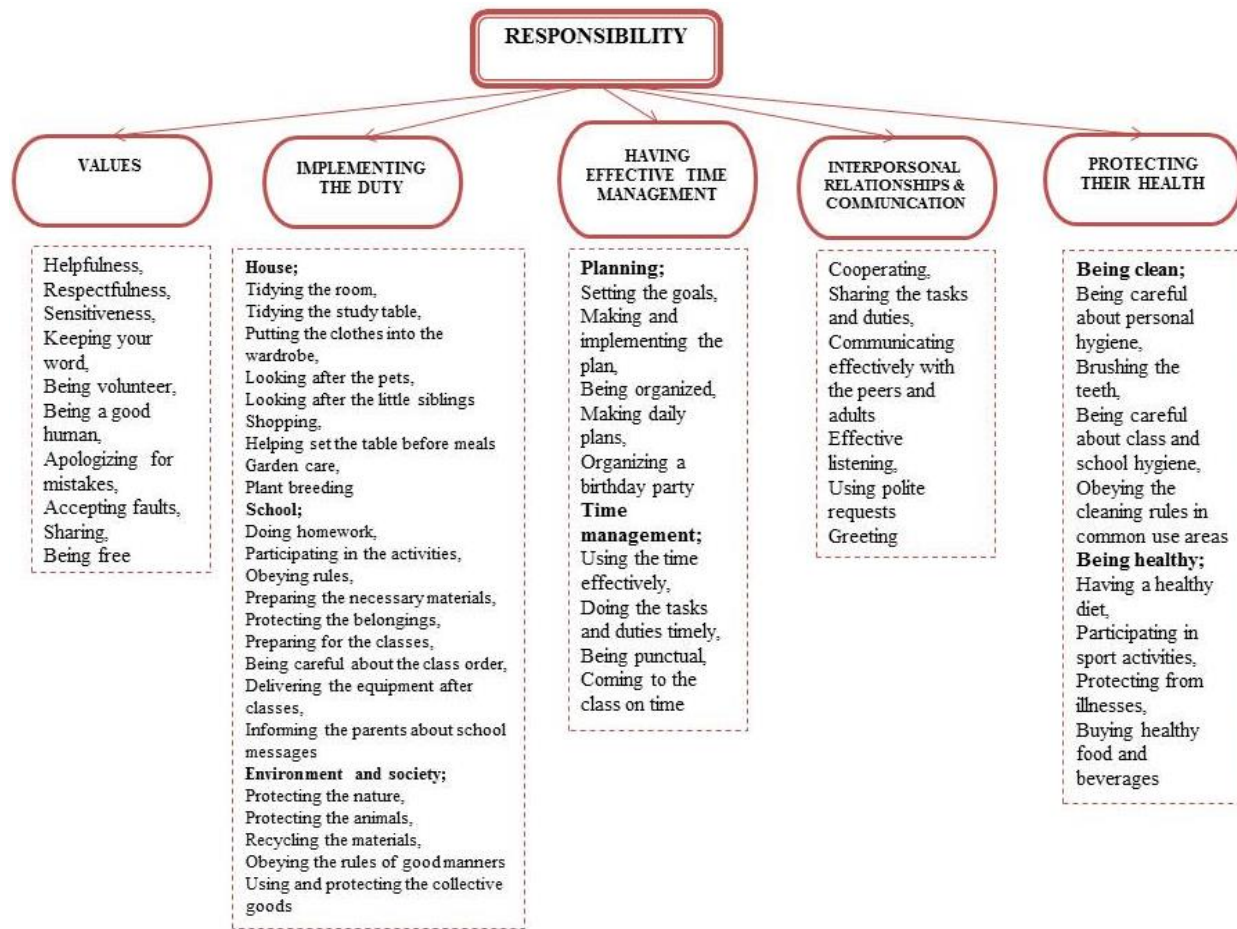


Figure 2. Responsible behaviors and skills expected from 3rd and 4th grade primary school students.

and good communication skills, and protect their health as well as have some values.

## CONCLUSION AND DISCUSSIONS

Responsibility, with its individual and social dimensions, has its place in education as either a value or a skill. Responsibility, regarded one of the 12 universal values, which are cooperation, independency, happiness, honesty, love, modesty, peace, respect, responsibility, simplicity, tolerance and unity, in "Living Values Education" project based on the approach "Let's share our values for a better world", has been taught and stressed within the scope of values education at schools since 2010 to 2011 school year. With this education applied to help students develop a sense of responsibility, it is aimed to conduct a series of activities inside and outside the classrooms at schools to teach students how to be responsible and act responsibly (Cihan, 2014). Besides this, the need for responsible individuals in society entails rearing children who are aware of their responsibilities and do their duties. Yurtal and Yontal (2006), in their studies, suggest that the most expressed responsible behaviors that teachers expect from their students are fulfilling individual and group tasks, doing their assignments and completing their projects, fulfilling the duties given by their teachers, coming to the class prepared and on time, showing respect to their teachers and peers, listening to them, and being careful about personal and class hygiene. Similarly Hayta-Önal (2005) indicates that the responsible people are hardworking, successful individuals respectful to themselves and others, implementing their duties accurately and timely, accountable, accepting their own mistakes and faults. On the other hand, Lickona (1991) states that "responsibility means being dependable, not letting others down. It means carrying out any any job or duty—in the family, at school, in the workplace—to the best of our ability." Responsibility is not only an educational need but also a basic characteristic trait individuals should have. As Özen (2001) stated that all the parents and educators want children to grow up as responsible individuals and they pursue the possible ways to teach children how to become responsible (p. 13). For that reason, asking parents to express what they think, observe and suggest about developing a sense of responsibility in their children can lead to a more effective and successful responsibility education with full cooperation and interaction of families and school. Such an education will certainly yield permanent positive effects on children in terms of developing a sense of responsibility. According to the results of this research, it is evident that responsible behavior patterns parents and teachers expect from 3rd and 4th grade students to learn and perform are similar to the ones stated in the related

literature. Regarding the parents' and teachers' opinions, thoughts, suggestions and observations and the points stressed in the related literature, responsible behaviors expected from the 3rd and 4th grade students can be put into categories such as implementing their tasks and duties, using their time effectively, interpersonal relationships and communication, protecting their health, and values. To obtain more generalizable data, more parents and teachers and as well as children or other participants that are thought to be effective in this education can be interviewed and asked for their opinions, thoughts, observations and suggestions, and the existing situations and expectations towards responsibility education can be researched.

## Conflict of interest

The author has not declared any conflict of interest.

## REFERENCES

- Acar MC (2012). The effect of existentialist-oriented approach responsibility programme onto 8th class primary school students' responsibility level. Unpublished master thesis. Gaziantep University, Gaziantep.
- Akın-Bakanay E (2016). Changing parenting role. Günce Guidance: Retrieved from [http://www.guncedanismanlik.net/CmsFiles/Gallery/Document/index.php?option=com\\_content&task=view&id=281&Itemid=229](http://www.guncedanismanlik.net/CmsFiles/Gallery/Document/index.php?option=com_content&task=view&id=281&Itemid=229).
- Anderson C, Avery PG, Pederson PV, Smith ES, & Sullivan JL (1997). Divergent perspectives on citizenship education: A Q-method study and survey of social studies teachers. *Am. Educ. Res. J.* 34(2):333-364.
- Bickmore K (1997). Teaching conflict and conflict resolution in school: (Extra-) curricular considerations. Paper presented at Connections, International Social Studies Conference, Australia.
- Budak Y (2009). Job analysis and functional curriculum in vocational training. *Gazi University J. Industrial Arts Educ. Faculty.* (245):65-75.
- Canfield J, Siccone F (1995). 101 ways to develop student self-esteem and responsibility. Needham Heights: Allyn & Bacon Publishing.
- Cevizci A (2012). *Philosophy dictionary* (3rd ed.). İstanbul: Say Publishing.
- Cihan N (2014). Values education at schools and its practice in Turkey. *Electronic Turk. Stud.* 9(2):429-436.
- Cüceloğlu D (2001). *Warrior* (32nd ed.). İstanbul: Remzi Bookstore.
- Çalışkan N, Çangal Ö (2013). Need analysis in teaching Turkish to foreigners: The case of Bosnia-Herzegovina. *Abant İzzet Baysal University J. Educ. Faculty* pp. 310-334.
- Demirel Ö (2011). *Programme development in education from theory to practice* (16th ed.). Ankara: Pegem Publishing.
- Doğanay A, Demircioğlu T, Yeşilpınar M (2014). A need assessment study for an interdisciplinary curriculum about nature of science for prospective elementary teachers. *Turk. Stud.* 9(5):777-798.
- Douglass NH (2002). *New approaches in respect and responsibility education.* (Ö. Yurttutan, Y. Özen, Trans.) Ankara: Nobel Publishing.
- Draz MA (2004). *Responsibility.* (2nd ed.) İstanbul: Kayhan Publishing.
- Fisher D, Frey N (2014). *Better learning through structured teaching* (2nd ed). Alexandria: ASCD Press.
- Geçtan E (1994). *Being human* (14th ed.). İstanbul: Remzi Bookstore.
- Glesne C (2013). *Introduction to qualitative research* (3rd ed.). (A. Ersoy, P. Yalçinoğlu, Trans.). Ankara: Anı Publishing.
- Hayta-Önal Ş (2005). The effect of responsibility programme onto the 9th grade high school students. Unpublished master thesis. Uludağ

- University, Bursa.
- Hellison D (2014). Teaching personal and social responsibility through physical activity (3th ed.). (B. Filiz, Trans.) Ankara: Nobel Publishing.
- Houston PD (1998). The centrality of character education. *School Administrator*, 55(5):6-8. Retrieved from <http://resolver.ebscohost.com/openurl?sid=google&aunit=PD&aunist=Houston&atitle=The+Centrality+of+Character+Education.&title=School+Administrator&volume=55&issue=5&date=1998&spage=6&issn=0036-6439>.
- Keçenekçi YK (2003). Human rights and responsibility education in elementary schools. *Education Management in Theory and Practice*, Spring (34):280-299.
- Personal Development and Guidance Unit. (2015). Developing decision making and taking responsibility skills in children: Personal Development and Guidance: Retrieved from [http://www.gelisim.k12.tr/images/feimg/dokumanlar/sorumluluk\\_ocak\\_2015\\_oo.pdf](http://www.gelisim.k12.tr/images/feimg/dokumanlar/sorumluluk_ocak_2015_oo.pdf)
- Koçer Ö (2013). The first step in curriculum development: Needs and situation analysis in teaching Turkish as a foreign language. *Educ. Sci.* 38(169):159-174.
- Lewis R (2001). Classroom discipline and student responsibility: the students' view. *Teaching Teacher Educ.* 17:307-319.
- Lickona T (1991). Educating for character: How our schools can teach respect and responsibility. NY: Bantam Books.
- Lucas JR (1993). Responsibility. NY: Oxford University Press.
- MacKenzie RJ (2013). Setting limits with your strong willed child-2. (H. Argüç, Trans.) İstanbul: Yakamoz Publishing.
- Masser LS (2013). Teaching for affective learning in elementary physical education. *J. Physical Educ. Recreation Dance*, 61(7):18-19.
- Merdan E (2013). Research the relationship between "Five Factor Personality Theory" and business values: A research in banking. *Gümüşhane University Electronic J. Soc. Sci.* (7):140-159.
- Miles MB, Huberman AM (1994). Qualitative data analysis: An expanded sourcebook. (2nd ed.). California: Sage Publications.
- Ministry of National Education [MNE] (2009). Social Sciences Lesson (4th-5th Grades) Teaching Programme. Head Council of Education and Morality: Retrieved from <http://ttkb.meb.gov.tr/>
- Ministry of National Education [MNE] (2015). Primary School Life Sciences Lesson (1st, 2nd and 3rd grades) Teaching Programme. Head Council of Education and Morality: Retrieved from <http://ttkb.meb.gov.tr/>
- Nazlı S (2011). Comprehensive developmental guidance programme (4th ed.). Ankara: Anı Publishing.
- Özen Y (2001). Responsibility education. Ankara: Nobel Publishing.
- Özerbaş MA, Gündüz M (2014). The effect of responsibility value teaching with project based learning approach onto the 3rd grade primary education students' attitudes. *J. Int. Soc. Res.* 7(32):520-532.
- Stanley M (2009). Children and skills. İstanbul: Ekinoks Publishing.
- Şahan E (2011). The acquiring level of acquisitions intended for responsibility education in the 5th and 8th grade curriculum. Unpublished master thesis. Ahi Evran University, Kırşehir.
- Tozlu N (1997). Education philosophy. İstanbul: MEB Publications.
- Turkish Language Society [TDK] (2016). Responsibility. Turkish Language Society Great Turkish Language Dictionary: Retrieved from [http://www.tdk.gov.tr/index.php?option=com\\_bts](http://www.tdk.gov.tr/index.php?option=com_bts)
- Yavuzer H (2016). Handbook of educating children. (34th ed.) İstanbul: Remzi Bookstore.
- Yeşilyaprak B (2012). Guidance services in education (20th ed.). Ankara: Nobel Publishing.
- Yıldırım A, Şimşek H (2013). Qualitative research methods in social sciences (9th ed.). Ankara: Seçkin Publishing.
- Yontar A (2007). An investigation of the primary school 5th grade teachers and students point of views in terms of punishment use in responsibility training. Unpublished master thesis. Çukurova University, Adana.
- Yurtal F, Yontar A (2006). Responsibilities class teachers expect from their students and the methods used to teach responsibility. *Çukurova University J. Soc. Sci. Institution* 15(2):411-424.
- Yontar A, Yurtal F (2009). Investigations of sanctions used by teachers for improving responsibility. *Educ. Sci.* 34(153):144-156.



Full Length Research Paper

## Analysis of analogy use in secondary education science textbooks in Turkey

Süleyman Akçay

Department of Primary Education, Faculty of Education, Süleyman Demirel University, Main Campus, Isparta, Turkey.

Received 24 August, 2016; Accepted 26 September, 2016

**Analogical reasoning is both an innate ability and a basic learning mechanism that can be improved. In classrooms, it is an important tool used by teachers, especially when explaining difficult or abstract issues. In addition to its use in all aspects of our lives, analogical reasoning is commonly used in textbooks. This research examines the extent to which analogies are used in high school science textbooks, the subjects of the examination being high school physics, chemistry, and biology course textbooks used by students between 14 and 17 years of age. A total of 15 textbooks (four biology books, five physics books, and six chemistry books) were reviewed. Ninety-two analogies were identified in these books. These analogies were classified based on a scheme developed by Curtis and Reigeluth. Findings are discussed in the context of previous related studies.**

**Key words:** Analogy use, science education, secondary education, science textbooks, meaningful learning, cognitive science.

### INTRODUCTION

Meaningful learning is directly related to students' ability to establish and integrate new and relevant existing knowledge (Ausubel 1980; Novak 1998). In this sense, analogies have potential to aid in understanding of new knowledge by highlighting similarities between existing known concepts (the *analog*) and new information (the *target*). For this reason, analogies can be efficient tools for meaningful learning. On the nature of analogies, Gentner (1989) comments, "the analogy conveys that a relational system in the target domain matches one in the base domain". *Base domain* refers to existing knowledge. As an example, the analogy of a continuous train operating on a closed-loop track can facilitate students' understanding of the movement of electric current in a

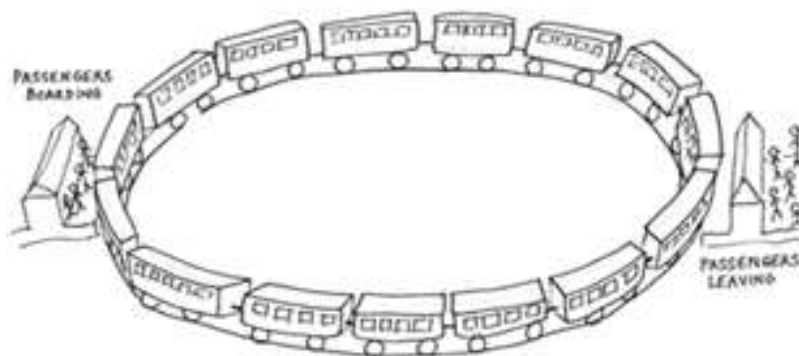
torch bulb serial circuit (Figure 1, Dupin and Johsua, 1989). Passengers travelling from one point to another (analog) are likened to electrons (target). This analogy aims to help students comprehend that electric current is not consumed.

According to Venville and Treagust (1996), an analogy is a process of identifying similarities and differences between two objects or processes. Its purpose is to explain and name unknown cases via already known ones. This is called "analogical mapping" by Gentner (1998), and can be schematized as shown in Figure 2. Gentner (1998) describes analogy as follows:

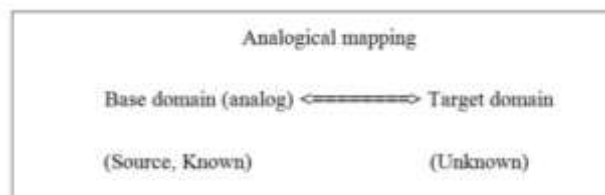
Analogy is ubiquitous in cognitive science. First, in the

E-mail: [suleyman.akcay@gmail.com](mailto:suleyman.akcay@gmail.com).

Authors agree that this article remain permanently open access under the terms of the [Creative Commons Attribution License 4.0 International License](https://creativecommons.org/licenses/by/4.0/)



**Figure 1.** The continuous train analogy shows that current is not consumed in a series circuit (Harrison and Treagust, 2006).



**Figure 2.** Analogical mapping of base and target domains (adapted from Wilbers and Duit, 2006).

study of learning, analogies are important in the transfer of knowledge and inferences across different concepts, situations, or domains. Second, analogies are often used in...reasoning. Third, analogies can serve as mental models for understanding a new domain (p. 107).

Analogical reasoning is a basic, common learning mechanism used as early as infancy (Goswami, 1992, 2008). Scientists have also benefitted from the use of analogies, as they are superior reasoning methods. Many scientific discoveries have been achieved with the help of analogical reasoning (Harrison and Treagust, 2006).

Analogies used in an active manner can be integral to learning because they have the potential to activate already known concepts (Duit, 1991; Glynn, 1991; Spiro, 1988). Teachers find some specific analogies both efficient and useful. Examples of analogies used by teachers include the car analogy, which explains the importance of a balanced and healthy diet, and the genetic cookbook analogy, which explains DNA (Wormeli 2009). Students of many ages benefit from analogies, which assist them in understanding, visualizing, and remembering new concepts (Orgill and Bodner, 2007). Analogies are used to promote understanding in disciplines such as science (Harrison and Treagust, 2000a), mathematics (Richland et al., 2004), music

(Stollak and Alexander, 1998), language education (Hulshof and Verloop, 2002), and art education (Casakin and Goldschmidt, 1999).

The positive effects of analogies on comprehension and retention have been identified with regard to topics including molecules and atoms (Harrison and Treagust, 2000a), electrical circuits (Chiu and Lin, 2005), genetics (Baker and Lawson, 2001), geology (Blake, 2004), chemical dissociation (Çalık et al., 2009), protein synthesis (Pittman, 1999), chaotic systems in physics (Duit et al., 2001), structure and properties of matter (Kobal et al., 2014), enzymes (Atav et al., 2004), and electrical current (Aykutlu and Şen, 2011). While highlighting the indispensable role of analogies in explaining theoretical or abstract concepts, Lawson (1993) argues for the necessity of analogical statements in learning subjects such as atomic structure, which students find difficult to grasp directly. Analogies can thus play a central role in restructuring students' conceptual frameworks (Duit 1991; Vosniadou 1994). According to Sutton (1992), the use of technical terms could lead to confusion and difficulty in students' learning of scientific concepts. To avoid this, analogical expressions or explanations, which make use of students' existing knowledge, should be used to simplify the cognitive processes involved in learning new material.

Venville and Treagust (1996) evaluated and classified the roles of analogies in the learning process into four main categories. The first category is the *sense maker* or *advance organizer*; it refers to analogies that provide an overview of a subject. The second category is the *memory aid*, which refers to analogies that contribute to retention of learning. The third category, *transformer*, refers to analogies with the ability to transfer knowledge from knowns (analogs) to unknowns (targets). The final category is that of the *motivator*, in which analogies raise students' interest in a subject or course.

However, although analogies can be important tools for understanding, they may also lead to misunderstandings and, therefore, they should be constructed properly in order to avoid this. To construct the best analogy, comparable and incomparable features of the analogs and targets should be interpreted clearly (Spiro, 1988). Clarifying analogies in this way enriches them and makes them more effective (Duit et al., 2001; Glynn et al., 1989; Harrison and Treagust, 2006; Iding, 1997). For example, an analogy drawn between the eye and a camera can be powerful. Images recorded on the film in the camera can be thought of as similar to images formed on the retina of the eye and transmitted to the brain. A camera lens cap's protective function can be likened to the eyelid's protection of the cornea. However, the analogy breaks down at the following points: while cameras are sensitive to very bright light, the eye can adapt itself to both bright and dim light; and while cameras produce permanent single images, the eyes produce multiple, non-permanent images (Harrison and Treagust, 2006).

It is difficult to predict precisely when analogies will add to confusion and when they will contribute to understanding (Curtis and Reigeluth 1984). In classrooms, controlling this is the teacher's responsibility (Dagher, 1995; Nason, 1994; Newton and Newton, 1995). In fact, different types of analogical models have been developed to aid teachers in using analogies for teaching. Glynn (1991) developed and suggested the six-step Teaching-with-Analogies (TWA) model, and Treagust et al. (1998) introduced the Focus, Action, Reflection (FAR) model.

Teachers are more successful in adapting existing analogies to specific cases than they are in generating analogies spontaneously. They also have difficulty generating enriched analogies. Accordingly, teachers require an extensive repertoire of analogies (Harrison 2001; Treagust et al. 1992). Textbooks can be considered key components of this repertoire. They are the most basic and accessible sources of knowledge for students, and they play a critical role in every stage of the learning processes of science classes. Moreover, teachers use textbooks significantly when planning the curriculum and determining their pedagogical strategies (Sánchez and Valcarcel 1999; Souza and Porto 2012).

However, teachers often find textbooks too general and outdated. They may, in these cases, use textbooks

merely as a source for analogies (Mastrilli, 1997), and thus the characteristics of analogies in textbooks can impact teaching strategies themselves. Additionally, according to Else et al. (2008), although students play an active part in employing and interpreting existing analogies in all their disciplines' curricula, they are incapable of generating analogies themselves. Given this, textbooks are primary sources for existing analogies used in teaching. According to Orgill and Bodner (2006), textbooks have the potential advantage of providing students with clearer and more extended analogies.

### Classification of analogies

Analogies in textbooks and their related issues have been the subject of many studies (Curtis and Reigeluth, 1984; Çalık and Kaya, 2012; de Posada, 1999; Demirci Güler et al., 2008; Giora, 1993; Glynn and Takahashi, 1998; Harrison, 2001; Iding, 1997; Orgill and Bodner, 2006; Thiele and Treagust, 1994; Thiele and Treagust, 1995). However, only a few of these studies have specifically classified analogies. Curtis and Reigeluth (1984) examined 26 science textbooks and classified analogies into six categories. Newton (2003) took the first five of these categories into consideration; Thiele and Treagust (1994) added three additional categories; and Orgill and Bodner (2006) expanded the original six categories to ten. Several studies have also examined analogies in Turkish textbooks in particular, at both elementary and secondary school levels (Çalık and Kaya, 2012; Demirci Güler et al., 2008; Dikmenli, 2010; Toprak and Pekmez, 2011; Yener, 2012). In these studies, the secondary level books were taken from specific branches of science (for example, biology, physics, or chemistry).

### METHODOLOGY

#### Research questions

In this study, a relatively large number of high school science textbooks were analysed. Our research questions were:

RQ<sub>1</sub>: How often are analogies used in secondary science education textbooks in Turkey?

RQ<sub>2</sub>: Which types of analogies are used?

RQ<sub>3</sub>: In which areas are analogies used frequently?

Since textbooks are teaching materials prepared in parallel with the curriculum, they can be regarded as parts of the curriculum. Data analysed in this study was collected from three research groups using similar analogical classification systems. This international comparison adds value to the study.

Document analysis strategies were conducted based on a qualitative research paradigm. Fifteen accessible textbooks for secondary science education courses (physics, chemistry, biology) were reviewed, all of which were selected by the Ministry of National Education (MONE) for use in the 2013-2014 school year in

**Table 1.** Levels of consistency between classifications of analogies conducted by the assessors and the researcher.

| Variable  | Assessor 1 | Assessor 2 | Assessor 3 |
|---|------------|------------|------------|
| Number of analogies agreed upon by both researcher and assessor | 85         | 88         | 87         |
| Reliability   | 92.39      | 95.65      | 94.57      |

Turkey. Analogical statements in the books were identified; these statements were then classified based on the scheme developed by Curtis and Reigeluth (1984).

Three experts in the field of analogical research (two with 12 years of experience, one with 18 years of experience) performed classification of the analogies identified by this research. Before conducting classification, the experts were introduced to Curtis and Reigeluth (1984) system. The experts made their classifications independently; level of consistency among the experts was then determined by comparing their classifications with those of the researcher. A reliability analysis was conducted using the following formula:

Reliability =  $\frac{\text{agreement}}{\text{agreement} + \text{disagreement}} \times 100$  (Miles and Huberman, 1994)

The consistency rate was found to be at least 92.39% (Table 1). Miles and Huberman (1994) consider a study reliable if the consistency rate among two or more different field assessors (experts) is greater than or equal to 90%.

### Examined textbooks

Turkey has a centralized education system: teachers must follow a national curriculum in formal education. They are therefore unable to determine their curriculum themselves. Science education at the primary level is presented in courses under the combined category of *science and technology*, and at the secondary level (9th grade to 12th grade) through courses under the separate categories of *physics, chemistry, and biology*.

Schools in Turkey select the textbooks to be used during the school year from among those textbooks approved by the MONE. The textbooks examined in the present study were those chosen by the MONE for use in the 2013-2014 school year. According to 2014 data, approximately 5.5 million students in Turkey continue their formal studies at the secondary level. Twenty-four percent of these students attend open institutions, and 75.9% attend public and private institutions (MONE, 2014). The textbooks examined were used by approximately 4 million students from private and public educational institutions in Turkey. Some textbooks were also produced by independent publishers. Details of the textbooks examined can be found in Table 2. The first five of the six categories developed by Curtis and Reigeluth (1984) were used in this research:

1. *Analogical relationship*: Structural (S), Functional (F), or Both (S&F). Three possible relational categories of analogical relationship can occur.

- A. S: Parallels are drawn between appearance, physical organization, and/or structures.
- B. F: Parallels are drawn with the way something behaves, functions, and/or operates.
- C. S&F: Both structural and functional parallels are drawn.

2. *Presentational format*: Verbal (V), Pictorial (P), or Pictorial-Verbal (P-V).

A. V: Analogies can be represented in the text in verbal form, whereby the relationship is explained in words.

B. P: Analogies can be represented in the text in pictorial form, whereby the relationship is explained in pictures only.

C. P-V: Analogies can be represented by pictures accompanied by words.

3. *Content condition*: Concrete to Concrete (C-C), Abstract to Abstract (A-A), or Concrete to Abstract (C-A). The actual content that is chosen to create the analog and target may be categorized in a variety of ways. Curtis and Reigeluth (1984) mention three possible combinations.

- A. C-C: Both the analog and the target are of a concrete nature.
- B. A-A: Both the analog and the target are of an abstract nature.
- C. C-A: The analog is of a concrete nature but the target is of an abstract nature.

Theoretically, there is also a fourth category, Abstract to Concrete (A-C). However, analogies aim to support understanding of difficult abstract concepts by linking them to concrete ones. Perhaps for this reason, A-C analogies were not encountered in the present study, nor were they included in that of Curtis and Reigeluth (1984).

4. *Position in text*: Advance Organizer (AO), Embedded Activator (EA), or Post Synthesizer (PS);

- A. AO: Analogies are used at the beginning of a unit.
- B. EA: Analogies are used to explain a subject requiring additional interpretation within a unit.
- C. PS: Analogies are presented at the end of the unit in a summarizing capacity.

5. *Level of enrichment*: Simple (S), Enriched (En), or Extended (Ex); In this classification scheme, the boundaries of the analogy and its similarities with the target were considered.

- A. S: Only a similarity statement is made between the analog and the target, with no further explanation of this similarity provided. For example, "Expansion of the universe after the Big Bang is like a balloon being blown up," or "The DNA molecule is shaped like a twisted ladder."
- B. En: Further explanation of the similarity between an analog and a target are given. For example, "Activation energy is like a hill because you have to add energy to the reacting substances to start the reaction" (Harrison and Treagust, 2006).
- C. Ex: Mixtures of S and En analogies; limitations are put on the similarities between an analog and a target, or both common and uncommon features of the analog and target are explained. The aforementioned analogy between an eye and a camera is an example of an analogy in the Ex category.

## RESULTS

### Descriptions of examined science textbooks

This research analysed a total of fifteen textbooks: four

**Table 2.** Science textbooks reviewed in the study.

| Author (s)   | Date of publication | Edition | Title        | Publisher          |
|--|---------------------|---------|--------------|--------------------|
| S. Ercan Akkaya, O. Albayrak, E. Öztürk, Ş. Cavak  | 2012                | Fifth   | Biology 9    | MEB Publishing     |
| S. Ercan Akkaya, D. Sağdıç, O. Albayrak, E. Öztürk, Ş. Cavak, F. İlhan                     | 2012                | Fourth  | Biology 10   | MEB Publishing     |
| D. Sağdıç, O. Albayrak, E. Öztürk, Ş. Cavak  | 2012                | Third   | Biology 11   | MEB Publishing     |
| S. İlhan (Ed.)   | 2012                | Second  | Biology 12   | MEB Publishing     |
| S. A. Kıray, B. Bektaşlı, G. Erbatur   | 2012                | First   | Physics 9    | Pasifik Publishing |
| C. Kalyoncu, A. Tütüncü, A. Değirmenci, Y. Çakmak, E. Pektaş                               | 2012                | Fifth   | Physics 9    | MEB Publishing     |
| C. Kalyoncu, E. Pektaş, A. Değirmenci, M. A. Kurnaz, A. Tütüncü, Y. Çakmak, G. Bayraktar   | 2012                | Fourth  | Physics 10   | MEB Publishing     |
| M. A. Kurnaz, A. Değirmenci, C. Kalyoncu, E. Pektaş, G. Bayraktar, U. Aydın, Y. Moradaoğlu | 2012                | Third   | Physics 11   | MEB Publishing     |
| S. Çepni (Ed.)   | 2012                | Second  | Physics 12   | MEB Publishing     |
| H. Demirelli, N. Kavak   | 2012                | Fifth   | Chemistry 9  | Mega Publishing    |
| M. F. Dursun, İ. Gülbay, S. Çetin, Ü. Tek  | 2012                | Fifth   | Chemistry 9  | MEB Publishing     |
| M. F. Dursun, İ. Gülbay, S. Çetin, Ü. Tek, F. F. Özkoç, M. Güntut                          | 2012                | Fourth  | Chemistry 10 | MEB Publishing     |
| N. Kavak   | 2012                | Second  | Chemistry 11 | Mega Publishing    |
| M. F. Dursun, İ. Gülbay, F. F. Özkoç, Ü. Tek, M. Güntut                                    | 2012                | Third   | Chemistry 11 | MEB Publishing     |
| O. Z. Yeşilel  | 2012                | Second  | Chemistry 12 | MEB Publishing     |

biology textbooks, six chemistry textbooks, and five physics textbooks. The analogies identified and classified in the textbooks, those chosen from among the latest selections of the MONE in Turkey, are displayed in Table 3, stratified by text grade level. Analogies were encountered in all textbooks. A total of 92 analogies were detected across all books.

Physics textbooks had the most analogies (56 total), followed by chemistry texts (23 total). Only 13 analogies were detected among all the biology textbooks. The average number of analogies per textbook was 6.13 (SD = 5.14).

### Categorization of analogies

Analogies in the textbooks were categorized and are illustrated in Table 4.

### Analogical relationship

Most analogies in the secondary education science textbooks (66 analogies, 71.7%) were F analogies, followed by S analogies (15 analogies, 16.3%). The number of S&F analogies was low (11 analogies, 12%).

**Table 3.** Distribution of analogies in examined textbooks stratified by subject, specific topics, and grade level.

| Grade            | Subject                         | Number of analogies | Relationship |    |     | Presentation |     | Condition |     |     | Position in Text |    |    | Level of Enrichment |    |    |
|------------------|---------------------------------|---------------------|--------------|----|-----|--------------|-----|-----------|-----|-----|------------------|----|----|---------------------|----|----|
|                  |                                 |                     | S            | F  | S&F | V            | P-V | C-C       | A-A | C-A | AO               | EA | PS | S                   | En | Ex |
| <b>Biology</b>   |                                 |                     |              |    |     |              |     |           |     |     |                  |    |    |                     |    |    |
| 9                | World of living things          | 4                   | 1            | 2  | 1   | 3            | 1   | 2         | 0   | 2   | 0                | 4  | 0  | 2                   | 1  | 1  |
| 10               | Reproduction in living things   | 1                   | 1            | 0  | 0   | 0            | 1   | 1         | 0   | 0   | 0                | 1  | 0  | 0                   | 1  | 0  |
|                  | Energy cycle in living things   | 2                   | 2            | 0  | 0   | 2            | 0   | 0         | 0   | 2   | 0                | 2  | 0  | 2                   | 0  | 0  |
| 11               | Heredity                        | 1                   | 0            | 1  | 0   | 1            | 0   | 0         | 1   | 0   | 0                | 1  | 0  | 1                   | 0  | 0  |
| 12               | Animal and human biology        | 5                   | 0            | 4  | 1   | 5            | 0   | 1         | 0   | 4   | 0                | 5  | 0  | 3                   | 2  | 0  |
|                  | Total:                          | 13                  | 4            | 7  | 2   | 11           | 2   | 4         | 1   | 8   | 0                | 13 | 0  | 8                   | 4  | 1  |
| <b>Chemistry</b> |                                 |                     |              |    |     |              |     |           |     |     |                  |    |    |                     |    |    |
| 9, 10, 12        | Chemical bonds                  | 5                   | 1            | 3  | 1   | 3            | 2   | 1         | 0   | 4   | 0                | 4  | 1  | 4                   | 1  | 0  |
| 9                | Chemistry in biological systems | 1                   | 0            | 1  | 0   | 1            | 0   | 0         | 0   | 1   | 0                | 1  | 0  | 1                   | 0  | 0  |
| 10, 11           | Electrochemistry                | 5                   | 0            | 4  | 1   | 5            | 0   | 0         | 1   | 4   | 0                | 5  | 0  | 5                   | 0  | 0  |
| 11               | Energy in chemical reactions    | 2                   | 0            | 2  | 0   | 2            | 0   | 0         | 0   | 2   | 0                | 2  | 0  | 2                   | 0  | 0  |
| 9                | Environmental chemistry         | 1                   | 0            | 1  | 0   | 1            | 0   | 0         | 0   | 1   | 0                | 1  | 0  | 1                   | 0  | 0  |
| 9                | Mixtures                        | 3                   | 0            | 3  | 0   | 3            | 0   | 1         | 0   | 2   | 0                | 3  | 0  | 3                   | 0  | 0  |
| 11               | Nuclear chemistry               | 2                   | 0            | 1  | 1   | 2            | 0   | 0         | 2   | 0   | 0                | 2  | 0  | 2                   | 0  | 0  |
| 10               | Structure of the atom           | 4                   | 2            | 2  | 0   | 4            | 0   | 0         | 0   | 4   | 0                | 4  | 0  | 2                   | 2  | 0  |
|                  | Total:                          | 23                  | 3            | 17 | 3   | 21           | 2   | 2         | 3   | 18  | 0                | 22 | 1  | 20                  | 3  | 0  |
| <b>Physics</b>   |                                 |                     |              |    |     |              |     |           |     |     |                  |    |    |                     |    |    |
| 9, 10, 12        | Composition of matter           | 14                  | 2            | 10 | 2   | 10           | 4   | 3         | 1   | 10  | 0                | 14 | 0  | 10                  | 3  | 1  |
| 11               | Earth and space                 | 3                   | 0            | 3  | 0   | 2            | 1   | 0         | 0   | 3   | 0                | 3  | 0  | 2                   | 1  | 0  |
| 10,12            | Electricity                     | 6                   | 0            | 4  | 2   | 5            | 1   | 2         | 2   | 2   | 0                | 3  | 3  | 5                   | 1  | 0  |
| 9, 12            | Energy                          | 2                   | 0            | 1  | 1   | 0            | 2   | 1         | 0   | 1   | 0                | 2  | 0  | 2                   | 0  | 0  |
| 9                | Forces/Motion                   | 2                   | 0            | 2  | 0   | 0            | 2   | 0         | 0   | 2   | 0                | 2  | 0  | 2                   | 0  | 0  |
| 9, 11            | Magnetism                       | 17                  | 5            | 12 | 0   | 7            | 10  | 5         | 2   | 10  | 0                | 15 | 2  | 10                  | 5  | 2  |
| 9, 10, 11, 12    | Waves                           | 12                  | 1            | 10 | 1   | 6            | 6   | 3         | 0   | 9   | 1                | 11 | 0  | 9                   | 3  | 0  |
|                  | Total:                          | 56                  | 8            | 42 | 6   | 30           | 26  | 14        | 5   | 37  | 1                | 50 | 5  | 40                  | 13 | 3  |

**Presentational format**

Most of the analogies (62 analogies, 67.4%) were

the V type. P analogies were not encountered. The remaining analogies (30 analogies, 32.6%) were P–V.

**Content condition**

Most analogies (63 analogies, 68.5%) found were

**Table 4.** Number of analogies in each category of the classification system.

| Category                           | n  | Percentage (%) |
|------------------------------------|----|----------------|
| <b>Analogical relationship</b>     | 92 | -              |
| Structural (S)                     | 15 | 16.3           |
| Functional (F)                     | 66 | 71.7           |
| Both (S&F)                         | 11 | 12.0           |
| <b>Presentational format</b>       | 92 | -              |
| Verbal (V)                         | 62 | 67.4           |
| Pictorial (P)                      | 0  | 0.0            |
| Pictorial-Verbal (P-V)             | 30 | 32.6           |
| <b>Condition of subject matter</b> | 92 | -              |
| Concrete to Concrete (C-C)         | 20 | 21.7           |
| Abstract to Abstract (A-A)         | 9  | 9.8            |
| Concrete to Abstract (C-A)         | 63 | 68.5           |
| <b>Position in text</b>            | 92 | -              |
| Advance Organizer (AO)             | 1  | 1.1            |
| Embedded Activator (EA)            | 85 | 92.4           |
| Post Synthesizer (PS)              | 6  | 6.5            |
| <b>Level of enrichment</b>         | 92 | -              |
| Simple (S)                         | 68 | 73.9           |
| Enriched (En)                      | 20 | 21.7           |
| Extended (Ex)                      | 4  | 4.3            |

in C-A format, followed by C-C analogies (20 analogies, 21.7%) and finally A-A analogies (9 analogies, 9.8 %).

### **Position in text**

Most of the analogies examined in secondary education textbooks were EA analogies (85 analogies, 92.4%), followed by PS (6 analogies, 6.5%) and AO analogies (1 analogy, 1.1%), respectively.

### **Level of enrichment**

Most of the analogies in the secondary level textbooks examined were in the S enrichment category. Twenty analogies (21.7%) were classified as En, and four (4.3%) were classified as Ex.

## **DISCUSSION**

Analogies can affect the attractiveness and fluency of textbooks (Orgill and Bodner, 2006). Developing

analogies and keeping them up to date can increase the effectiveness of education, particularly in countries with centralized systems such as Turkey.

According to Orgill and Bodner (2006), textbooks have the potential to aid learning outside the classroom as well as inside. However, while teachers can correct erroneous inferences and interpretations of analogies in the classroom, analogies in textbooks may lead to misunderstanding or misinterpretation outside the classroom where the teacher is not present. These types of misunderstandings or misinterpretations can be avoided by enriching analogies—that is, by providing details on the extent and limitations of specific analogies.

In Curtis and Reigeluth (1984) study of textbooks in the USA, most analogies were identified as belonging to the En class (81.0%); in the present study of Turkish textbooks, most analogies were identified as belonging to the S class (73.9%). Very few Ex analogies (4.4%; see Tables 5 and 6) were identified. The textbooks examined in this study were used by nearly 4 million students of public and private educational institutions. Therefore, it may be important to develop and continually update the analogies used in textbooks, increasing their active use and improving the understanding of students in Turkey and similar countries. Other studies conducted in Turkey have found that both prospective teachers and existing academic staff lack knowledge on the nature and use of analogies (Beyazıt, 2011; Güneş et al., 2004). No studies on the status of teachers in this situation have yet been encountered; this topic should be examined in future research.

Recent studies of analogy have focused on students' generation of their own analogies (Pittman, 1999; Kobal et al., 2014; Kılıç, 2009). In experiments in which students generate their own analogies as substitutes for existing analogies, no meaningful differences in learning have been found (Kılıç, 2009; Kobal et al., 2014). Many studies do, however, report meaningful changes in teaching practices and progress in overcoming misconceptions through use of existing analogies (Atav et al., 2004; Aykutlu and Şen, 2011; Kayhan, 2009; Kılıç, 2009; Kobal et al., 2014; Şendur et al., 2008). These results indicate that existing analogies have the potential to contribute greatly to teaching. Course textbooks are one of the most important resources for existing analogies.

Students are successful in using and interpreting existing analogies, yet have difficulties generating analogies themselves (Orgill and Bodner, 2006; Else et al., 2008). Teachers use existing analogies in classrooms as well, and have difficulties generating new well-developed analogies (Oliva et al., 2007). Accordingly, teachers must have comprehensive repertoires of analogy, including tools such as course textbooks. Textbooks are also beneficial in that they present students with straightforward analogies outside of the

**Table 5.** Comparison of data from the present research with data from previous studies conducted on classification of analogies in textbooks.

| Article                              | Akçay 2014 <sup>a</sup> | Curtis and Reigeluth 1984 <sup>a</sup> | Newton 2003 <sup>b</sup> |
|--------------------------------------|-------------------------|--|--------------------------|
| Category                             | Percentage (%)          |  |                          |
| <b>Analogical relationship</b>       |                         |  |                          |
| Structural (S)                       | 16.3                    | 25.0                                   | 65.2                     |
| Functional (F)                       | 71.7                    | 70.0                                   | 20.7                     |
| Both (S&F)                           | 12.0                    | 5.0                                    | 14.1                     |
| <b>Presentational format</b>         |                         |  |                          |
| Verbal (V)                           | 67.4                    | 84.0                                   | 78.3                     |
| Pictorial (P)                        | 0.0                     | 0.0                                    | 0.0                      |
| Pictorial-Verbal (P-V)               | 32.6                    | 16.0                                   | 21.7                     |
| <b>Content condition</b>             |                         |  |                          |
| Concrete to Concrete (C-C)           | 21.7                    | 12.0                                   | 59.8                     |
| Abstract to Abstract (A-C)           | 9.8                     | 6.0                                    | 0.0                      |
| Concrete to Abstract (C-A)           | 68.5                    | 82.0                                   | 40.2                     |
| <b>Position in text</b>              |                         |  |                          |
| Advance Organizer (AO)               | 1.1                     | 23.0                                   | 0.0                      |
| Embedded Activator (EA)              | 92.4                    | 76.0                                   | 100.0                    |
| Post Synthesizer (PS)                | 6.5                     | 1.0                                    | 0.0                      |
| <b>Level of enrichment</b>           |                         |  |                          |
| Simple (S)                           | 73.9                    | 6.0                                    | 60.9                     |
| Enriched (En)                        | 21.7                    | 81.0                                   | 39.1                     |
| Extended (Ex)                        | 4.4                     | 13.0                                   | 0.0                      |
| Average number of analogies per book | 6.1                     | 8.3                                    | 2.6                      |

<sup>a</sup>Analogies in secondary education; <sup>b</sup>Analogies in primary education.

classroom as well (Orgill and Bodner, 2006).

According to Harrison and Treagust (2000b), modelling, which is the essence of scientific study and thinking, possesses an essentially analogical structure. These authors argue that model-based thinking and model-based science are inevitable components of learning.

Past research has suggested that analogical reasoning processes are not acquired abilities. On the contrary, it appears that analogical thinking and related knowledge transfer processes are innate abilities. Although adults' and children's analogical comparison abilities are different, it is apparent that analogical reasoning processes are used at every age. Analogical reasoning abilities develop by themselves; even without guidance, children exhibit behaviours that suggest the use of analogical knowledge transfer processes. Moreover, the occurrence of spontaneous analogical transfer in children increases when they face problems repeatedly (Leech et al., 2008). We can thus conclude that analogical

reasoning abilities begin to emerge during childhood and develop over an individual's lifespan. These abilities require support in order to develop properly. Textbooks may contribute this support in formal teaching situations. In addition, science fiction books may also contribute to the development of analogical thinking.

Teachers require knowledge of analogies that are pre-existing and have well-determined limits (Harrison and de Jong, 2005; Mastrilli, 1997; Treagust et al., 1992). The most accessible resource with which to meet this need is that of textbooks. Nowadays, textbooks are often widely available as e-books or digital internet files, and they maintain their standing as reliable, widely accessible sources of information in classrooms.

## Conclusion

In terms of analogical relationships, the data in this study



align with the results of Curtis and Reigeluth (1984) study on high school textbooks. F analogies were found to be the dominant type across textbooks from all three scientific disciplines. Conversely, Newton (2003) study of primary education textbooks found that 65.2% were S analogies. As Newton (2003) stated, this shows that as students get older, the analogies they encounter tend to grow more functional in structure. According to Curtis and Reigeluth (1984), a purely structural analogy focuses on a unique similarity between an analog and a target. However, the number of differences between an analog and a target is likely also high. Therefore, purely structural analogies may be weak. Curtis and Reigeluth (1984) suggested that functional analogies tend to be used to teach complex and abstract subjects. The functional analogy established by Newton (2000) between the human brain and a computer, for example, could assist students already familiar with computers to understand functional brain processes. Although the brain does not look like a computer and may not be organized like one, brains and computers nevertheless have some functions in common:

Target 1: Encodes information from the senses for processing

Analogy 1: Encodes incoming data for processing

Target 2: Holds and processes information in working memory

Analogy 2: Holds and processes data in random access memory (RAM)

Target 3: Stores information for later recall in long-term memory

Analogy 3: Stores information for later recall on a hard disk drive (HDD)

Target 4: Communicates outcomes of processing (e.g., by speech or writing)

Analogy 4: Communicates outcomes of processing (e.g., on screen or by printer)

(Newton, 2000)

The number of S&F analogies found in this study is more than double the number found by Curtis and Reigeluth (1984; also see Table 5). According to Curtis and Reigeluth (1984), S&F analogies are more comprehensive and therefore more powerful in terms of expression. It can thus be said that analogies in Turkish high school science textbooks are powerful in terms of their analogic relationships. The results of the three previous studies, as depicted in Table 5, show that the number of analogies per textbook at the secondary education level tends to be larger than that at the primary level. This result may be explained by the fact that analogies are usually used to teach abstract and complex subjects, and as children move from primary to secondary education, the topics they learn become more complex and abstract.

In terms of presentational format, V analogy ratios are

found to be in accordance with the data from Curtis and Reigeluth's (1984) study. The ratio of P-V analogies is found to be twice that found by Curtis and Reigeluth (1984). P analogies were not found in any of the three studies described in Table 5. According to Curtis and Reigeluth (1984), the V presentational format may be sufficient for teaching analogical relationships. However, the P-V format is preferable for students at lower levels. This suggests that high school science textbooks in Turkey may be targeted toward students at lower levels. The data roughly confirm the findings of Curtis and Reigeluth (1984) with respect to content condition. However, in high school science textbooks in Turkey, the number of C-C analogies is remarkably high (Table 5). The excess of C-C analogies found in this research may have been distributed among the C-A and A-A classes in previous studies.

The number of AO analogies found was significantly lower than that found by Curtis and Reigeluth (1984), whereas the ratio of EA analogies was similar. Newton (2003), who examined primary education textbooks, found only EA analogies. The number of PS analogies found was significantly higher than that of Curtis and Reigeluth (1984). AO and EA analogies seem to be the best located analogies. In this respect, the analogies in Turkish high school science textbooks seem to be lower effective (Curtis and Reigeluth, 1984).

In terms of enrichment, most of the analogies found in Turkish high school textbooks are in the S class (73.9%). Very few analogies identified were in the Ex class (4.4%). In Curtis and Reigeluth's (1984) study, most analogies identified were in the En category (81.0%), followed by the Ex category (13.0%). In Newton (2003) study of primary school textbooks, no analogies were identified as belonging to the Ex class (Table 5).

According to Else et al. (2008), simple analogies are useful educational tools for creating general familiarity, because they provide entry-level knowledge about a completely unfamiliar topic. Bean et al. (1985) and Duit (1991) state that because of their structure, simple analogies are more helpful to students at lower levels than to those with deeper knowledge of a topic. The large number of simple analogies in Turkish high school science textbooks suggests that these books have been prepared with lower-level students in mind.

Many scholars have argued that a target concept can be taught more comprehensively by utilizing En analogies rather than S analogies, which concern only the most basic relationships (Duit et al., 2001; Glynn et al., 1989; Harrison and Treagust, 2006; Iding, 1997; Orgill and Bodner, 2006; Thiele and Treagust, 1994). In this sense, it is important to include high numbers of En and Ex analogies in textbooks. En and Ex analogies are those in which the limits of an analogy are determined accurately, and multiple mappings between the analog and the target can be established. Establishing these types of analogies

may require more effort and additional research. Perhaps for these reasons, secondary education science textbooks are less likely to contain En and Ex analogies.

### Conflict of interests

The author has not declared any conflict of interests.

### REFERENCES

- Atav E, Erdem E, Yılmaz A, Gücüm B (2004). Enzimler konusunun anlamlı öğrenilmesinde analogiler oluşturmanın etkisi. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi*. 27(1):21-29.
- Ausubel DP (1980). Schemata, cognitive structure, and advance organizers: A reply to Anderson, Spiro, and Anderson. *Am. Educ. Res. J.* 17(3):400-404.
- Aykutlu I, Şen Al (2011). Using analogies in determining and overcoming high school students' misconceptions about electric current. *Necatibey Faculty of Education Electronic J. Sci. Math. Educ.* 5(2):221-250.
- Baker WP, Lawson AE (2001). Complex instructional analogies and theoretical concept acquisition in college genetics. *Sci. Educ.* 85(6):665-683. DOI: 10.1002/sce.1031.
- Bean TW, Singer H, Cowan S (1985). Analogical study guides: Improving comprehension in science. *J. Reading* 29(3):246-250.
- Beyazıt İ (2011). Öğretmen Adaylarının Matematik Öğretiminde Analoji Kullanımları Konusundaki Görüş ve Yeterlilikleri. *Selçuk Üniversitesi Ahmet Keleşoğlu Eğitim Fakültesi Dergisi* 31:139-158.
- Blake A (2004). Helping young children to see what is relevant and why: Supporting cognitive change in earth science using analogy. *Int. J. Sci. Educ.* 26(15):1855-1873. DOI: 10.1080/0950069042000266173.
- Çalık M, Ayas A, Coll RK (2009). Investigating the effectiveness of an analogy activity in improving students' conceptual change for solution chemistry concepts. *Int. J. Sci. Math. Educ.* 7(4):651-676. DOI: 10.1007/s10763-008-9136-9.
- Çalık M., Kaya E (2012). Examining analogies in science and technology textbooks and science and technology curriculum. *Elementary Educ. Online* 11(4):856-868.
- Casakin H, Goldschmidt G (1999). Expertise and the use of visual analogy: Implications for design education. *Design Stud.* 20(2):153-175. DOI: 10.1016/S0142-694X(98)00032-5.
- Chiu MH, Lin JW (2005). Promoting fourth graders' conceptual change of their understanding of electric current via multiple analogies. *J. Res. Sci. Teach.* 42(4):429-464. DOI: 10.1002/tea.20062.
- Curtis RV, Reigeluth CM (1984). The use of analogies in written text. *Instructional Sci.* 13(2):99-117. DOI: 10.1007/BF00052380.
- Dagher ZR (1995). Review of studies on the effectiveness of instructional analogies in science education. *Sci. Educ.* 79(3):295-312. DOI: 10.1002/sce.3730790305.
- de Posada JM (1999). The presentation of metallic bonding in high school science textbooks during three decades: science educational reforms and substantive changes of tendencies. *Sci. Educ.* 83(4):423-447. DOI: 10.1002/(SICI)1098-237X(199907)83:4<423::AID-SCE3>3.0.CO;2-9.
- Demirci Güler P, Yağbasan R (2008). Fen ve teknoloji ders kitaplarında kullanılan analogilerin ve analogilere ilişkin sorunların betimlenmesi. *İnönü Üniversitesi Eğitim Fakültesi Dergisi*. 9(16):105-122.
- Dikmenli M (2010). An analysis of analogies used in secondary school biology textbooks: Case of Turkey. *Eurasian J. Educ. Res.* 10(4):73-90.
- Duit R (1991). On the role of analogies and metaphors in learning science. *Sci. Educ.* 75(6):649-672. DOI: 10.1002/sce.3730750606.
- Duit R., Rot WM, Komorek M, Wilbers J (2001). Fostering conceptual change by analogies—between Scylla and Charybdis. *Learn. Instruction.* 11(4):283-303. DOI: 10.1016/S0959-4752(00)00034-7.
- Dupin JJ, Johsua S (1989). Analogies and "modeling analogies" in teaching: Some examples in basic electricity. *Sci. Educ.* 73(2):207-224. DOI: 10.1002/sce.3730730207.
- Else MJ, Clement J, Rea-Ramirez MA (2008). Using analogies in science teaching and curriculum design: Some guidelines. In J Clement, MA Rea-Ramirez (Eds.): *Model Based Learning and Instruction in Science* (pp. 215-231). Netherlands: Springer.
- Gentner D (1989). The mechanisms of analogical learning. In S Vosniadou, A Ortony (Eds.): *Similarity and Analogical Reasoning* (pp. 199-241). Cambridge, UK: Cambridge University Press.
- Gentner D (1998). Analogy. In: W Bechtel, G Graham (Eds.): *A Companion to Cognitive Science* (pp. 107-113). Malden: Blackwell.
- Giora R (1993). On the function of analogies in informative texts. *Discourse Processes* 16(4):591-611. DOI: 10.1080/01638539309544855.
- Glynn SM (1991). Explaining science concepts: A teaching-with-analogies model. In SM Glynn, RH Yeany, BK Britton (Eds.): *The Psychology of Learning Science* (pp. 219-240). Hillsdale, NJ: Lawrence Erlbaum.
- Glynn SM, Britton BK, Semrud-Clikeman M, Muth KD (1989). Analogical reasoning and problem solving in science textbooks. In JA Glover, RR Ronning, C Reynolds (Eds.): *Handbook of Creativity* (pp. 383-398). New York: Springer.
- Glynn SM, Takahashi T (1998). Learning from analogy-enhanced science text. *J. Res. Sci. Teach.* 35(10):1129-1149. DOI: 10.1002/(SICI)1098-2736(199812)35:10<1129::AID-TEA5>3.0.CO;2-2.
- Goswami U (1992). *Analogical Reasoning in Children*. Hillsdale, NJ: Lawrence Erlbaum.
- Goswami U (2008). *Cognitive Development: The Learning Brain*. Hove, East Sussex: Psychology Press.
- Güneş B, Gülçiçek Ç, Bağcı N (2004). Eğitim fakültelerindeki fen ve matematik öğretim elemanlarının model ve modelleme hakkındaki görüşlerinin incelenmesi. *Türk Fen Eğitimi Dergisi*. 1(1):35-48.
- Harrison A, de Jong O (2005). Using multiple analogies: Case study of a chemistry teacher's preparations, presentations and reflections. In K Boersma, M Goedhart, O de Jong, H Eijkelhof (Eds.): *Research and the Quality of Science Education*. Netherlands: Springer. pp. 353-364.
- Harrison AG (2001). How do teachers and textbook writers model scientific ideas for students? *Research in Science Education*. 31(3): 401-435. DOI: 10.1023/A:1013120312331.
- Harrison AG, Treagust DF (2000a). Learning about atoms, molecules, and chemical bonds: A case study of multiple-model use in grade 11 chemistry. *Sci. Educ.* 84(3):352-381. DOI: 10.1002/(SICI)1098-237X(200005)84:3<352::AID-SCE3>3.0.CO;2-J.
- Harrison AG, Treagust DF (2000b). A typology of school science models. *Int. J. Sci. Educ.* 22(9):1011-1026. DOI: 10.1080/095006900416884.
- Harrison AG, Treagust DF (2006). Teaching and learning with analogies. In PJ Aubusson, AG Harrison, SM Ritchie (Eds.): *Metaphor and Analogy in Science Education* (pp. 11-24). Netherlands: Springer.
- Hulshof H, Verloop N (2002). The use of analogies in language teaching: Representing the content of teachers' practical knowledge. *J. Curriculum Stud.* 34(1):77-90. DOI: 10.1080/00220270110037177.
- Iding MK (1997). How analogies foster learning from science texts. *Instructional Sci.* 25(4):233-253. DOI: 10.1023/A:1002987126719.
- Kayhan E (2009). Sekizinci sınıf fen bilgisi dersi maddedeki değişim ve enerji ünitesinde analoji yöntemine dayalı öğretimin öğrencilerin akademik başarılarına ve kalıcılığa etkisi. (Unpublished master's thesis): Çukurova University Social Science Institute, Adana.
- Kılıç Ö (2009). Öğretmen ve öğrenci merkezli analoji kullanımının dolaşım sistemi konusundaki başarıya etkisi. (Unpublished master's thesis): Sakarya University Institute of Sciences, Sakarya.
- Kobal S, Şahin A, Kara İ (2014). Fen ve teknoloji dersinde analogilere dayalı öğretimin öğrencilerin başarıları ve hatırdı tutma düzeyi üzerindeki etkisi. *Pamukkale Üniversitesi Eğitim Fakültesi Dergisi* 36:151-162.
- Lawson AE (1993). The importance of analogy: A prelude to the special issue. *J. Res. Sci. Teach.* 30(10):1213-1214. DOI: 10.1002/tea.3660301004.

- Leech R, Mareschal D, Cooper RP (2008). Analogy as relational priming: A developmental and computational perspective on the origins of a complex cognitive skill. *Behavioral Brain Sci.* 31(4):357-378. DOI: 10.1017/S0140525X08004469.
- Miles MB, Huberman AM (1994). *Qualitative Data Analysis: An Expanded Sourcebook*. Beverly Hills, London: Sage Publications.
- MONE (2014). *National Education Statistics: Formal Education 2013-2014*. Ankara: Milli Eğitim Basımevi.
- Nashon SM (2004). The nature of analogical explanations: High school physics teachers use in Kenya. *Res. Sci. Educ.* 34(4):475-502. DOI: 10.1007/s11165-004-3229-4.
- Newton DP (2000). *Teaching for Understanding: What It Is and How to Do It*. London: Routledge-Falmer.
- Newton DP, Newton LD (1995). Using analogy to help young children understand. *Educ. Stud.* 21(3):379-393. DOI: 10.1080/0305569950210305.
- Newton LD (2003). The occurrence of analogies in elementary school science books. *Instructional Sci.* 31(6):353-375. DOI: 10.1023/A:1025706410666.
- Novak JD (1998). Learning, creating, and using knowledge. *Concept Maps as Facilitative Tools in Schools and Corporations*. Mahwah, NJ: Lawrence Erlbaum.
- Oliva JM, Azcárate P, Navarrete A (2007). Teaching models in the use of analogies as a resource in the science classroom. *Int. J. Sci. Educ.* 29(1): 45-66. DOI: 10.1080/09500690600708444.
- Orgill M, Bodner G (2007). Locks and keys. *Biochemistry and Molecular Biology Educ.* 35(4):244-254. DOI: 10.1002/bmb.66.
- Orgill M, Bodner GM (2006). An analysis of the effectiveness of analogy use in college-level biochemistry textbooks. *J. Res. Sci. Teach.* 43(10):1040-1060. DOI: 10.1002/tea.20129.
- Pittman KM (1999). Student-generated analogies: Another way of knowing? *J. Res. Sci. Teach.* 36(1):1-22. DOI: 10.1002/(SICI)1098-2736(199901)36:1<1::AID-TEA2>3.0.CO;2-2.
- Richland LE, Holyoak KJ, Stigler JW (2004). Analogy use in eighth-grade mathematics classrooms. *Cogn. Instr.* 22(1):37-60. DOI: 10.1207/s1532690Xci2201\_2.
- Sánchez G, Valcarcel MV (1999). Science teachers' views and practices in planning for teaching. *J. Res. Sci. Teach.* 36(4):493. DOI: 10.1002/(SICI)1098-2736(199904)36:4<493::AID-TEA6>3.0.CO;2-P
- Şendur G, Toprak M, Pekmez EŞ (2008). Buharlaşma ve kaynama konularındaki kavram yanlışlarının önlenmesinde analogi yönteminin etkisi. *Ege Eğitim Dergisi* 9(2):32-58.
- Souza KAF, Porto PA (2012). Chemistry and chemical education through text and image: Analysis of twentieth century textbooks used in Brazilian context. *Sci. Educ.* 21(5):705-727. DOI: 10.1007/s11191-012-9442-z.
- Spiro RJ (1988). Multiple analogies for complex concepts: antidotes for analogy-induced misconception in advanced knowledge acquisition. Technical Report No. 439.
- Stollak MA, Alexander L (1998). The use of analogy in the rehearsal. *Music Educators J.* 84(6):17-21. DOI: 10.2307/3399096.
- Sutton C (1992). *Words, Science, and Learning*. Philadelphia, PA: Oxford.
- Thiele RB, Treagust DF (1994). The nature and extent of analogies in secondary chemistry textbooks. *Instructional Sci.* 22(1):61-74. DOI: 10.1007/BF00889523.
- Thiele RB, Treagust DF (1995). Analogies in chemistry textbooks. *Int. J. Sci. Educ.* 17(6):783-795. DOI: 10.1080/0950069950170609.
- Toprak M, Pekmez ES (2011). An analysis of analogies used in secondary chemistry textbooks. *Procedia Computer Sci.* 3:307-311. DOI: 10.1016/j.procs.2010.12.052.
- Treagust DF, Duit R, Joslin P, Lindauer I (1992). Science teachers' use of analogies: Observations from classroom practice. *Int. J. Sci. Educ.* 14(4):413-422. DOI: 10.1080/0950069920140404.
- Treagust DF, Harrison AG, Venville GJ (1998). Teaching science effectively with analogies: An approach for preservice and inservice teacher education. *J. Sci. Teacher Educ.* 9(2):85-101. DOI: 10.1023/A:1009423030880.
- Venville GJ, Treagust DF (1996). The role of analogies in promoting conceptual change in biology. *Instructional Sci.* 24(4):295-320. DOI: 10.1007/BF00118053.
- Vosniadou S (1994). Capturing and modeling the process of conceptual change. *Learn. Instruction* 4(1):45-69. DOI: 10.1016/0959-4752(94)90018-3.
- Wilbers J, Duit R (2006). Post-festum and heuristic analogies. In PJ Aubusson, AG Harrison, SM Ritchie (Eds.): *Metaphor and Analogy in Science Education*. Netherlands: Springer pp. 37-49.
- Wormeli R (2009). *Metaphors & Analogies: Power Tools for Teaching Any Subject*. Maine: Stenhouse Publishers.
- Yener D (2012). A study on analogies presented in high school physics textbooks. *Asia-Pacific Forum on Sci. Learn. Teach.* 13(1):1-17.

*Full Length Research Paper*

# Comparison of sports sciences and education faculty students' aggression scores

Tülin Atan

University of Ondokuz Mayıs, Yaşar Doğu Sports Sciences Faculty, Samsun-Turkey.

Received 28 July, 2016; Accepted 23 September, 2016

The aim of this study was to compare the aggression scores of Sports Sciences Faculty and Education Faculty students and also to examine the effects of some demographic variables on aggression. Two hundred Sports Sciences Faculty students (who engage in sporting activities four days a week for two hours) and 200 Education Faculty students (who do not engage in sports) participated in the study. The Aggressiveness Inventory was used to determine the aggression scores which has three sub-dimensions, such as disruptive aggression (DA), assertiveness (AS) and passive aggression (PA). General Aggression Scores (GAS) was examined. DA, PA and GAS scores were not found to be significantly different between two faculties ( $p>0.05$ ); only the AS scores of Physical Education students were higher than the scores of Education Faculty students ( $p<0.05$ ). In conclusion, participation in sports increases assertiveness but the level of aggression does not change because of gender. Assertiveness levels increased as the educational class study increased. Smoking and drinking increased the levels of DA and GA.

**Key words:** Sports, aggression, assertiveness.

## INTRODUCTION

Aggression is defined as a hostile, offending, battering, agonizing and painful behavior in order to triumph over someone, to rule someone or to disrupt or invalidate something. On the other hand, aggressive behaviors are goal-oriented behaviors and they can be directed at a person, group or society (Tiryaki 2000). Aggression is the physical or verbal behavior of people which are conducted to hurt other persons (Arkonac 1998). Researchers have examined and grouped aggression into various types. The three major types of aggression are disruptive, assertive and passive aggression. Disruptive aggression

involves the display of undesired behavior, assertive aggression presents desired behavior, while passive aggression involves the presentation of desired behavior (Kiper 1984). Lorenz stated that aggression originated from the instinct of fighting which occur among entities. The aggressive energy is generated in each person at varying rates. The appearance of aggression depends on the accumulated energy and the presence and strength of the aggression-inducing stimulus. Lorenz further stated that experiencing aggression was right and necessary to balance the tendencies of hostility and violence and to

E-mail: [takman@omu.edu.tr](mailto:takman@omu.edu.tr).

Authors agree that this article remain permanently open access under the terms of the [Creative Commons Attribution License 4.0 International License](https://creativecommons.org/licenses/by/4.0/)

turn them into harmless activities. Aggression is inevitable and sometimes it can be discharged spontaneously (Ikizler 1993).

While some scientists want to explain aggression as an instinct to kill in human nature, some try to define it as a controllable and predictable, learned social behavior (Kabak 2009). In addition, Lorenz assessed aggression in two different ways, acceptable and unacceptable. While war is an unacceptable act to show human aggression, sport is an acceptable act (Tiryaki 2000). Sport competitions and competitive circumstances form a suitable basis for aggression displays. However, we cannot describe every behavior that harms the opponent as aggression.

The limits of aggression in sport activities are determined by the intention and deliberateness of the action done by the rules of the related sports branch (Ikizler et al., 1997). Some sport psychologists agree that aggression facilitates performance outcome, whereas others feel it does not (Deepika and Jain 2015). Aggression in sports is a way to discharge. A person can eliminate the aggressive behavior forbidden by the society through sports. Human beings have this ambition and aggressive behavior in sport activities instead of riots, such as rebelling against authority and arguing against pressure. These people are satisfied by beating their opponents mentally and physically through sports. However, some people argue that they cannot discharge their desires for aggression through sports; on the contrary they argue that their desire increases through sports (Sahin, 2003). Sports participation may, in some instances, accentuate the relationship between alcohol and violence. Nonetheless, there is scant research directed specifically at alcohol-related violence in the sport context (Sonderlund et al., 2014). The purpose of this study was to compare the aggression levels of students who participate in sports activities and those who do not and to find out the effect of sports on aggression. Also, the effects of some demographic variables on aggression were examined.

## METHODOLOGY

### Study group

Data were collected from a sample of 400 participants. Two hundred were students from the Sports Faculty (who participate in sports at least four days a week for two hours) and 200 were students from the Education Faculty (who do not sport). They were instructed that the survey was being conducted by a university-affiliated researcher and there was no monetary incentive for participating. Participants were required to be university students over the age of 18. The average age of the Sports Faculty participants was 20.80 (SD = 1.94) years and Education Faculty students was 20.19 (SD = 1.89) years. Demographic data questionnaire and Aggressiveness Inventory were used for data collection. The questionnaire used in this study consisted of 6

items. The items focused on demographic details, including faculty, age, gender, educational class, smoking and alcohol status.

### The aggressiveness inventory

The inventory developed by Kiper (1984) was used for determining the aggression scores. The inventory consisted of 30 questions with three sub dimensions which are disruptive aggression (DA), assertiveness (AS) and passive aggression (PA). The inventory rated the feelings of the subjects using a seven-point Likert type scale (-3 to +3) ranging from "it suits me" to "it does not suit me". The score of each sub-test in the inventory is 1 at minimum and 61 at maximum. The subject responding in the form of 'it does not suit me,' for each question of the inventory has -30 points for each sub-test; 'it suits me a lot' takes +30 points for each sub-test. However, since it is not statistically possible to use negative points as they are (by Kiper) because the number zero can create a problem, number 31 was added to each point in order to eliminate the number zero so that each sub-test score will be 1 at minimum and maximum, 61. Through, the help of the total scores of each of the three subscales, a general aggression (GA) score was obtained for each subject, although not all three facet scores for each subject on the basis of the overall score were obtained (Kiper 1984; Cetin et al., 2013).

### Statistical analysis

The SPSS 19 package software was used for the statistical analyses of data. The possibility that the data managed a normal distribution was scanned with the Kolmogorov-Smirnov test. Non-parametric tests were used since data sets are not usually distributed. Mann Whitney-U test and Kruskal Wallis test were used for the statistical analysis. The level of significance was set at 0.05 and 0.01 but when the comparison number was three, in each Bonferroni corrected Mann Whitney U tests, the level of significance taken into account was  $0.05/3=0.0167$ .

## RESULTS

Table 1 shows the aggression scores of two different faculty students. The DA, PA and GAS scores were not found to be significantly different among the Sports Sciences and Educational Faculty students ( $p>0.05$ ). AS scores of Physical Education students were higher than the scores of Education Faculty students ( $p<0.05$ ). Table 2 shows the aggression scores of female and male students. DA, AS, PA and GAS scores were not found to be significantly different between female and male students ( $p>0.05$ ). Table 3 shows the aggression scores according to Educational Classes. DA, PA and GAS scores were not found to be significantly different between classes ( $p>0.05$ ). The AS scores of the 3rd class students were higher than the scores of the 1st class students ( $p<0.0167$ ). Table 4 shows the aggression scores according to smoking or not. DA and GA scores were higher in smokers than non-smokers ( $p<0.05$ ). AS and PAS scores were parallel between smokers and non-smokers ( $p>0.05$ ). Table 5 shows the aggression scores for alcohol usage. The DA and GA scores were higher in

**Table 1.** Aggression scores of the students.

| Parameter                | Faculty         | n   | Median | Min   | Max    | Z      | p      |
|--------------------------|-----------------|-----|--------|-------|--------|--------|--------|
| Disruptive aggression    | Sports sciences | 200 | 31.50  | 6.00  | 60.00  | -0.463 | 0.643  |
|                          | Education       | 200 | 32.50  | 9.00  | 53.00  |        |        |
| Assertiveness            | Sports sciences | 200 | 49.50  | 22.00 | 61.00  | -2.14  | 0.032* |
|                          | Education       | 200 | 45.00  | 20.00 | 61.00  |        |        |
| Passive aggression       | Sports sciences | 200 | 27.50  | 6.00  | 61.00  | -0.659 | 0.510  |
|                          | Education       | 200 | 26.00  | 3.00  | 53.00  |        |        |
| General aggression score | Sports sciences | 200 | 106.50 | 43.00 | 172.00 | -0.419 | 0.675  |
|                          | Education       | 200 | 105.00 | 47.00 | 152.00 |        |        |

\*p&lt;0.05.

**Table 2.** Aggression scores of female and male students.

| Parameter                | Gender | n   | Median | Min   | Max    | Z      | p     |
|--------------------------|--------|-----|--------|-------|--------|--------|-------|
| Disruptive aggression    | Female | 183 | 32.00  | 8.00  | 50.00  | -0.834 | 0.405 |
|                          | Male   | 217 | 32.00  | 6.00  | 60.00  |        |       |
| Assertiveness            | Female | 183 | 45.00  | 20.00 | 61.00  | -1.144 | 0.253 |
|                          | Male   | 217 | 48.00  | 20.00 | 61.00  |        |       |
| Passive aggression       | Female | 183 | 27.00  | 7.00  | 48.00  | -0.313 | 0.755 |
|                          | Male   | 217 | 26.00  | 3.00  | 61.00  |        |       |
| General aggression score | Female | 183 | 104.00 | 43.00 | 144.00 | -0.970 | 0.332 |
|                          | Male   | 217 | 107.00 | 54.00 | 172.00 |        |       |

**Table 3.** Aggression scores according to educational classes.

| Parameter                | Class | n   | Median | Min   | Max    | Chi-Square | p    |
|--------------------------|-------|-----|--------|-------|--------|------------|------|
| Disruptive aggression    | 1     | 152 | 30.50  | 8.00  | 52.00  | 1.698      | -    |
|                          | 2     | 132 | 36.00  | 6.00  | 53.00  |            |      |
|                          | 3     | 116 | 32.50  | 8.00  | 60.00  |            |      |
| Assertiveness            | 1     | 152 | 45.00  | 20.00 | 61.00  | 6.871      | 1<3* |
|                          | 2     | 132 | 48.00  | 22.00 | 61.00  |            |      |
|                          | 3     | 116 | 49.00  | 28.00 | 61.00  |            |      |
| Passive aggression       | 1     | 152 | 25.00  | 8.00  | 58.00  | 3.891      | -    |
|                          | 2     | 132 | 29.50  | 3.00  | 61.00  |            |      |
|                          | 3     | 116 | 26.00  | 6.00  | 55.00  |            |      |
| General aggression score | 1     | 152 | 99.50  | 47.00 | 160.00 | 3.854      | -    |
|                          | 2     | 132 | 109.50 | 43.00 | 151.00 |            |      |
|                          | 3     | 116 | 105.50 | 61.00 | 172.00 |            |      |

\*p&lt;0.0167.

**Table 4.** Comparison of aggression scores for smoking.

| Parameter                | Smoking | n   | Median | Min   | Max    | Z      | p       |
|--------------------------|---------|-----|--------|-------|--------|--------|---------|
| Disruptive aggression    | Yes     | 165 | 37.00  | 6.00  | 53.00  | -3.164 | 0.002** |
|                          | No      | 235 | 31.00  | 8.00  | 60.00  |        |         |
| Assertiveness            | Yes     | 165 | 49.00  | 20.00 | 61.00  | -1.048 | 0.295   |
|                          | No      | 235 | 46.00  | 22.00 | 61.00  |        |         |
| Passive aggression       | Yes     | 165 | 27.00  | 3.00  | 61.00  | -0.694 | 0.488   |
|                          | No      | 235 | 26.00  | 6.00  | 55.00  |        |         |
| General aggression score | Yes     | 165 | 110.00 | 64.00 | 160.00 | -2.602 | 0.009** |
|                          | No      | 235 | 102.00 | 43.00 | 172.00 |        |         |

\*\*p&lt;0.01.

**Table 5.** Comparison of aggression scores according to using alcohol or not.

| Parameter                | Alcohol | n   | Median | Min   | Max    | Z      | p       |
|--------------------------|---------|-----|--------|-------|--------|--------|---------|
| Disruptive aggression    | Yes     | 156 | 39.00  | 6.00  | 53.00  | -3.844 | 0.000** |
|                          | No      | 244 | 30.00  | 8.00  | 60.00  |        |         |
| Assertiveness            | Yes     | 156 | 49.00  | 22.00 | 61.00  | -1.576 | 0.115   |
|                          | No      | 244 | 46.00  | 20.00 | 61.00  |        |         |
| Passive aggression       | Yes     | 156 | 27.00  | 5.00  | 58.00  | -.581  | 0.561   |
|                          | No      | 244 | 26.00  | 3.00  | 61.00  |        |         |
| General aggression score | Yes     | 156 | 111.50 | 54.00 | 160.00 | -2.910 | 0.004** |
|                          | No      | 244 | 102.00 | 43.00 | 172.00 |        |         |

\*\*p&lt;0.01.

students who take alcohol ( $p<0.01$ ), while the AS and PAS scores were similar between students who take alcohol or not ( $p>0.05$ ).

## DISCUSSION

This study examined the aggression scores of students studying at faculties of Sports Sciences and Education. The effects of some demographic variables on aggression were also examined. In our study, the DA, PA and GAS aggression scores of the students studying at two different departments were similar. For the AS scores, that of the students in the faculty of Sports Sciences were found to be higher than those in the Faculty of Education. This finding coincides with the results of previous studies (Dervent et al., 2010; Solak 2011; Gokcicek, 2015). Assertiveness is defined as an individual's ability to

express his feelings clearly without anxiety for his own benefits. Also, every behavior allows the use of the individual's own rights by accepting the rights of others. In assertiveness, an individual does not ignore his rights. An athlete's using his physical strength within the rules of the game can be considered as assertiveness, a boxer who knocks down his opponent with a proper fist is considered as not aggressive, but assertive (Kiper, 1984).

Dervent (2010) in his study titled "The aggression levels of high school students and the association between these levels and their participation in sportive activities" found that the students who did sports showed more assertiveness than those who did not; however, no difference was found in other aggression characteristics. In his study, Solak (2011) concluded that the assertiveness scores of the students who did sports were higher than those who did not. In a previous study, the aggression levels of university students were examined in

terms of demographic variables. The students at the faculty of Sports Sciences were found to have higher assertiveness levels when compared with disruptive and passive aggression (Kaya et al., 2010). Zubic et al. (2013) concluded that the students of Physical Training department had higher levels of aggression when compared with the students of Electronic Engineering. When aggression levels of students of Physical Training department and other departments were examined, it was concluded that the students of Physical Training department would prefer to use physical strength to seek their rights against injustice (Bostan et al., 2008).

Yildiz (2009) in his study named "Examination of the aggression levels of secondary school students who do and do not do sports", did not find any differences between the general aggression and assertiveness of the students who do and do not do sports. However, a significant difference was found in the disruptive behaviors of the students who did sports. There was a significant difference in the passive aggression of the students who do not engage in sports. Gokcicek (2015) showed that the students who did sports were more assertive than those who did not. It can be said that the students who did sports were found to be more assertive because they were in continual communication with their trainers and referees and they knew what to do, when they faced situations they had to defend themselves and also because their communication skills were developed through sports. Conversely, our results are different from the results of previous studies which reported that athletes are not more assertive. In a particular study, no significant difference was found between the aggression levels of the students of Physical Education and Sports School students in terms of whether they do sports or not in a licensed way (Cetin et al., 2013). According to the results of Oda's (2014) study, no significant difference was found in students' aggression scores in terms of their state of doing sports.

When the literature was reviewed, no significant difference was found between genders in general in terms of aggression levels. The results of our study were in line with the literature. No difference was found between general aggression scores in terms of the variable of gender. This finding coincides with the results of previous studies. In their study, Crick and Grotpeter (1995) systematically examined how aggression is expressed between genders. They found no difference between the aggression levels of girls and boys and that they had the same level of aggression scores. They found that girls and boys showed the same level of aggression and expressed their anger in different ways, boys were more extroverted about aggression, while the girls were more introverted and they showed a more social aggression. For aggression levels of athletes involved in team or individual sports, it was concluded that there were no significant differences in

terms of the variable of gender (Guner, 2006). Karatas (2005) examined the association between parent aggression and high school students' aggression and concluded that there were no significant differences between the variable of gender and aggression.

For the analysis conducted for the sub dimensions of general aggression and disruptive aggression, no significant difference was found between male and female subjects (Yildiz, 2009). In a group of 129 high school students, differences in aggression in terms of gender were analyzed and it was established that their verbal aggression did not differ in terms of gender, while men were found to use physical aggression (Scharf, 2000). Insignificant differences between groups can be explained by the close results of the groups since they had similar life styles, leanings and behaviors towards events, and the expression of students who participate in sports and who do not, were analyzed regardless of gender (Gokcicek 2015). The association between aggressive behavior in men and women and the 'monoamine oxidase A' (MAO-A) enzyme were examined. In line with these results, they emphasized that the reasons for their aggressive behavior were not due to lack of social skills but by the problems in the release of the MOA-Aenzyme controlled by the gene of crime and by some other problems (Eisenberger et al., 2007). On the other hand, our results are different from the results of some previous studies which reported significant differences between aggression scores of genders. Cakir (2014) found that men were more aggressive than women. In one study, the girls who did sports were more assertive than men who did sports and the other aggression features were close (Derwent et al., 2010). In Keskin's (2015) study, it was found that men had higher disruptive aggression score than women and the women's assertiveness was higher when compared with men.

The association between aggression and focus of control was examined in 580 high school students; according to the results of the study, average aggression scores of male students were significantly higher than those of female students (Efilti, 2008). The prevalence of violence and aggression among a total of 3007 people between the ages 15 and 60 was examined. According to the results of the study, males between the ages of 15 and 24 were found to be more aggressive (Duque, 2003). In a research on the association between gender and aggression in adolescents, it was concluded that male students were more inclined to show aggressive behaviors when compared to female students (Giles, 2005). In the study of Cetin et al. (2013), the disruptive aggression and assertiveness levels of female students appear to be significantly higher than male students. In our study, the first, second and third year students' aggression scores were compared and the assertiveness levels of students in their third year were found



to be higher than those of the students in their first year.

Ersan et al. (2009) found the differences in the aggression scores of the second and fourth year students at the Physical Training Teaching department to be statistically significant. The results of the study are parallel with our results in terms of the variable of educational class. In a study on high school students, it was determined that the mean aggression score of students in the 10th and 11th grades were higher than the mean aggression score of students in 9th grade (Kurtoglu, 2009).

In this study, DA and GA levels of smokers and those who drink were found to be higher. It was stated that the consumption of cigarette and alcohol contributes to the increase in their scores (Bayram, 2012). Having a habit like smoking was one of the effective factors in the emergence of intensity (Karaoglu et al., 2006). Alcohol consumption was found to cause aggressive behaviors by causing an increase in anger and post-traumatic stress disorder levels (Eckhardt, 2007). Based on the studies reviewed, alcohol consumption, violence and sports participation appear to be connected. Further, the available evidence indicates a higher rate of alcohol consumption and violence in athlete populations than non-athlete populations, suggesting a moderating effect of sports participation in the positive relationship observed between alcohol use and violence (Sonderlund et al., 2014).

## Conclusions

In conclusion, it can be said that participation in sports increase assertiveness, but gender does not influence aggression level. Assertiveness levels increase as the educational class study increase; in addition, smoking and drinking increase the levels of DA and GA.

## Conflict of interest

The author has not declared any conflict of interest.

## REFERENCES

- Arkonac SA (1998). *Psychology mind process science*. 2<sup>nd</sup> Edition. Alfa Printing Publication, Istanbul.
- Bayram Y (2012). Examining aggression attitudes of students at between 14 and 18 ages who do physical exercise and who don't do physical exercise. Unpublished master's thesis, Institute of Health Sciences, Samsun: Ondokuz Mayıs University.
- Bostan G, Kılıçgil E (2008). Aggression dimensions of school of physical education and sport students and other Ankara University students. *Sportmetre J. Physical Educ. Sports* 6(3):133-140.
- Cakir HI (2014). Research of aggressive states of student athlete participating inter high school competitions the case of Rize city. Unpublished master's thesis, Institute of Health Sciences, Kutahya: Dumlupınar University.
- Cetin MC, Gezer E, Yıldız O, Yıldız M (2013). Investigation of the relationship between aggression levels and basic psychological needs school of physical education and sports student. *Int. J. Hum. Sci.* 10(1):1738-1753.
- Crick NR, Grotpeter JK (1995). Relational aggression, gender, and social psychological adjustment. *Child Dev.* 66(3):710-722.
- Deepika H, Jain N (2015). A comparative study of aggression in state and district level sports persons of haryana (body builders). *Indian J. Health Wellbeing* 6(3):338-340.
- Dervent F, Arslanoglu E, Senel O (2010). Aggressivity levels of the high school students and relation with their participation to sport activities. *Int. J. Hum. Sci.* 7(1):521-533.
- Duque LF, Klevens J, Ramirez C (2003). Overlap and correlates of different types of aggression among adults: results from a cross-sectional survey in Bogotá, Colombia. *Aggressive Behav.* 29(3):191-201.
- Eckhardt CI (2007). Effects of alcohol intoxication on anger experience and expression among partner assaultive men. *J. Consult. Clin. Psychol.* 75(1):61-71.
- Efiltili E (2008). Observation of students' aggressiveness, locus of control and personal features in high school. *Selcuk University the J. Institute Soc. Sci.* 19:213-230.
- Eisenberger NI, Way BM, Taylor SE, Welch WT, Lieberman MD (2007). Understanding genetic risk for aggression: clues from the brain's response to social exclusion. *Biol. Psychiatry* 61(9):1100-1108.
- Ersan EE, Dogan O, Dogan S (2009). The evaluation from point of view sociodemographic variables of the levels of aggression in the students of College of Physical Education and Sports. *Cumhuriyet Med. J.* 31:231-238.
- Giles J, Heyman GD (2005). Young children's beliefs about the relationship between gender and aggressive behavior. *Child Dev.* 76(1):107-121.
- Gokcicek S (2015). Investigating the aggressive behavior of high school students that are playing sports and that are not playing sports (the case of Samsun). Unpublished master's thesis, Institute of Health Sciences, Kutahya: Dumlupınar University.
- Guner C (2006). Examination of the level of aggression of individuals participating team and individual Sports. Unpublished master's thesis, Institute of Health Sciences, Samsun: Ondokuz Mayıs University.
- Ikizler C (1993). *Psychology of sports success*. Alfa Printing Publication, Istanbul.
- Ikizler C, Karagozoglu C (1997). *Success psychology in sports*. 3<sup>rd</sup> edition. Alfa Printing Publication, Istanbul.
- Kabak F (2009). Effect of sport participation on aggressive behaviors in adolescents. Unpublished master's thesis, Institute of Health Sciences, Adana: Cukurova University.
- Karaoglu N, Civi S, Kutlu R, Marakoglu K (2006). Evaluation of the socio-demographic characteristics of persecutors according to female victims: A community-based study in Konya. *Turkiye Klinikleri J. Med. Sci.* 26(5):522-6.
- Karatas ZB (2005). Relationship of parent's aggression and student's aggression. *Cagdas Egitim Dergisi* 317:30-39.
- Kaya D, Yaylaci HS (2010). Evaluation of the aggressiveness levels of the university students in terms of demographics (sample of Akdeniz University School of Physical Education). Antalya: 11th International Sports Sciences Congress.
- Keskin C (2015). Investigation of aggression status of high school students who participating the interscholastic sport competitions, Zonguldak-Kozlu example. Unpublished master's thesis, Institute of Health Sciences, Kutahya: Dumlupınar University.
- Kiper I (1984). Several species of aggression on economic, social and academic correlations. [Unpublished master's thesis], Social Sciences Institute, Ankara: Ankara University.
- Kurtoglu E (2009). The investigation of aggression level of high school students in terms of automatic thoughts, gender and the level of the class. Unpublished master's thesis, Institute of Social Sciences, Samsun: Ondokuz Mayıs University.
- Oda B (2014). Investigation of the level of aggression and optimism on the students aged 11-13 who do sports or not. Unpublished master's thesis, Institute of Health Sciences, Samsun: Ondokuz Mayıs University.

- Sahin HM (2003). Violence and aggression in sports. Nobel Publication, Ankara.
- Scharf SC (2000). Gender differences in adolescent aggression: an analysis of instrumentality vs. expressiveness. Unpublished Doctoral Thesis, Clinical Psychology, USA: Michigan University.
- Solak N (2011). Examination of the relationship between the levels of aggression and levels of the emphatic tendencies of secondary education students who do sports and those who do not do sports. Unpublished master's thesis, Institute of Education Sciences, Ankara: Gazi University.
- Sonderlund AL, O'Brien K, Kremer P, Rowland B, De Groot F, Staiger P, Zinkiewicz L, Miller PG (2014). The association between sports participation, alcohol use and aggression and violence: A systematic review. *J. Sci. Med. Sport* 17(1):2-7.
- Tiryaki S (2000). Sports psychology. Eylul Book and Publishing House, Ankara.
- Yildiz S (2009). An examination of the levels of aggression of the secondary school students participating and non-participating sports. Unpublished master's thesis, Institute of Health Sciences, Konya: Selcuk University.
- Zubic I, Todorović D, Mitić P (2013). Emotional competence and aggression within students of sport and physical education and students of electronic engineering. *Res. Kinesiol.* 41(1):66-75.

# Educational Research and Reviews

## Related Journals Published by Academic Journals

- African Journal of History and Culture
- Journal of Media and Communication Studies
- Journal of African Studies and Development
- Journal of Fine and Studio Art
- Journal of Languages and Culture
- Journal of Music and Dance

**academicJournals**