

# Educational Research and Reviews

Volume 11 Number 6 23 March, 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 Eylül 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 Alkhaldeh**

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

# Educational Research and Reviews

Table of Contents: Volume 11 Number 6 23 March, 2016

## ARTICLES

<b>Methods of nurturing creativity during preschool term: An integrative study</b> Saeideh Aminolroaya, Mohammad H. Yarmohammadian, and Narges Keshtiaray	<b>204</b>
<b>"Debate" learning method and its implications for the formal education system</b> Mohammad Najafi, Zohre Motaghi, Hassanali Bakhtiyar Nasrabadi and Kamal Nosrati Heshi	<b>211</b>
<b>Foreign language anxiety of students studying English Language and Literature: A Sample from Turkey</b> Şenel Elaldı	<b>219</b>
<b>An evaluation of the empathy levels of pre-service social studies teachers</b> Barış KAYA	<b>229</b>
<b>Developing reflective thinking instructional model for enhancing students' desirable learning outcomes</b> Satjatam Pornataweekul, Sarintip Raksasataya and Teerachai Nethanomsak	<b>238</b>
<b>The use of personalized texts for teaching Turkish as a second language</b> Demet Kardaş	<b>252</b>
<b>Development of democratic teacher behavior scale (DTBS)</b> Gülşen Özcan	<b>260</b>
<b>Facebook connection styles among Physical Education teacher candidates</b> Murat ERDOĞDU	<b>269</b>
<b>Using menelaus' theorem and dynamic mathematics software to convey the meanings of indeterminate forms to students</b> Erdem Çekmez	<b>277</b>
<b>Application of trait anger and anger expression styles scale new modelling on university students from various social and cultural environments</b> Fethi Arslan	<b>288</b>
<b>Investigation of global citizenship levels of pre-service Physical Education teachers</b> Numan Bahadır Kayışoğlu	<b>299</b>

## ARTICLES

**Competency level of geography students of the faculty of arts and science**  
Nadire Karademir

**307**

*Full Length Research Paper*

## Methods of nurturing creativity during preschool term: An integrative study

Saeideh Aminolroaya, Mohammad H. Yarmohammadian\*, and Narges Keshtiaray

Department of Educational Sciences, Isfahan (Khorasgan) Branch, Islamic Azad University, Isfahan, Iran.

Received 20 May, 2015; Accepted 22 August, 2015

Today our society needs intelligent and creative people more than ever and in the current situation, the matter of the creativity is one of the most important issues that needs to be addressed, therefore the present study was conducted with the aim of investigating the ways of fostering creativity among 3-6-years-old preschool children. The context of this research includes all of the available written and digital sources related to the ways of fostering creativity that are appropriate for pre-school age. In order to review and analyze the planned studies and approaches regarding ways of fostering creativity, an integrative method (synthesis studies) was used. The instrument for collecting data was receiving and collecting 100 articles from information data base and the method of data analysis was through subject decoding. The results of data analysis showed that creative techniques for children can be classified into three categories: techniques of individual creativity, techniques of group creativity, techniques group-individual creativity. And one of the most important findings of this research is the design of pattern on the basis of creativity techniques during pre-school period.

**Key words:** Creativity, preschool, pattern design.

### INTRODUCTION

Every educative system through planning and production of specific curricula tries to transfer different kinds of knowledge and skills to learners, transfer and prepare them to undertake their roles and responsibilities in their real life. Researchers believe that the pre-school period is the golden age of creativity. The current literature shows the intellectual flexibility of children during the pre-school year. Also, the positive and successful outcomes of promotion of creative thinking have been reported in this age. Programs of training creativity can help children in understanding the world around them and building relationship between its components and increase

children's flexibility, imagination, skills of formulating issues (Benlliure et al., 2013). The research in this regard shows that creativity starts from the early childhood and becomes stable during adolescence. In the case of fostering it in this period of life one can extend it until the end of life (Mirgheydari, 2001, p. 6). In fact, some experts believe that children are the real embodiment of human creativity (Glaveanu, 2011).

In the researches, various methods have been proposed to foster creativity. For example, Oncu and Unluerin in their research entitled 'creative use of children from play materials', they consider play as one of the

\*Corresponding Author. Email: Say\_1363@yahoo.com.

most important activities that promote creativity and imagination of children (Anco and Unluer, 2010). Sahin and Ozdemir (2012), taking advantage of the available technologies, develop innovative educational materials and Scott et al. (2004), in a meta-analysis, understood that there are four general themes in the educational programs of creativity. Teaching the ways of giving idea, imagination, cognitive training and thinking skills (2004), despite the attention to and emphasis on fostering creativity in different researches and including them among the pre-school educational goals and the claim of the training officials and executives in practice to enforce and apply methods of fostering creativity, there is no comprehensive and complete view. However, fostering creativity in children plays a key role in their future life. Self-creation, self-actualization, words, prosper through creativity.

Different researchers propose different methods such as ways of brain storming, list of characteristics, compulsory association, Synaptic, technique of creative questions, balanced movement, immersion in critical reflection, problem solving, learning about other cultures, etc. (Husseini, 1997; Kampe and Nissenberg, 2000; Maker et al., 2008; Leu, 2008, Chu and Lin, 2008). This research study that has been done in the field of fostering creativity in pre-school education can help education managers and planners to gain a comprehensive view of methods that foster creativity and its growth in preschool children and provide appropriate environment and facilities for nurturing this talent into planning and designing into an integrative and appropriate program in the field of creativity. Therefore, this study was conducted with the aimed of analyzing the methods of fostering creativity and selecting the appropriate methods of each age group from 3 to 6-years-old in order to answer the following question.

Which methods can be used for fostering creativity in pre-school children?

## RESEARCH METHODOLOGY

This research is an integrative study (the research synthesis). A form of research was used that resulted in integrative knowledge. According to Roberts, the joint element of the various strategies of synthesis approach is "analysis and re-classification of data in a way that can be easily exploited by clients" (Quoted in Short, 2009, p. 352). In this study, the researcher after receiving and collecting 100 articles from information data-base were analyzed initially by specifying the name of the investigator or investigators, year of research, the research subject and the providing findings of the research and then through coding studies according to their subjects. The study used all of the available written and digital sources related to the ways of fostering creativity for pre-school age; to analyze the data the method of subject encoding was used. Reviews were necessary. Regarding reliability and validity of this research after analyzing the theoretical principles through subject codification, the obtained results were provided to the prime experts in the context of creativity and programming and after receiving their opinions the transformative measures and the needed modifications were taken (Table 1).

## FINDINGS

Research question: What are the ways used to foster creativity in preschool children?

The results are as follows.

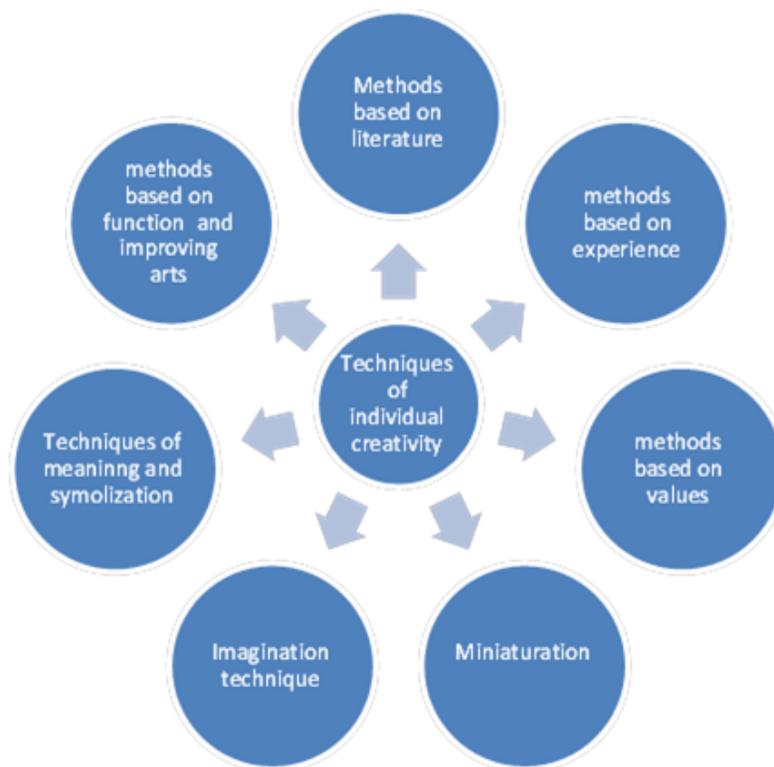
Figure 1 represents the obtained individual techniques suitable for children: literature-based methods, methods based on experience, methods based on values, miniaturization, imaging techniques, activation and symbolization techniques and methods based on the application and development of the arts.

The obtained results of this study are in line with the results of Mantegi's study (2012) that creative education has a positive impact on children's creativity and that of Radbakhsh et al. (2013) research that using games and storytelling significantly enhances children's creativity.

Mantegi (2012), in his study on the positive impact of creative education on preschool subjects, wanted to provide a prototype on how to apply methods of teaching creativity to preschool and school students. 1) Requesting preparation of a creative painting from children (using colored pencils, water color, gouache, and leaves, etc.), 2) Demanding for the preparation of a creative object using scrap objects, 3) Demanding provision of an appropriate solution for a posed issue by children, 4) Demanding doing an innovative art work by children (such as encouraging children to paint with unconventional methods, painting on the stones in a way that from different angles two or three objects can be seen. Painting the roots of plants in the shape of various objects and animals), 5) Demanding creative reading by children (demanding reading pictorial but unwritten books, reading book in a way that child feels himself at the heart of the conditions, and processing the read text in the form of a picture, etc.), 6) Encouraging children to clarifying the ambiguous terms (such as completing two or multiple people dialogue, provision of story based on multiple pictures, demanding them transfer a sense into another), 7) Demanding children to do an art work of using the new communication technologies (such as provision of stamps using the internet images, design book cover and the like).

Radbakhsh et al. (2013) in their research concluded that using the method of playing and storytelling has significantly resulted in the increase of creativity in each of its four elements in the playing and storytelling groups, and using these methods by removing barriers of creativity, thinking inertia and helping to solve problems with an enjoyable procedure resulted in the creativity of the students. Therefore, those students who attend in playing and storytelling sessions are more successful in finding new and original solutions to problems.

According to the results, achieving a significant innovation in education is a difficult issue (Simmons and Thompson, 2008), one of the posed issues in the twenty-first century education, is the art of training and fostering



**Figure 1.** Techniques of individual creativity.

thought (Layton, 2012). The researcher's commentary is as follows: certainly the talent of creativity and innovation exists in majority of the people, and it just has to be strengthened. Eighty to ninety percent of this talent is acquirable and only a small fraction of it is inherent in human and is related to the inner talent of individuals. Creative people have unique characteristics that differentiate them from non-creative one. These characteristics are as follows: 1. Persistence, high energy, hard work: Creative people are pursuant of their goal and show commitment to their work. They embark on their work with a lot of energy and despite the obstacles that may be encountered, show stability and are able to endure failures, 2. Curiosity and having a sense of being creative: creative people have high levels of curiosity and a wide range of interests. They like complexity and are good at them, have high forbearance for vagueness and uncertainty, and self-awareness, 3. The autonomy and independence in judgment: Creative people do not like external influences to have intervention with their work, they are not dependent on social approval in their decisions: they have a high self-confidence and can easily disregard others' ideas (Shally and Gilson, 2004).

Figure 2 shows the techniques used in this research: Innovative teaching method, method of facilitating the process of thinking, Socratic method, collaboration method, discussion method, method of problem solving

and training games.

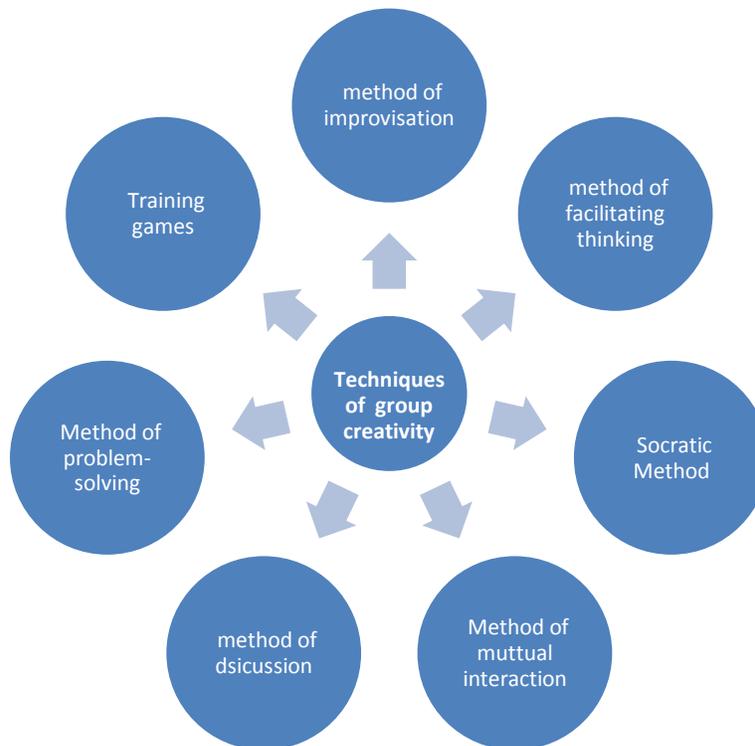
The obtained results are in line with the findings of Afshar and Osareh (2011) in the field of fluency factors, flexibility, ingenuity and expansion, and findings of Jebelli Ade and Sobhani (2012), that there was a significant difference between the experimental and control groups regarding the four components of creativity (fluency, flexibility, originality and expansion), and that there was a significant difference between the post test scores of the components of fluidity, creativity and expansion (Ahadi et al., 2013).

Han (2013) claimed that techniques of creativity involve five components: 1) Motivation 2) Digressive process, 3) A convergent process of selecting an idea, 4) Putting the idea into practice, and 5) Assessment.

In the analysis of the results it can be said that, childhood is full of imagination, the basis of building a life full of happiness in adulthood and also the way to training coping skills to deal with life problems. Make-believe plays that begin in early childhood and continue until adulthood provide the mental health in the individuals' future. That is, in make believe plays the object or sign replaces something else or used as the sign or symbol of something else. A box is used as the symbol of a car, a doll, as the symbol of a baby, and so on. That is why imaginative play is sometimes also called symbolic. Make-believe plays enhance learning processes

**Table 1.** Demographic characteristics of the experts.

	Academic degree	Academic field of study	Scientific qualification	Teaching experience
1	PhD	Curriculum planning	assistant professor	15 years
2	PhD	Philosophy of education	assistant professor	20 years
3	PhD	Educational curriculum	assistant professor	28 years
4	PhD	Curriculum planning	assistant professor	18 years
5	PhD	Curriculum planning	assistant professor	10 years



**Figure 2.** Techniques of group creativity.

such as: observation, experimentation, problem solving and creativity in children (Parsamanesh and Gharamaleki, 2013). Majority of scientists and scholars consider problem solving as the same as creativity and believe that an individual who has the ability of problem solving is a creative person; but Gotzels suggests that it is better to define creativity than the problem solution. Because in solving the problem, the individual regards solution; but in creativity, individuals both create the problem and reviews its solutions (Isa Zadeh ShamsFakhr, 2013).

Therefore, innovative training programs can help children to understand the world around them and create relationship between its constituent components that result in increasing flexibility, imagination and skills of formulation of problems with children (Bonluer, 2013).

Finally, individual and group creativity techniques are techniques that can be used both individually and

mutually. The obtained results of this study with respect to Figure 3 shows some of the individual creativity techniques as the following: methods of graphic-expressive mandatory connection, replacement, scamper, experimental methods, methods based on design and innovation, methods based on the growth of mobility or joyful effects, methods of establishing a creative communication and creative completion.

The obtained results of this research are in line with the findings of Anco and Unluer, (2010), that students should be encouraged to play freely with unstructured materials and tools and play in various situations and environments, Emami et al. (2011) claimed that team play results in increasing the creativity of children.

According to Qasim et al. (2013), creative drama significantly increases children's social development and Jamali et al. (2010) effectiveness of painting in a free



**Figure 3.** Techniques of individual-group creativity.

manner and subject selection on the increase of children's creativity are in line with the findings of this study. According to the results, it can be said that being creative means having the ability to find ways that others have not. It is for the sake of creative human beings that there is advancement and this has caused people not to live in the Stone Age. If your child has creativity, in fact, he has a pure and rare talent that needs to be guided to activities, and in the future, to works that require creativity. A job in which he flourishes, is one of the things that all of its components has already been planned (Dobo, 2013). Creative thinking is a thinking that is designed in a way that tends to lead to creative results. This definition notifies that the criterion of creativity is productivity. In fact, a person is called creative when he achieves creative results. Constituents of creative thinking are as follows: 1) positive thinking 2) active learning, 3) self-expression, 4) recognition of the other rights of selection and 5) identification of new solutions to problems.

Creative individuals are usually diligent and active and insist a lot on their action, in addition to the long time and great effort that they spend, they try to put aside the other ways since they are seeking out anything that restricts their ability and knowledge. Usually creativity includes the outer inner motives rather than external motives. Therefore, some students should work in the fields of

intrinsic values and motivations (Marzino, 2010).

In addition to achieving the techniques, teaching strategies that focused on methods are categorized in a separate set on the basis of based researches. Strategy literally means the way of action in a specific condition. Strategy is a general map or program that is composed of a set of operations and is designed to achieve a definite goal. When this plan is to achieve education, it is a training strategy. The obtained results of this study with regard to Figure 4 shows that teaching strategies involve: opportunities, space, classroom atmosphere, provision of resources, cognitive and meta-cognitive strategies, motor skills (fine and coarse), core and basic courses and strategies related to the parents.

The results of this study are in some cases in line with the findings of Han-Ping (2013), Davis et al. (2014), Han-Ping and Huang (2014). Han-Ping (2013) in his study found these results that creative methods could help teachers to plan effective programming and improvement of teaching and learning. The positive effects using these methods include: increasing the knowledge and skills of teachers, injecting creativity into the realm of children's learning, changing methods of teaching from teacher-centered to child-centered ones.

Davis et al. (2014) in a systematic review of 210 educational, political and professional literature research



**Figure 4.** Strategies of teaching.

from 2005 to 2011 on the title of roles and needs of developing teachers to promote creativity: a systematic review of this literature provided this conclusion that teacher's skills, attitudes and desire to play role, his awareness regarding the needs of students, flexible structure of teaching courses and a variety of classroom interaction creative teaching are important.

Han-Ping and Han (2014) research showed that the perceived creative personalities by the preschool teachers in Hong Kong in comparison with the thing that is perceived by western teachers are to a large extent consistent. These studies has resulted in increasing valid instruments for measuring perceptions of preschool teachers about the creative personality and can encourage further research about teachers' characters on classroom procedures and creative learning of students.

## DISCUSSION AND CONCLUSION

The results of the present study indicate that regarding methods of fostering creativity each authority has discussed about the special method or techniques, but generally it can be said that in order to classify and integrate methods according to Figures (1, 2, 3) they can be categorized in three classes of techniques of personal creativity, techniques of group creativity, techniques of

group -individual creativity.

In a general conclusion with regard to the obtained results, it should be said that, childhood is the first and foremost period of an individual's life, a particular period for development of fundamental and movement skills (Hardy et al., 2010). In this period, the child plays an active role in the learning and understanding structure, and the knowledge that he/she gains during this period, is very crucial and determining (Krosh and Slents, 2010). When children start school, they are eager to learn new things and if they have the required preparations of entering into this movement in the child, certainly enough guarantees for his future successes will be provided. Pre-school and school period are the first stages of the formal education and are a very important behavioral environment for many children. And the more the training quality of this course, the stronger academic period they will have as school children. If the aim of this course is to make children achieve success and skills, it is needed to make a decision regarding their curriculum. The curriculum of this period is considered a product and requires a fundamental review, reconsideration and should have its own content and method (Saadatmand et al., 2012). Attention to fostering creativity in preschool and school students is an important issue that has attracted attention of experts and scholars, and has continuously been recommended by them. This period is

meant for students whose principle characteristics have not yet been formed and the type of education and learning in this period can quantitatively and qualitatively have a deep impact on the future performance of these individuals. Based on this principle paying attention to the procedure of training and educational programming should again be the main activities of any educational system. Irresponsibility in this field can turn the educational system of a country into a deadly vortex with unworthy products, development and without any positive impact on sustainable development. With regard to the above-mentioned issues, it is necessary that the officials use appropriate methods, instruments, and curriculum that will enable students to develop different learning processes and progress in their different talents, including creative talent of the students. Existence of an appropriate and comprehensive pattern and various aspects of creativity from different angles can be absolutely necessary and fruitful for teachers. With regard to the results, it can be suggested that: If we want our students to be creative, we should enrich the educators' knowledge in this field and create an atmosphere for discussion in the classrooms by trainees and teachers.

### Conflict of Interests

The authors have not declared any conflicts of interest.

### REFERENCES

- Ahadi M, Rezaei NM, Delawar AS, Padravand N (2013). Teaching creativity to students and its impact on increasing the level of components of fluidity, initiative, flexibility, expandability. *Journal of Initiative and Creativity in Humanities*. Third Period 1:17-2.
- Afshar KZ, Osare AR (2011). Investigating the effect of training creativity to teachers on creativity of first-grade students in Khorasan province. *Journal of Initiative and Creativity in Humanities*. The First Year 2:39-29.
- Benlliure VA Meléndez CJ, Juan Ballesteros MG (2013). Evaluation of a creativity intervention program for preschoolers . *Thinking Skills Creativity* 10:112-120.
- Chu Yeh Y, Lin Li, M (2008). Age, Emotion Regulation Strategies, Temperament, Creative Drama, and Preschoolers' Creativity. *2008. J. Creative Behav.* 42(2):131-148.
- Davis D, Snape DJ, Digby R, Howe A, Collier C, Hey P (2014). The roles and development needs of teachers to promote creativity :A systematic review of literature. *Teach. Teacher Educ.* 41:34-41.
- Dobo A (2013). Measurement of children's talent. Translation of MehranZandeBodi, Tehran: Publications of PeykAvin, p.216.
- Emami Rizi C, Yarmohamadiyan MH, Gholami A (2011). The effect group plays on the development of the creativity of six year children. *Proc. Soc. Behav. Sci.* 15:2137-2141.
- Esazade S, Shams Fakhr F (2013). Innovation of divergent creative thinking Platform in creative schools. *J. Bus. Soc.* 157:10-4.
- Glaveanu VP (2011). Children and creativity: A most (un)likely pair? *Thinking Skills Creativity* 6:122-131.
- Husseini A (1997). Methods of training creativity. *Education*. No. 119: 16-19.
- Han-Ping Cheung R (2013). Exploring the use of the pedagogical framework for creative practice in preschool settings: A phenomenological approach. *Thinking Skills Creativity* 10:133–142. Available from: [www.sciencedirect.com](http://www.sciencedirect.com).
- Han Ping Cheung R, Hung Leung C (2014). Personal and environmental factors affecting teachers' creativity-fostering practices in Hong Kong. *Thinking Skills Creativity J.* 12:69–77.
- Hardy LL, King L, Farrel L, Macniven R, Howlett S (2010). Fundamental movement skills among Preschool children. *J. Sci. Med. Sport* 13(5):503-508. Available from: [http://sydney.edu.au/medicine/public-health/panorg/pdfs/Hardy\\_JSMS\\_in%20press.pdf](http://sydney.edu.au/medicine/public-health/panorg/pdfs/Hardy_JSMS_in%20press.pdf).
- Jebelli Ade P, Sobhani AR (2012). The effect of using innovative teaching methods on creativity of fourth grade students in Golestan province. *J. Ingenuity Humanities* 2:166-147.
- Jamali FirouzAbadi M, SepehrianHaydarzade M, JalaliKeshavarz M (2010). The effect of training methods drawing on children's creativity. *Psychol. Res.* 7:111-104.
- Kemple KM, Nissenberg SA (2000). Nurturing creativity in early childhood education :families are part of it .*Early Childhood Educ. J.* 28(1):67-90.
- Krosh SL, Slents KL (2010). *Early Childhood Education. Yesterday, Today, Tomorrow*, Taylor & Francis. (2 thed), P:166.
- Leu JC (2008). Early childhood music education in Taiwan: An ecological system perspective. *Arts Educ. Policy Rev.* 109(3):17-26.
- Layton H (2012). *Creativity and Education*(RLE Edu D).New York: Routledge Taylor & Francis Group p.135.
- Marzino R (2010). Dimensions of thinking in curriculum and teaching. Translation of Ghodsi, Ahghar. Tehran: Yastron, 341PP.
- Mantegi M (2012). Investigating the effect of training creativity on preschool and school students. *J. Curriculum Stud.* 1:28-1.
- Mirgheydari M (2001). The nature of existence of creativity. *J. Creativity Innov.* 3:19-16
- Maker C, June Jo, Sonmi Muammar, Omar M (2008). Development of creativity: The influence of varying levels of implementation of the DISCOVER curriculum model, a non-traditional pedagogical approach. *Learn. Individ. Diff.* 18:402–417. Available online at [www.sciencedirect.com](http://www.sciencedirect.com)
- Oncu EC, Unluer E (2010). Preschool children's using of play materials creatively. *Proc. Soc. Behav. Sci.* 2:4457–4461.
- Parsamanesh F, SobhiGharamaleki N (2013). The effect of poetry make believe playing in fostering children's creativity. *J. Initiat. Creativity Humanities*. The Second Year, 8:157-141.
- Radbkhsh N, Mohammadi Far MA, KianErsi F (2013). Efficacy of play and storytelling in enhancing children's creativity. *J. Ingenuity Humanities* 4:195-177.
- Saadatmand Z, LiagatMadar MJ, Sadeghian Z (2013). Need assessment of preschool curriculum under the observation of education from Isfahan's managers and coaches' point of view. *Res. Curriculum Plann.* 8:145-132.
- Short AC (2009). *Methodology of curriculum studies*. Translation of Mahmoud Mehrimohammadi and colleagues. Tehran: Samt Publication.
- Shally C, Gillson L (2004). what leaders need to know: A review of social and contextual factors that can foster or hinder creativity. *Leadersh. Q.* 15(1):33–53.
- Simmons R, Thompson R (2008). Creativity and Performativity: the case of further education. *Br. Educ. Res. J.* 34(5):601-618.
- Sahin B, Ozdemir BG (2012). I read I play: A web based application for supporting children's learning process. *Soc. Behav. Sci.* 47:2044-2048.
- Scott G, Leritz IE, Mumford MD (2004). Types of creativity training : approaches and their effectiveness. *J. Creative Behav.* 38(3):149-179.

*Full Length Research Paper*

## "Debate" learning method and its implications for the formal education system

Mohammad Najafi<sup>1</sup>, Zohre Motaghi<sup>2\*</sup>, Hassanali Bakhtiyar Nasrabadi<sup>3</sup> and Kamal Nosrati Heshi<sup>2</sup>

<sup>1</sup>Department of Educational Sciences, Faculty of Educational Sciences and Psychology, University of Isfahan, Isfahan, Iran.

<sup>2</sup>Philosophy of Education, University of Isfahan, Iran.

<sup>3</sup>Department of Educational Sciences, Faculty of Educational Sciences and Psychology, University of Isfahan, Isfahan, Iran.

Received 26 May, 2015; Accepted 2 December, 2015

Regarding the importance of enhancement in learner's social skills, especially in learning process, this study tries to introduce one of the group learning programs entitled "debate" as a teaching method in Iran religious universities. It also considers the concept and the history of this method by qualitative and descriptive - analytical approach. Making a comparison between this and other similar procedures, educational benefits of this method and its application and necessity are derived. Research findings show that this group broad-based and learner-oriented strategy with a successful track record and specialized training and religious centers, has two instructional and educational functions such as mastery learning, creating a learning continuum, continuity in the learning, thinking centered learning, creative learning, increasing the speed of learning, the promotion of the evaluation power, the promotion of entrepreneurial skills, the promotion of mental health, the development of verbal skills, teaching critical thinking and the promotion of social skills.

**Key words:** Debate, broad-based approach, study groups, participatory methods.

### INTRODUCTION

The main mission of the educational system is to provide opportunities for students to get practical and useful training to create thinking field and to enhance their social abilities. Therefore, the learner's devotion to education, a necessary need to learn and the personal commitment to the training process serve as challenges to the education system.

On the other hand, social skills training, the ability to

express constructive criticism and theory of integration with the group's mission are important parts of the educational system that won't be done; because it needs to create the enabling environment to foster creative thinking and critical thinking in learning for the development of scientific, intellectual and social needs in the group. Latent strategy in the learning process is needed, as an important issue that has been transferred

\*Corresponding author. E-mail: rozita2518@gmail.com.

to the periphery in the education system, and completely decoupled from teaching method. These challenges refer to the need of a fundamental change in the goals and methods of classroom management. Firstly, the individual and traditional teacher-centered models should be replaced by cooperative patterns. Then, the learner as an active factor should have an active role in learning process. Beside this, other learning objectives in the field of behavioral skills should be taken into consideration.

In order to select the appropriate strategy among participatory methods, "debate" is taken into consideration in this research. Although this method has a long history in the field of the religious schools, and has a unique attributes, its consequences and how it works in the field of education and training is unknown and obsolete.

Considering the challenges posed and the need for new strategies to approach educational systems, this study seeks to answer questions concerning the research new strategy approach that can be performed at various levels of formal education, based on the evidence:

1. What are the main components of the debate?
2. What are the advantages of using debate compared to other participatory methods?
3. Based on what functions and consequences, application of the debate recommended at different levels of performance?

## METHODOLOGY

This study chooses the qualitative research paradigm. Purposive sampling, documentary method of data collection and the interpretive-descriptive method of data analysis were used in the study. The contents of all the documents that have been introduced into the debate method and its application were studied. At the first step, the sources were identified and were analyzed. In the second step, the results were classified and were analyzed.

## Debate concept and its history

The debate, which means scratching and digging, is a kind of dialogue to find answer or solution. In other words, two or more people are talking about a topic, exchanging ideas to deliver opinion. The debate is meant to explore, and exploring the truths through interactions have a significant impact on the mental aspect of the human mind (Soraya, 2005). The "debate" includes regular and targeted verbal exchange of concepts and ideas that can be done by a group of people. This form of learning is used in formal systems to collaborative learning processes. The "debate" is a specific training methods that has specific steps (Rahimi, 2009), which are discussed in this study.

Part of the history of this debate includes the ancient Greek philosophers' debate on education that was shaped by the Sophists (fifth century BC) who formed the dialectic

and rhetoric method. Socrates in his dialectic method, to prove the error and fix the mistakes and confusion of mind, used debate in the form of question and answer to detect the addressees' errors. Then to get to the truth, conversation, question and answer would continue to avoid devoid fallacy and do a dialectic debate based on purposeful logical reasoning. Socrates was the main designer of the irregular education debate through which one could easily overcome the opponent. After Socrates, Aristotle was the first who found fame in this method because he conducted Socratic teaching style into methodological ones (Phajoohande, 2001).

But the main debate of the history of "debate" refers to the Quran, Prophet Muhammad (PBUH), Shiite Imams and some of their companions' customs that make students proficient in the development of Islamic culture and education. This method formed the "circles of the mosques education".

Among the Persian philosophers, Ibn Sina (Avicenna) in the fifth century as an explanatory of the Aristotelian tradition was the heir of this method. Suhrawardi's philosophy, which is called eclectic philosophy (involving intellect and intuition), regularly propose a different philosophical system with intuitionist outlook. It is the combination of two philosophical and mystical views, namely Aristotle's logical reasoning and Plato's mysticism. Suhrawardi has rather suggested this belief in the field of acquiring knowledge by humans that depends on three levels of knowledge, namely intuitive knowledge (using senses), knowledge via observation (mystical intuition) and illuminated knowledge (Nowrozi et al., 2012:). Therefore, knowledge firstly can be acquired through logical reasoning debates.

From then on, Nasirodin Toosi in his book "Adabol Motealemin" has pointed out the debate method. He believed that for a student, debate is one of the requirements. He also stated that participating in the process of "debate" is better than one-month repetition of a lesson. This method has been used for many years and specialized in the field of education and religion, but some circumstances faded this process from the formal educational system.

## Presentation of debate

Based on primary and traditional teaching methods division, two teaching and learning methods –instructional and debate- have been proposed. This division calls the teacher-centered and learner-centered teaching methods to mind.

Instructional method of teaching refers to a set of classical and tradition methods. This method despite having slight differences with one another in the way they executed, they all have a common indicator that distinguishes them from other types, and that is to

consider the master as a sole presentation and the learner only as a listener. It really does not give the learner any other role in the process of teaching and learning (Pajoohande, 2001). In these teacher-centered teaching methods, students do not participate actively in the learning process.

In contrast to instructional method, debate is a kind of learning method, and also functions as a strategy for studying as well. This learner-oriented method is more comprehensive, and bilateral relationship between teacher and learner will occur and each one has his/her own share in the learning and teaching process.

In the scope of administering, "debate method" is a general concept that refers to three methods, but in the theoretical domain, "debate" is a special method which does not have the weaknesses of other forms of group learning methods. Despite this advantage, it has been neglected in formal educational systems.

### **Different patterns of debate**

For more clarification, the methods that mistakenly replaced "debate method" are stated below:

#### **The debate in groups of learners**

One of the debate patterns refers to a debate between groups of learners in relation to the issues presented in the classroom to be used solely by the students in order to understand the subject better. It is a common practice in many educational systems, but now, executive obligation in doing that in religious fields are more than academic and scientific ones.

The importance of this debate, particularly in religious schools and training centers is that it is not only limited to group reading, however, all members of a debate group actively attempts to answer the posed question and solve the problem. Thus, multiplicity of ideas and the group collaborative effort causes and explores the new issues because the learners focus on the power of their mind actively (Pajoohande, 2001). This situation occurs in methods such as brainstorming, but in debate, it is possible to use more from the power of the brain and to expand language and speech skills, to strengthen communication skills, to change attitudes and even to extend human relationships.

Psychologically, this pattern helps learners to be more confident through motivation (Rahimi, 2009). And, everyone is required in this model to play their role (Pajoohande, 2001). These patterns if successful in teaching, the professor not only internalizes the concepts taught in mind, but also enhance learning.

#### **Classroom debate**

Another example of application of the concept of "debate"

refers to the time of training and the time of the interaction between teachers and learners. In this pattern, firstly a problem purposefully will be designed, and then the students will be encouraged to participate in debates either directly or indirectly. They will search all together actively as a team.

Then each group will present their findings, and argue the issue using their own reasons. This approach functions as a workshop in which the master is only a guide and controller of the discussions. He uses his own educational experience to arouse and make the learners aware of thinking errors in the path of discovering an idea. The results are obtained by the professor and cooperation of all groups (Pajoohande, 2001). In this connection, interactive debate engages the learner in the learning opportunities and creates changes in the structure of individual acquaintance. Some educational researchers believe that some part of the weakness and inefficiencies of university educational system refers to absence of this approach and educational vision (Rahimi, 2009).

In order to achieve a comprehensive understanding of knowledge, the learners should be involved with the new knowledge that cannot be achieved only through hearing information (Fazli, 2003). And even if these data are transferred to them systematically and logically with specialists, the learners will not be able to reach their understanding of that information and they need to explore and experience it in different situations.

#### **Multi-stages debate**

This is the third pattern of the "debate" that present the goal of this research. This pattern includes both previous processes and other processes that besides having all the advantages of previous stages have other positive effects on teaching and learning, which distinguishes it from other educational systems. This debate includes the systematic program of preliminary study; preliminary debate, attending classes, studying, and debating that are done in several stages.

#### **The first stage (preliminary study and preliminary debate)**

The first stage of the debate that has great impact on the speed of learning and developing, and flourishes the learners talent, begins with two phases that included preliminary study and preliminary debate. This could also have a positive impact on the speed and the classroom administering process. Besides, it can determine the scientific fields that should be followed. It also makes the learners more curious in the process of learning (Motahari, 1990). The process begins with a review of the following specified topics:

**Step One: Preliminary study**

This stage is accomplished before the teacher presentation, it can be a great help in understanding the problem and it brings up some questions in the learners mind. If this kind of study is only including the lesson text, it will provide helpful planning in the human mind to master course content (Rezaie, 2001). Because it provides them the overall course content of the lesson, and it let them have a whole image of the course in their minds. In addition to cause curiosity and strengthen inner potentiality, preliminary study brings about mental concentration in learners in the classroom, as well as to create a question that increases their motivation to understand the vague points. Preliminary study is done based on a particular text. The learners obtain the mastery of the theory design to make them able to review, criticize and defense, and finally to summarize and make conclusion. This stage ends up by writing briefly what has been found in order to use it in debates (Nuri and Wafa, 2001).

**Step Two: Preliminary debate**

Preliminary debate is done after the preliminary study and before attending the classroom. This step has important impact on the readiness of the mind to accept the lesson and to focus on the content. In this debate, according to the sources studied, one learner acts as a teacher, he/she provide condition for all of the companies to participate actively in the debate. He/she argues the future lesson and answers his friend questions, and then makes a conclusion and phrases the materials. In the preliminary debate, divergent views put together, and each of the participants review what the other understood. Therefore, the learners will be aware of their own weaknesses and strengths. They also will be able to understand and tolerate the others capabilities (Hadavi, 2004).

**The second stage**

Following the earlier mentioned steps, it is important to attend master's classes and the learners' demand is clearer. Transition from the earlier mentioned stages helps learners achieve the purpose of finding answers to the uncertainties associated with the learning outcomes that have been achieved in the first phase. Therefore, learners' motivation increases and their mind will get to explore the content (Hadavi, 2004). So attending class is mandatory in this learning and teaching method.

Attending these kinds of classes with the situation that is full of questions is very effective in the learner's inclusive growth. The point which is very important and

useful here is that the aroused questions may even affect and change the teacher's mind. Thus, this step is to create a spirit and an ability of critical thinking and enhance a spirit of criticism in the whole generation.

**Third stage**

The final or the stage after presence in the class includes further study and complementary debate.

**First step: Further study**

For those active learners who have passed the previous stages, further study help them to overcome any other remaining ambiguous points after all these steps (Hadavi, 2004). Pervasive thinking is more important at this stage of the study.

**Second step: Further debate**

Basically, debate after the lesson is repetition of the teacher's instruction course that can be done comprehensively and scholarly. At this stage of the debate, the person who is going to present the lesson should be serious enough in his job, and those who are listeners should actively participate in the issue. Expressing the problems, protesting and presenting critical designs should be welcomed by the participant in order to solve all problems and overcome all weaknesses (Hadavi, 2004). Therefore, this step can strengthen the learners' reasoning power, problem solving ability, and the pervasive perception. This stage of the debate, in fact is the presentation of lesson plan by students. What is important in this step is that the debate topic should be a coordinated lesson.. It must be completed before the start of the new lesson (Rezaie, 2002).

**Components of debate group**

Organizing a group is necessary for debate, thus organizing an active and proper group will help the debate process. Any successful group should be able to manage the fields and conditions of learners and ensure its durability (Soraya, 1384). A proper group should have the following conditions:

1. In order to make a balance between the members of the group and achieve mutual effects through interaction between individuals, the group members should be more than two. However, if it is too much, it will prevent learners to do some of the group activities.
2. Being in the same level is very important because the

group activities will be fatigue for the lower level members, and they may lose their motivations (Hadavi, 2004). The opposite case is also traumatic.

3. Common interest between two or more members of the group can lead the group to success and sustainability of that group, so it is necessary to select a group of people who are seriously interested in the topics (Soraya, 2005).

4. In the selection of the members of a group, not only the instructional aspect should be consider, but also the moral aspect, responsibility and the individual characteristics should be taken into account (Rezaei, 2005).

### **Conditions of participation in the study groups**

There are some rules and conditions that help us conduct and promote the debate learning method:

1. Since the learner is considered as the most important agent in learning process, curriculum planning, how to begin the lesson and how to continue it should be done from easier to more difficult and from introduction to the main text.

2. Previous study is an important factor to enhance the quality of the debate. Therefore, it is necessary to encourage the learners to study the lesson before participating in the class.

3. The participants should take notes from learned materials during the debate.

4. A useful debate should follow its aims; the participants should not try to apply their own ideas without considering the goals of the debate.

5. The debate should be conducted based on the principle of reasoning. It should be conducted according to scientific documents.

### **Special benefits and functions of debate learning method:**

The debate has certain functions that can be divided into two categories of instructional and educational functions:

#### **Instructional functions:**

##### ***Mastery learning***

Since the debate method in education involves both the teacher and especially the learner's mind, it is the most effective teaching methods through which the learners can better discover and tackle the uncertainties. The learners can also better realize their shortcomings, and they will be able to achieve mastery skill on the content and how to express them.

### ***Creating a learning continuum***

Updating the pervious information is one of the benefits of using debate in the education. The learners' pervious information will be activated, they will be able to confront new acquired materials, and they will come across new understanding and awareness. This new understanding can affect the future learning process. Therefore, the learners' pervious, new and future leanings can be traced as a continuum.

### **Continuity in the learning**

Since the learners are active in the debate method, they will gain dynamic personality in acquiring knowledge. The learners will be motivated enough to put in his efforts continuously because they constantly compare themselves with the group. There are competitive conditions in which the learners as members of a group are persuaded to improve interpersonal and interpersonal skills. The learner's awareness of their weaknesses may motivate them to find out the causes and source for a solution. And in this way, they will be motivated toward learning more and fixing their knowledge and their success in subsequent debates.

### **Thinking centered learning**

Debate and discussion leads to rapid growth of the learners' perceptual faculty. In addition to acquire the lesson, the learners will learn how to deal with and organize the learning process and how to collect and organize the content and present it. Therefore, the learners' thinking power will be enhanced during the process of debate.

### **Creative learning**

In the debate learning group, in addition to understanding the context, imposing spontaneous and innovative questions about the content can lead the learners to create and face new ideas.

### **Increasing the speed of learning**

The systematic process of the debate enhances the learning speed and causes accuracy in acquiring, and speed in transmission of learning materials.

### **The promotion of the evaluation power**

Whenever the learners realize their shortcomings and

gain mastery skill on the content, they will be able to have a comprehensive evaluation of the course. The learner is constantly faced with opportunities for self-assessment, for example, in the first phase of the study, he found out how he can use the pre-studied content and how much content is needed in the classroom. He also may evaluate his knowledge after attending a class.

### **The promotion of entrepreneurial skills**

Debate is actually a form of training and professional preparation, because in addition on how to persuade others, it leads to open-mindedness, critical and logical thinking. It also teaches learners many communication skills such as management, teaching and training. Initiating these fields would promote and encourage the entrepreneurial culture.

### **Educational functions**

As it was mentioned earlier, the necessity of using group methods for training and improving the strategy of social culture and communication is obvious. Debate and discussion method will have undeniable effect on systematic process, and also creating attitude and insight in people. Some of the most important ones will be mentioned:

#### ***The promotion of mental health***

Equal opportunity to develop human relationship and formation of rooted, sincere and long-term friendship in group is possible; also flourishing talents little by little for opportunities that will be resulted in debate method and this capability will lead to self-confidence. While sometimes a person feels inferior, but with debate and discussion he will realize his talents and capabilities, and the theme of detecting his talents will be provided for him and he may know himself better this way.

#### ***The development of verbal skills***

Creating a spirit of criticism and upgrading ones character are results of being in group. In debate method, tolerance in person will be improved, and he will learn to accept other people's idea in a right way and fairness, and justice will be crystallized in his behavior. This critical thinking will affect the liberalism soul.

#### ***The promotion of social skills***

Systematic process of debate in each step will consist part of behavior and social skills because during debate

and discussion, and being present at class the learner will learn the possibility of suitable behavior change relating to the theme, and he will improve his interaction and also he may increase his communication skills. The other point is that the debate method is suitable for training society goal, because in the same situation of a society having weak or powerful people, a positive interaction will be created and all of them depending on their level of understanding will benefit in groups or classes. Upgrading analysis and deciding ability are kinds of skills that the learner will learn in this method and after that, management ability and leadership in group will come after that.

### **Conclusion**

Nowadays, successful learning centers tend to cooperate learning strategies because they have considered the natural internal need of cooperation in human as a bases for their job, and in fact they are changing their direction of static learning to dynamic one that needs motivation and systematic method and process. On the other hand, they care about development of social skills so changing the education process and learning methods is an obligation and moving from one-sided processes to useful two-sided ones in cooperative form is a need. In answering the first question based on introducing debate method according to research findings in Figure1, these are thinkable.

One important training method that can provide educative and training process is debate method. In this method, the learner will participate in training process actively and assume the responsibility for learning eagerly, and they will be given the opportunity to transfer their ideas, experiences to others and also their mind will be more engaged and involved and they can obtain deep reflection on the content of lessons. Also in this method, mental involvement with a curious reaction and self-motivation will lead to scientific, rational and social development and will equip the learner to social experiences that will help him in the process of knowledge production and the use of his own skills in social life.

Democratic process in this method, checking issues with collective wisdom gives everyone the opportunity to express their opinion and view freely and consider others opinion with respect. In this process, the technique of gathering and organizing the subjects and presenting them will teach the learner to think logical and prepare suitable conditions for him to go from checking step to presenting new subjects. In this way, the professor acts as guardian, and goes through the targeted way with learner.

In answer to the second question, the results of the research show that the usage of educational system of inactive method and master axis (professor axis), the

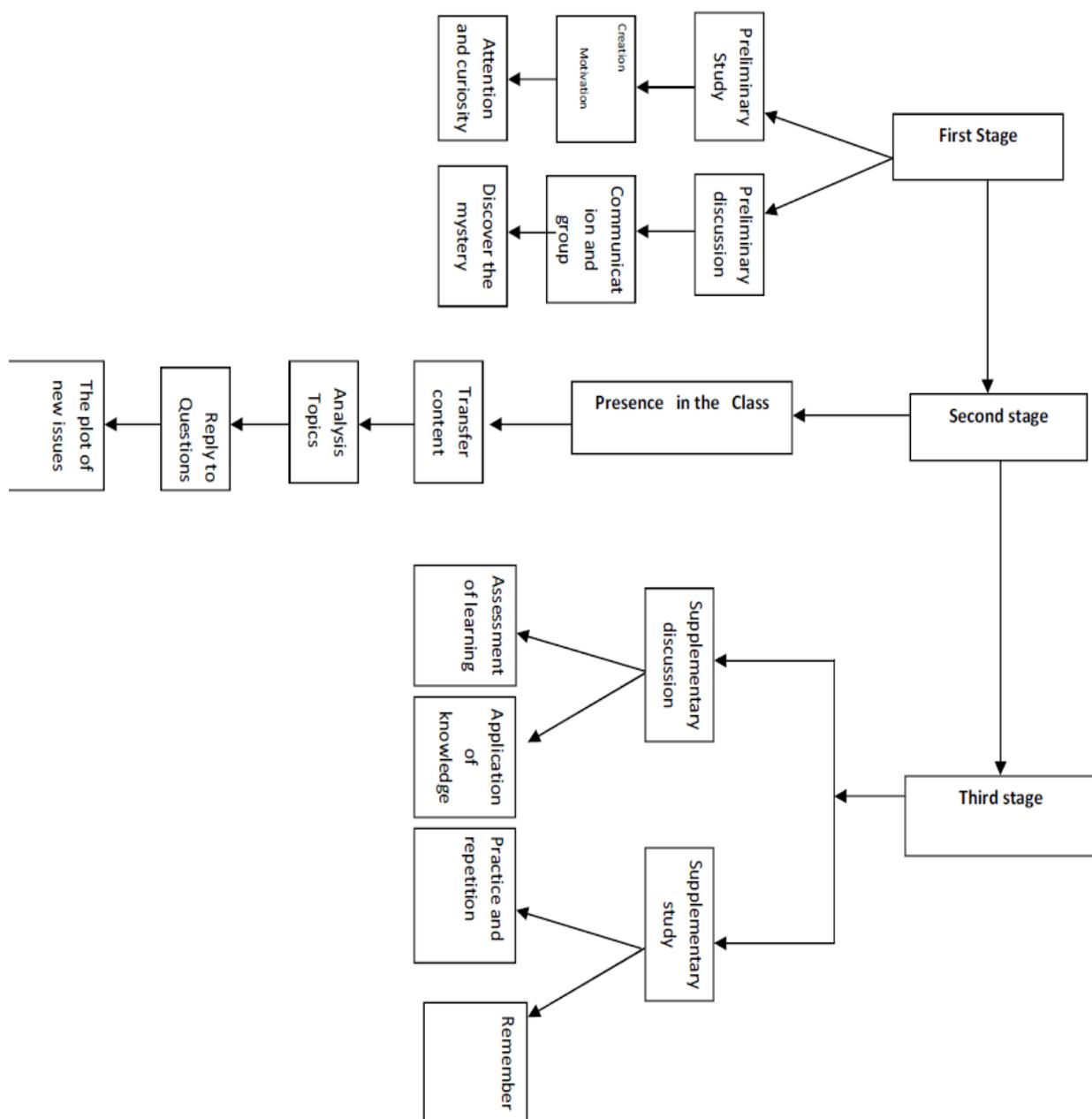


Figure 1. Debate method.

process of learning always encounters difficulties. These methods will delay in the development of the inference strength, and by reducing the role of learner in learning will make him causeless at class and finally it causes superficial and transitory education, while human brain is a social organization that is ready to be in society and groups since birth. So the need for cooperative education strategies in groups and by groups will be clear.

So debate method as an effective training strategy for activating more learners and as a symbol of dynamism of

group in process of learning can be effective on the goals of education in all steps. And the efficiency of this method has been proved by scientific educational centers, and also the need for this method has been proved. First, educational system should provide the necessary condition for group works at school for all grades. They should take it serious and plan for it, because the learner should experience groups work skills besides educating.

So the educational system should be written in a way that in addition of training book content, it should also

teach students how to think freely and positively, and increase their self-confidence. Second the usage of this method should be matched with different subjects with different conditions and different ages.

### **Conflict of Interests**

The authors have not declared any conflicts of interest.

### **REFERENCES**

- Fazli D (2003) Debate Method of Teaching at the University, Social Sciences Journal of Allameh Tabatabai University, No. 24.
- Hadavi TM (2004), Green Time, Tehran: Khane Kherad Publication.
- Nowrozi RA, Seyed HHA, Ali SS (2012), Suhrawardi's Epistemological Point of View and its Educational Outcomes, Religious Education: Official J. Religious Educ. Assoc. 107(3):281-294.
- Nuri M, Wafa J (2001), The Moral Responsibilities of Students and Teachers, Mashhad: Publication of Student Association.
- Phajoohande MH (2001) Education Efficient in Islamic Culture, Journal of Philosophy and Mysticism. No. 29, August and September.

- Rahimi SS (2009) An Improved Method for Dynamic Collaborative Learning in University. Journal of Educational Technology, Third Year, (3):171-178.
- Rezaei H (2005) Talk about the Debate (Journal of the Househ, Qom, Islamic of publication May, No. 4.
- Soraya SM (2005) Debates Procedure, Tehran: growth Publications.

*Full Length Research Paper*

# Foreign language anxiety of students studying English Language and Literature: A Sample from Turkey

Şenel Elaldi

Cumhuriyet University, Sivas, Turkey.

Received 29 September, 2015; Accepted 22 February, 2016

A considerable number of foreign language learners experience a feeling of anxiety in language learning process. The purpose of this research was to find out foreign language anxiety levels of students studying in the Faculty of English Language and Literature at Cumhuriyet University, Sivas, Turkey when they were in preparatory class and when they were in fourth grade. Furthermore, it was aimed to examine whether gender factor was effective on foreign language anxiety of students. The research was carried out on 98 students (57 female) continuing from preparatory class to fourth grade and taking part in the first and second phases of the study voluntarily. Research data were collected through Foreign Language Classroom Anxiety Scale. Although foreign language anxiety levels of the students were found at moderate level both in preparatory class and in fourth grade, students had slightly higher anxiety level in fourth grade than they had in preparatory class. However, foreign language anxiety among males was found higher than females.

**Key words:** Language learning, anxiety, students studying English Language and Literature.

## INTRODUCTION

Anxiety has been a matter of considerable interest in language education setting for educators since it is a major obstacle to foreign language learning that the learners need to overcome (Wu, 2010; Zheng, 2008). Horwitz (2001) asserts that one-third of all foreign language learners experience some level of language anxiety. Therefore, foreign language anxiety has been a topic of much interest and research in recent years (Ellis, 2008), especially the 1980s witnessed the breakthrough in the studies on foreign language learning anxiety (Wang, 2014).

Foreign language anxiety is an important factor that

influences one's level of achievement in foreign language learning (Dordinejad and Ahmadabad, 2014). According to MacIntyre and Gardner (1994), foreign language anxiety - "the feeling of tension and apprehension specifically associated with second language contexts, including speaking, listening, and learning"- is different from a general feeling of anxiety, and therefore, keeps learners from reaching their goals (Horwitz, 2001), and prevents foreign language learners from successful performance in the target language (Hashemi and Abbasi, 2013). Horwitz et al. (1986) defined foreign language anxiety as "a distinct complex of self-

E-mail: [snlelaldi@gmail.com](mailto:snlelaldi@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/)

perceptions, beliefs, feelings, and behaviors related to classroom language learning arising from the uniqueness of the language learning process". From this perspective, they claim that language anxiety is unique due to the way it involves learners' self-concepts to communicate competently and to present themselves genuinely.

Foreign language anxiety can occur if students are exposed to several negative experiences in a foreign language context (Chen and Chang, 2004; Sparks et al., 2000; Hewitt and Stephenson, 2012; Horwitz et al., 1986; Horwitz et al., 2010; MacIntyre and Gardner, 1991; MacIntyre, 1999; Saadi, 2009; Sparks and Ganschow, 2007). Moreover, it can "make learners get discouraged, lose faith in their abilities, escape from participating in classroom activities, and even give up the effort to learn a language well" (Na, 2007). Given that learners with high anxiety often perform at lower levels than those with lower anxiety (Cui, 2011).

Horwitz et al. (1986) classified foreign language anxiety into three components as:

1. Communication apprehension, which arises from learners' inability to adequately express mature thoughts and ideas.
2. Fear of negative social evaluation, which arises from a learner's need to make a positive social impression on others.
3. Test anxiety, an apprehension about academic evaluation.

In communication apprehension, foreign language learners have difficulty not only in speaking but also comprehending messages from others (Horwitz et al., 1986). In other words, learners have difficulty in understanding others or in being understood. Fear of negative evaluation is closely related to communication apprehension (MacIntyre and Gardner, 1991). Additionally, especially "students whose personalities tend to fear negative evaluation seem to be strong candidates for experiencing anxiety in foreign language classrooms" (Kitano, 2001). Huang (2005) reported that, the causes of provoking test anxiety might be derived from the educational system. MacIntyre and Gardner (1991) found that communication apprehension and fear of social evaluation were the main factors in foreign language anxiety, while test anxiety was just a general problem, and it was independent from the foreign language anxiety.

Language learning anxiety may be experienced due to linguistic difficulties foreign language learners face in learning and using the target language (Hashemi and Abbasi, 2013). However, Horwitz (2001) claimed that foreign language anxiety is independent of first language learning disabilities and should be viewed as an

important factor that hinders language learning in and of itself. Zhang and Zhong (2012) has categorized causes of foreign language learning anxiety as being "learner-induced, classroom-related, skill-specific, and some society-imposed depending on different contexts".

The main cause of anxiety stems from "learners' unrealistic or erroneous beliefs about language learning" (Zhang and Zhong, 2012). While some learners think they lack the aptitude or gift to learn a new language (Price, 1991), some believe that two years or less is sufficient for them to become proficient in another language (Horwitz, 1988) without estimating the difficulty of the language learning task, and therefore, they could possibly experience conflict resulted in anxiety.

Learners may also have erroneous beliefs and expectations about language standards. Since foreign language learners are exposed to the expert language of native speakers from tapes, videos and instructors (Kitano, 2001), they "set their standards as high as the level of native speakers", which causes anxiety because of failing to achieve the high standards (Zhang and Zhong, 2012). In addition, high expectations that learners are required to communicate and speak in public cause anxiety. The fear of falling short of these expectations can hinder the learning process (Rajanthran et al., 2013). Anxious learners think that their language skills, especially speaking skills, are weaker than their peers' (Young, 1991) because of perceiving speaking ability as the most important. Additionally, Kitano (2001) states that "speaking skill is usually the first thing that learners compare with that of peers, teachers and native speakers".

Classroom-related anxiety is associated with instructors, peers and classroom practices (Zhang and Zhong, 2012). Instructors who believe their role is to correct students constantly, who feel that they cannot have students working in pairs because the class may get out of control may be contributing to learner language anxiety (Young, 1991).

According to Hashemi and Abbasi (2013), the more friendly and informal the language classroom environment, the less it is likely to be anxiety provoking. They state that "formal language classroom setting is a major source of stress and anxiety because of its demand to be more correct and clearer in using the target language". Furthermore, the evaluation or criticisms from peers is also a major cause of anxiety (Conway, 2007). Young (1991) found that anxious learners thought their skills in language were weaker than their peers' and they were looking down at them. In addition, anxious learners are scared because of a fear of appearing awkward, foolish and incompetent in the eyes of their peers (Jones, 2004).

Classroom activities have also caused anxiety. As it was reported in Price's (1991) interview study, many anxious students fear making mistakes in pronunciation

in front of their peers. Furthermore, oral presentation is the most anxiety-provoking classroom activity (Koch and Terrell, 1991), which makes the classroom environment more formal and stressful for the learners. However, Hashemi and Abbasi (2013) reported language learners to be less anxious and stressful in environments which emphasize collaborative activities among the teachers and the students.

Fear of testing is another source of anxiety stemming from classroom environment, where learners are constantly being evaluated. Students put down a wrong answer because of their nervousness during the test (Conway, 2007). According to Young (1991), "in language testing, the greater degree of student evaluation and the more unfamiliar and ambiguous the test tasks and formats, the more the learner anxiety is produced". Since students with high levels of foreign language anxiety exhibit avoidance behavior (Gregersen and Horwitz, 2002), it is essential to find out the causes of foreign language anxiety and reduce the undesired effects in foreign language teaching to create a low anxiety classroom for the learners (Young, 1991).

Founded in 1990, the Department of English Language and Literature at Cumhuriyet University offers undergraduate (BA) and graduate (MA) degrees in English. To enroll for a BA at the department, students must take the two exams - Student Selection and Placement System Exam (OSYS) and Foreign Language Exam (YDS) - administered by Student Selection and Placement Center (OSYM) in Turkey. Within the Turkish education system, the only way to enter a university's foreign language department is through these exams. After the enrollment process, students must take the English proficiency exam run by the language school. If students fail to pass this exam they are required to spend a year in the English preparatory class of the language school before beginning their studies at the department. In the English preparatory class, students take intensive English courses - a minimum of 25 hours per week - to understand written and spoken English, to express themselves in English in writing and orally, and to effectively follow and understand the courses being provided in English. After having successfully completed their preparatory class within one year, the students take the English proficiency exam again before being allowed to continue their normal education in their department. In case students are not able to be successful in this exam, these students must retake the preparatory class. In BA degree of the Department of English Language, various lectures are given generally on the subjects of English Literature, English Language, Linguistics, Translation, Literary Theories and Practical Criticism.

This study aimed to find out foreign language anxiety levels of university students studying English Language and Literature when they were in preparatory class and when they were in fourth grade. Furthermore, it was

aimed to examine whether gender factor was effective on foreign language anxiety of students. Therefore, to fulfill the purpose of this study, the following research questions were addressed:

1. What is the individual anxiety level to each item of FLCAS responded by the students who are in preparatory class as new beginners and in fourth grade as candidates of graduation?
2. What is the overall anxiety level of the students based on the FLCAS instrument when they are in preparatory class and when they are in fourth grade?
3. Does foreign language anxiety of students in preparatory class and in fourth grade vary according to gender?

## METHODOLOGY

### Research design

A survey model, one of typical descriptive study designs, was employed in the present study. Descriptive research is used to describe a current situation that existed in the past or exists now in the way it is (Karasar, 2009). Survey method is frequently used to collect descriptive data to find out "what is" (Borg and Gall, 1989).

### Sample

Preparatory students (N = 124) studying in the Faculty of English Language and Literature at Cumhuriyet University in Turkey volunteered for this study. The study was carried out on the entire group of students rather than making a sample selection. Therefore, the first phase of the study was completed with 118 of these students enrolled in fall 2011.

Afterward, in the spring term of 2015 when the same students attended fourth grade, the second phase of the research included only 98 participants (57 female) - continuing from preparatory class to fourth grade and taking part in the first phase of the study. Therefore, the results of the current study were evaluated for 98 participants. The sample and the population of this study is of great significance for English language teaching because the study is dealing with English Language and Literature graduates and their language learning experiences, perceptions throughout their language development. This is a very special group since they are expected to be highly proficient and fluent in second language (L2). So the study assumes that they should be -somehow- quite concerned about learning and using L2.

### Instrumentation

Data for the study were collected using the *-Foreign Language Classroom Anxiety Scale-* (FLCAS) developed by Horwitz et al. (1986). The scale is a self-report measure of language learner's feelings of anxiety as a specific reaction to foreign language learning in the foreign language classroom (Wang, 2010). The instrument is intended to measure foreign language learners' anxiety level while learning a language in the classroom. The FLCAS uses a 5-point Likert scale with 33 items, ranging from strongly agree (5) to strongly disagree (1). Total anxiety scores for the scale range from 33 to 165 points. While the answer *-strongly*

*agree*- indicates high level of anxiety, *-strongly disagree*- indicates low level of anxiety that students feel (Horwitz, 2008). According to Horwitz et al. (1986), the internal consistency is 0.93 based on Cronbach's coefficient alpha and test-retest reliability over a period of eight weeks is  $r=0.83$  ( $p<.001$ ). This is a valid and reliable scale that has been consistently used in previous studies to measure anxiety (Aida, 1994; Elkhaphiefi, 2005; Horwitz et al., 1986; Kim, 2000; Kitano, 2001; Moghaddam, 2014; Price, 1991; Sus, 2002; Şener, 2015; Wang, 2010; Zhao, 2007).

### Data analysis

Statistical package for the social sciences (SPSS) 18.0 package program was conducted in the analysis of data. Data were analyzed using frequencies, percentages, arithmetic mean, standard deviation, and independent sample t-tests.

## RESULTS

First, reliability coefficients were computed. The modified FLCAS, as measured by Cronbach's alpha, showed an internal consistency of 0.91 for sample of this study. Turning to the first and second research questions regarding what the individual anxiety level to each item of FLCAS and the overall anxiety level of the students when they were new beginners in preparatory class and senior students in fourth grade, the individual and overall anxiety scores for each item are presented in Table 1.

In Table 1, all numbers indicate students who chose each answer from strongly agree (SA) to strongly disagree (SD). The mean FLCAS score of preparatory participants in this study was found to be 3.10 which indicated that the participants reported a moderate or slight level of anxiety. However, when the participants were surveyed when they were in fourth grade, their average FLCAS score was found to be 3.14. Although an increase of 0,04 points was found in their FLCAS levels, participants still had moderate level of anxiety. As shown in Table 1, in preparatory class, although 21 items exceeded 3.0, six of them went over 3.5. In fourth grade, no items were observed exceeding 3.5 and therefore, slight level of anxiety was displayed in all sub-dimensions. The mean of all the participants' scores of FLCAS when they were in preparatory class and in 4th grade is presented in Table 2. The data showed that the FLCAS scores of the participants when they were in preparatory class ranged from 41 to 165, with a mean of 102.22 ( $SD = 22.04$ ), in fourth grade, their scores changed from 52 to 162 with a mean of 103.59 ( $SD = 23.02$ ).

Turning to the third research question regarding the relationship between gender and foreign language anxiety, the data are presented in Table 3. To test for homogeneity of the two groups, a Levene's test for equality of variance was conducted. While the findings of the participants when they were in preparatory class supported the homogeneity assumption, in fourth grade,

except for the dimension *-Fear of Negative Evaluation-*, in overall scale and the other two dimensions, the level of homogeneity was found below 0.05, which was selected as the level of significance. Therefore, in order to examine the relationship between gender and foreign language anxiety, the Mann Whitney U test was utilized in fourth grade data while independent t-test was performed in preparatory class data of the same participants.

The findings represented in Table 3 revealed that male participants' anxiety scores obtained from not only overall scale but also all the dimensions of FLCAS were found statistically significant both in preparatory class and in fourth grade when compared with female participants.

## DISCUSSION

The purpose of this research was to examine foreign language anxiety levels of students studying English Language and Literature at Cumhuriyet University, Turkey when they were in preparatory class and when they were in fourth grade. Furthermore, gender variable was also taken into account. The results indicated that students had average anxiety levels both in preparatory class ( $Mean=3.10$ ;  $SD=1.34$ ) and in fourth grade ( $Mean=3.14$ ;  $SD=1.37$ ). As Horwitz (2008) explained, "students with averages around 3 should be considered slightly anxious, while students with averages below 3 are probably not very anxious. Students who average 4 and above, are probably fairly anxious".

Therefore, the findings of the study revealed that language anxiety did not necessarily decline in line with students' foreign language progress from preparatory class to fourth grade. On the contrary, when the students included in the study came to fourth grade, their anxiety level was found slightly higher than their preparatory class anxiety level. According to Casado and Dereshiwsky (2001) who examined university students' language learning and language anxiety and found a level of higher degree in their subjects' communication apprehension mean score in the second semester than in the first semester, anxiety does not diminish nor decrease with the experience acquired in academic year of language learning.

Similarly, Aydemir (2011) studied foreign language anxiety levels of university students at the beginning and at the end of the academic year, and found that the participants' foreign language anxiety levels increased at the end of the academic year. In addition, Ewald (2007), Kitano (2001) and Saito and Samimy (1996) suggested that advanced students experienced higher anxiety than elementary-or intermediate level students. Contrarily, some studies have concluded that foreign language anxiety is expected to decrease when experience and proficiency increases (Chapelle and Roberts, 1986;

**Table1.** FLCAS items with numbers of students selecting each alternative in preparatory and in fourth grade.

S/N	Variable	*SA	A	N	D	SD	Mean	Standard deviation
	I never feel quite sure of myself when I am speaking in my foreign language class							
1.	Prep. class	5	22	20	29	22	2.58	1.21
	4th grade	15	22	10	27	24	2.77	1.43
	I don't worry about making mistakes in language class*							
2.	Prep. class	9	16	18	40	15	2.63	1.19
	4th grade	23	17	17	30	11	3.11	1.37
	I tremble when I know that I'm going to be called on in language class							
3.	Prep. class	19	24	11	28	16	3.02	1.41
	4th grade	24	22	15	24	13	3.20	1.40
	It frightens me when I don't understand what the teacher is saying in the foreign language							
4.	Prep. class	12	29	13	30	14	2.95	1.30
	4th grade	17	33	19	17	12	3.27	1.28
	It wouldn't bother me at all to take more foreign language classes*							
5.	Prep. class	34	34	17	5	8	3.83	1.20
	4th grade	17	22	20	31	8	3.09	1.25
	During language class, I find myself thinking about things that have nothing to do with the course							
6.	Prep. class	19	38	22	14	5	3.53	1.11
	4th grade	14	32	16	31	5	3.19	1.18
	I keep thinking that the other students are better at languages than I am							
7.	Prep. class	24	27	20	15	12	3.37	1.33
	4th grade	28	27	9	21	13	3.37	1.43
	I am usually at ease during tests in my language class*.							
8.	Prep. class	16	23	29	17	13	3.12	1.26
	4th grade	24	24	14	21	15	3.21	1.42
	I start to panic when I have to speak without preparation in language class							
9.	Prep. class	9	20	8	32	29	2.47	1.35
	4th grade	16	21	13	25	23	2.82	1.43
	I worry about the consequences of failing my foreign language class							
10.	Prep. class	7	12	11	40	28	2.29	1.21
	4th grade	10	22	14	28	24	2.65	1.34
	I don't understand why some people get so upset over foreign language classes*							
11.	Prep. class	23	24	16	19	16	3.19	1.42
	4th grade	26	20	13	25	14	3.19	1.44
	In language class, I can get so nervous I forget things I know							
12.	Prep. class	10	21	15	33	19	2.69	1.29
	4th grade	21	23	9	31	14	3.06	1.41
	It embarrasses me to volunteer answers in my language class							
13.	Prep. class	26	28	10	23	11	3.36	1.39
	4th grade	27	24	10	20	17	3.24	1.49
	I would not be nervous speaking the foreign language with native speakers*							
14.	Prep. class	37	27	16	12	6	3.79	1.25
	4th grade	28	22	19	12	17	3.33	1.45

Table 1. Cont'd

I get upset when I don't understand what the teacher is correcting								
15.	Prep. class	10	17	14	39	18	2.61	1.26
	4th grade	17	13	17	35	16	2.80	1.35
Even if I am well prepared for language class, I feel anxious about it								
16.	Prep. class	18	22	15	33	10	3.05	1.31
	4th grade	20	20	16	32	10	3.08	1.33
I often feel like not going to my language class								
17.	Prep. class	31	32	15	10	10	3.65	1.30
	4th grade	27	28	12	19	12	3.40	1.39
I feel confident when I speak in foreign language class*.								
18.	Prep. class	12	26	32	20	8	3.14	1.13
	4th grade	19	24	22	21	12	3.17	1.31
I am afraid that my language teacher is ready to correct every mistake I make								
19.	Prep. class	17	40	19	12	10	3.43	1.21
	4th grade	23	28	22	16	9	3.41	1.27
I can feel my heart pounding when I'm going to be called on in language class								
20.	Prep. class	9	27	17	25	20	2.80	1.30
	4th grade	19	24	11	26	18	3.00	1.43
The more I study for a language test, the more confused I get								
21.	Prep. class	13	25	16	26	18	2.89	1.34
	4th grade	19	23	16	26	14	3.07	1.36
I don't feel pressure to prepare very well for language class*								
22.	Prep. class	16	25	18	28	11	3.07	1.29
	4th grade	21	21	20	23	13	3.14	1.35
23.	I always feel that the other students speak the foreign language better than I do							
	Prep. class	17	33	16	17	15	3.20	1.34
	4th grade	29	20	15	20	14	3.31	1.45
I feel very self-conscious about speaking the foreign language in front of other students								
24.	Prep. class	19	24	14	24	17	3.04	1.41
	4th grade	24	24	11	28	11	3.22	1.39
Language class moves so quickly I worry about getting left behind								
25.	Prep. class	13	31	22	22	10	3.15	1.21
	4th grade	12	35	19	28	4	3.23	1.12
I feel more tense and nervous in my language class than in my other classes								
26.	Prep. class	28	43	10	10	7	3.77	1.18
	4th grade	18	29	6	40	5	3.15	1.28
I get nervous and confused when I am speaking in my language class								
27.	Prep. class	16	18	18	26	20	2.84	1.38
	4th grade	12	16	14	38	18	2.65	1.29
When I'm on my way to language class, I feel very sure and relaxed*.								
28.	Prep. class	13	33	16	23	13	3.10	1.28
	4th grade	28	20	20	23	7	3.40	1.31
I get nervous when I don't understand every word the language teacher says								
29.	Prep. class	9	26	14	36	13	2.82	1.23
	4th grade	16	22	18	32	10	3.02	1.28

Table 1. Cont'd

I feel overwhelmed by the number of rules you have to learn to speak a foreign language								
30.	Prep. class	23	25	16	24	10	3.28	1.33
	4th grade	24	32	16	15	11	3.44	1.32
I am afraid that the other students will laugh at me when I speak the foreign language								
31.	Prep. class	29	30	13	21	5	3.58	1.26
	4th grade	28	25	14	21	10	3.41	1.37
I would probably feel comfortable around native speakers of the foreign language*								
32.	Prep. class	32	21	18	14	13	3.46	1.42
	4th grade	24	20	14	24	16	3.12	1.45
I get nervous when the language teacher asks questions which I haven't prepared in advance								
	Prep. class	9	20	8	38	23	2.53	1.30
	4th grade	17	26	13	29	13	3.05	1.34
33.	<b>Average</b> (Prep)	-	-	-	-	-	<b>3.10</b>	<b>1.34</b>
	<b>Average</b> (4th grade)	-	-	-	-	-	<b>3.14</b>	<b>1.37</b>

\*SA = strongly agree; A = agree; N = neither agree nor disagree; D = disagree; SD = strongly disagree. Reverse scored items are indicated by an asterisk (\*).

Table 2. Minimum, maximum and mean scores in the FLCAS.

Preparatory class	N	Minimum	Maximum	M	SD
Overall FLCAS	98	41	165	102.22	22.04
Communication apprehension	-	13	55	32.97	8.78
Test anxiety	-	19	75	47.15	9.73
Fear of negative evaluation	-	8	35	22.10	5.76
Fourth grade	N	Minimum	Maximum	M	SD
Overall FLCAS	-	52	162	103.59	23.02
Communication apprehension	-	15	55	33.60	9.07
Test anxiety	-	22	72	47.09	9.47
Fear of negative evaluation	-	10	35	22.90	6.13

Desrochers and Gardner 1981; Elkhafaifi, 2005; Gardner et al., 1977; Gardner et al., 1979; Gardner et al., 1997; Hismanoglu, 2013; Liu, 2006; Samimy, 1994).

For the gender differences in foreign language anxiety levels, the analyses indicated that foreign language anxiety among male participants was higher than among their female counterparts. More specifically, it was higher in terms of communication apprehension, test anxiety, fear of negative evaluation and the overall FLCAS score both in preparatory class and in 4th grade. The reasons for this result could be that male students are more inclined to feel anxious in the language classroom and are worried about making mistakes (Awan et al., 2010). The findings of the present study support the results of other studies which asserted that male learners

experienced higher foreign language anxiety than female learners (Awan et al., 2010; Aydemir, 2011; Campbell, 1999; Cui, 2011; Hsu, 2009; Karabey, 2011; Kitano, 2001; MacIntyre, Baker and Donovan, 2002; Na, 2007; Sertçetin, 2011; Sevim and Gedik, 2014; Wang, 2014).

## CONCLUSION

This study has concluded that over a four and a half year period, students studying English Language and Literature at Cumhuriyet University, city of Sivas, Turkey experienced moderate level of anxiety. It was observed that language anxiety levels of the students did not decrease during this time interval. On the contrary, a

**Table 3.** Independent t test and Mann Whitney U test results of gender and foreign language anxiety.

<b>Preparatory class</b>									
FLCAS	N 98	Female (n= 57; 58.2 %)		Male (n= 41; 41.8 %)		T &P Values		Levene's test	
		M	SD	M	SD	t	P	F	P
Overall scale	-	96.75	22.80	109.83	18.68	-3.01	0.003*	0.474	0.49
Communication apprehension	-	30.37	9.13	36.59	6.86	-3.67	0.000*	1.859	0.17
Test anxiety	-	45.35	10.28	49.66	8.39	-2.20	0.030*	.202	0.65
Fear of negative evaluation	-	21.04	5.77	23.59	5.47	-2.20	0.030*	0.102	0.75
<b>Fourth grade</b>									
FLCAS	N 98	Female (n= 57; 58.2 %)		Male (n= 41; 41.8 %)		T &P Values		Levene's Test	
		M	Sd	M	Sd	t	P	F	P
Fear of negative evaluation	-	21.93	5.92	24.24	6.24	-1.86	.065	0.393	0.53
<b>Mann Whitney U</b>									
Overall scale	N	Mean rank	Sum of ranks	U	Z	P			
Female	57	44.12	2515.00	862.000	-2.20	0.027*			
Male	41	56.98	2336.00	-	-	-			
			<i>Levene's test</i>	<i>F=5.205</i>	<i>P&lt;0.05</i>				
Communication apprehension	N	Mean rank	Sum of ranks	U	Z	P			
Female	57	42.87	2443.50	790.500	-2.72	.006*			
Male	41	58.72	2407.50	-	-	-			
			<i>Levene's test</i>	<i>F=4.540</i>	<i>P&lt;0.05</i>				
Test anxiety	N	Mean rank	Sum of ranks	U	Z	P			
Female	57	46.27	2637.50	984.500	-1.32	0.185			
Male	41	53.99	2213.50	-	-	-			
			<i>Levene's test</i>	<i>F=8.796</i>	<i>P&lt;0.05</i>				

slight level of increase was found, particularly in terms of both overall FLACAS and dimensions of communication apprehension and fear of negative evaluation. As for the dimension of test anxiety, a slight decrease was observed in the fourth grade.

Therefore, it can be reported that no changes seem to occur between a foreign language learning and anxiety depending on long-term effects. It appears to be related to some factors leading to anxiety in foreign language learning. High expectations from students studying English Language and Literature come first among the factors that may not only be ineffective but extremely discouraging as well although foreign language students' positive expectations for their own performance are important predictors of their future success (Daley et al., 1999). Because they are going to be professionals who will be expected to use the target language properly, efficiently and fluently.

Şener (2015) claims that high level of anxiety is a general problem of Turkish English language learners

who cannot speak in front of others although they know English grammar well due to their being less motivated, not having enough self-confidence or practice to speak in English. Additionally, some other factors like lack of effort, lack of motivation, poor language learning habits and low ability in language learning (Schwarz, 1997) seem to be the reason for anxiety and failure. It should be noted that a teacher plays an important role in student learning choices, experiences and in making learning meaningful to students (Wright et al., 1997). It is teachers' duties that should detect the cause of foreign language anxiety and try to help their students, or create the affective classroom environment so that their learners would learn to communicate rather than fear the language (Chaokongjakra, 2013).

However, the results in this study may not be sufficient to provide in-depth insights into students' foreign anxiety levels. To this end, further both qualitative and quantitative studies with large samples using participants who study EFL departments of different universities may

be conducted concurrently. A set of meta-analytic studies on the sources of foreign language anxiety in Turkish students may be conducted. As Şener (2015) claims developing the speaking and listening skills of foreign language learners are always neglected in Turkey. For this reason, many universities and private high schools hire foreign native speakers of English in their English departments to overcome students' communication difficulties and anxiety problems (Şenel, 2012).

Therefore, the main purpose of the EFL teaching in Turkey should be based on the development of the four skills rather than instilling strict grammar rules on students. In this vein, interviewing students about their sources of concerns is recommended in order to reveal whether it is related to their professional expectations or not. Looking into the relation between language proficiency of the graduates and their anxiety levels may also be recommended whether students who gained more skills in L2 are still anxious, or whether they are more or less anxious compared to other students.

### Conflict of Interests

The author has not declared any conflicts of interest.

### REFERENCES

- Aida Y (1994). Examination of Horwitz, Horwitz and Cope's construct of foreign language anxiety: The case of students of Japanese. *Modern Lang. J.* 78:155-68.
- Awan RUN, Azher M, Nadeem M, Naz A (2010). An investigation of foreign language classroom anxiety and its relationship with students' achievement. *J. College Teach. Learn.* 7(11):33-40.
- Aydemir O (2011). A Study on the changes in the foreign language anxiety levels experienced by the students of the preparatory school at Gazi University during an academic year. M.A. Thesis, Published. University of Gazi, Ankara, Turkey.
- Borg W, Gall M (1989). *Educational research: An introduction.* (5th ed.). White Plains, NY: Longman
- Campbell CM (1999). Language anxiety in men and women: Dealing with gender difference in the language, classroom. In: D.J., Young, (Ed.) *Affect in foreign language and second language learning: A practical guide to creating a low anxiety classroom atmosphere.* Boston: McGraw Hill pp. 191-215.
- Casado MA, Dereshiwsky MI (2001). Foreign language anxiety of university students. *College Student J.* 35(4):539-549.
- Chaokongjakra W (2013). Speaking anxiety in foreign language learners. *Thammasat University J.* 31(2):182-186.
- Chapelle C, Roberts C (1986). Ambiguity tolerance and field independence as predictors of proficiency in English as a second language. *Lang. Learn.* 36:27-45.
- Chen TU, Chang GY (2004). The Relationship between foreign language anxiety and learning difficulties. *Foreign Language Ann.* 37(2):279-289.
- Conway J (2007, May). Anxiety in second language learning; Causes and solutions. *EDU* 380.
- Cui J (2011). Research on high school students' English learning anxiety. *J. Language Teach. Res.* 2(4):875-880.
- Daley C, Onwuegbuzie A, Bailey P (1999). Role of expectations in foreign language learning. Paper presented at Mid-South Educational Research Association, Point Clear, Alabama [ED 436 971].
- Desrochers A, Gardner R (1981). *Second language acquisition: An investigation of a bicultural excursion experience.* Quebec: International Centre for Research on Bilingualism.
- Dordinejad FG, Ahmadabad RM (2014). Examination of the relationship between foreign language classroom anxiety and English achievement among male and female Iranian high school students. *Int. J. Language Learn. Appl. Linguistics World* 6(4):446-460.
- Ellis R (2008). *The study of second language acquisition* (2nd ed.). Oxford: Oxford University Press.
- Elkhafaifi H (2005). Listening comprehension and anxiety in the Arabic language classroom. *Modern Lang. J.* 89:206-220.
- Ewald JD (2007). Foreign language learning anxiety in upper-level classes: Involving students as researchers. *Foreign Lang. Ann.* 40:122-142.
- Gardner RC, Smythe PC, Brunet GR (1977). Intensive second language study: Effects on attitudes, motivation and French achievement. *Lang. Learn.* 27:243-261
- Gardner R, Smythe P, Clément R (1979). Intensive second language study in a bicultural milieu: an investigation of attitudes, motivation and language proficiency. *Lang. Learn.* 29:305-320.
- Gardner RC, Tremblay PF, Masgoret A (1997). Towards a full model of second language learning: An empirical investigation. *Modern Lang. J.* 81:344-362.
- Gregersen EK, Horwitz EK (2002). Language learning and perfectionism: Anxious and non-anxious language learner's reactions to their own oral performance. *Modern Language J.* 86:562-570.
- Hashemi M, Abbasi M (2013). The role of the teacher in alleviating anxiety in language classes. *Int. Res. J. Appl. Basic Sci.* 4(3):640-646.
- Hewitt E, Stephenson J (2012). Foreign language anxiety and oral exam performance: A replication of Phillips's MLJ Study. *Modern Language J.* 96:170-189.
- Hismanoglu M (2013). Foreign language anxiety of English language teacher candidates: A sample from Turkey. *Procedia - Social and Behavioral Sci.* 93:930-937.
- Horwitz EK, Horwitz MB, Cope J (1986). Foreign language classroom anxiety. *Modern Lang. J.* 70(2):125-132.
- Horwitz EK (1988). The beliefs about language learning of beginning university foreign language students. *Modern Lang. J.* 72(2):283-294.
- Horwitz EK (2001). Language anxiety and achievement. *Annual Rev. Appl. Linguistics*, 21:112-126. <http://dx.doi.org/10.1017/S0267190501000071>
- Horwitz EK (2008). *Becoming a language teacher: A practical guide to second language learning and teaching.* Boston, MA: Allyn and Bacon.
- Horwitz EK, Tallon M, Luo H (2010). Foreign language anxiety. In J. C. Cassady (Ed.), *Anxiety in schools: The causes, consequences, and solutions for academic anxieties.* New York, NY: Peter Lang. pp. 95-115.
- Hsu SC (2009). Foreign language anxiety among technical college students in English class. *National Formosa University J.* 28(1):113-126.
- Huang HW (2005). The relationship between learning motivation and speaking anxiety among EFL non-English major freshman in Taiwan. M.A. Thesis, Unpublished. Taichung: Chaoyang University of Technology, Taiwan.
- Jones JF (2004). A cultural context for language anxiety. *EA (English Australia) J.* 21(2):30-39
- Karabey M (2011). Foreign language classroom anxiety of preparatory class students at Ataturk University. M.A. Thesis, Published. University of Ataturk, Erzurum, Turkey.
- Karasar N (2009). *Bilimsel araştırma yöntemi* (20th. ed). İstanbul: Nobel Yayınları.
- Kim JH (2000). Foreign language listening anxiety: A study of Korean students learning English. PhD. Thesis. University of Texas, Austin.
- Kitano, K. (2001). Anxiety in the college Japanese language classroom. *Modern Lang. J.* 85:549-566.
- Koch AS, Terrell TD (1991). Affective reactions of foreign language students to Natural Approach activities and teaching techniques In: E. K. Horwitz & D. J. Young (Eds.), *Language anxiety: From theory and*

- research to classroom implications (pp.109-126). Englewood Cliffs, NJ Prentice-Hall.
- Liu M (2006). Anxiety in Chinese EFL at different proficiency levels. *System* 34:301-316.
- MacIntyre PD, Gardner RC (1991). Language anxiety: Its relationship to other anxieties and to processing in native and second languages. *Lang. Learn.* 41:513-534.
- MacIntyre PD, Gardner RC (1994). The subtle effects of language anxiety on cognitive processing in the second language. *Language Learn.* 44(2):283-305.
- MacIntyre PD (1999). Language anxiety: A review of the literature for language teachers. In D. J. Young (Ed.), *Affect in foreign language and second language learning: A practical guide to creating a low-anxiety classroom atmosphere*. Boston: McGraw-Hill pp. 24-45.
- MacIntyre P, Baker S, Clement R, Donovan L (2002). Sex and age effects on willingness to communicate, anxiety, perceived competence, and L2 motivation among junior high school French immersion students. *Language Learn.* 52:537-564.
- Moghaddam Kiya R (2015). The effect of second language learning anxiety on reading comprehension of Iranian university students. *Int. J. Humanities*, 22(1):53-85.
- Na Z (2007). A study of high school students' English learning anxiety. *Asian EFL J.* 9(3):22-34.
- Price ML (1991). The subjective experience of FL anxiety: Interviews with highly anxious students.
- Rajanthran S, Prakash R, Husin A (2013). Anxiety levels of foreign language learners in the IEP classroom: A Focus on Nilai University's intensive English programme (IEP). *Int. J. Asian Soc. Sci.* 3(9):2041-2051.
- Saadi H (2009). The effects of anxiety on students' achievement. The case of third year LMD students. Master Thesis. Mentouri University-Constantine, Algeria.
- Saito Y, Samimy KK (1996). Foreign language anxiety and language performance: A study of learner anxiety in beginning, intermediate, and advanced level college students of Japanese. *Foreign Lang. Ann.* 29:239-251.
- Samimy KK (1994). Teaching Japanese consideration of learners' affective variables. *Theory Pract.* 33(1):29-33.
- Schwarz RL (1997) Learning disabilities and foreign language learning. Retrieved From <http://www.lonline.org/article/6065/>
- Sertçetin A (2011). Classroom foreign language anxiety among Turkish primary school students. M.A. Thesis, Published. University of Uludag, Bursa, Turkey.
- Sevim O, Gedik M (2014). The investigation of speech anxiety of secondary school students according to some variables. *Ataturk Universitesi Türkiyat Araştırmaları Enstitüsü Dergisi [TAED]*. 52:379-393.
- Sparks R, Ganschow L, Javorsky J (2000). Déjà vu all over again: a response to Saito, Horwitz, and Garza. *Modern Lang. J.* 84:251-255.
- Sparks RL, Ganschow L (2007). Is the foreign language classroom anxiety scale measuring anxiety or language skills? *Foreign Lang. Ann.* 40(3):260-287
- Sus MM (2002). Reading anxiety's effects on incidental vocabulary acquisition: Are culturally relevant texts exempt?. Unpublished doctoral dissertation, University of Nevada, Las Vegas.
- Şenel M (2012). Oral communication anxiety and problems of Turkish EFL learners at Samsun 19 Mayıs University, English language teaching Department. *Frontiers Lang. Teach.* 3:49-58.
- Şener S (2015). Foreign language learning anxiety and achievement: A case study of the students studying at Çanakkale University. *Turkish Stud.* 10(3):875-890.
- Wang S (2010). An experimental study of Chinese English major students' listening anxiety of classroom learning activity at the university level. *J. Lang. Teach. Res.* 1(5):562-568.
- Wang M (2014). An empirical study on foreign language anxiety of non-English major students: Take the sophomores in Inner Mongolia University of Technology as an Example. *Stud. Lit. Lang.* 9(3):128-135.
- Wright P, Horn S, Sanders W (1997). Teachers and classroom heterogeneity: Their effects on educational outcomes. *J. Pers. Eval. Educ.* 11(1):57-67.
- Wu K (2010). The relationship between language learners' anxiety and learning strategy in the CLT classrooms. *Int. Educ. Stud.* 3(1):174-191.
- Young DJ (1991). Creating a low-anxiety classroom environment: What does the language anxiety research suggest? *Modern Lang. J.* 75:425-439.
- Zhang R, Zhong J (2012). The hindrance of doubt: Causes of language anxiety. *Int. J. English Linguist.* 2(3):27-33. doi:10.5539/ijel.v2n3p27
- Zhao N (2007). A study of high school students' English learning anxiety. *Asian EFL J.* 9(3):22-34.
- Zheng Y (2008). Anxiety and second/foreign language learning. *Canadian J. New Scholars Educ.* 1(1):1-12.

*Full Length Research Paper*

## An evaluation of the empathy levels of pre-service social studies teachers

Bariş KAYA

Faculty of Education, Department of Social Studies Education, Bulent Ecevit University, Zonguldak, Turkey.

Received 30 October, 2015; Accepted 19 February, 2016

**This study was conducted to determine the factors that affect the empathy levels of pre-service teachers studying in the Department of Social Studies Teaching. The research questions developed in this context aimed to determine the roles of gender, age and being a member of a school club in the empathy levels of pre-service teachers. The study group consisted of pre-service social studies teachers (n=149), including 87 females and 62 males, studying in a faculty of education in the Black Sea region. The independent sample t-test was used to determine whether the empathy levels of pre-service teachers varied by age, gender and being a member of a school club. The analyses found that the pre-service teachers' scores on the emotional reactivity sub-dimension of empathy levels varied by age and gender variables.**

**Keywords:** Empathy level, social studies, education.

### INTRODUCTION

Systematic, disciplined and planned education in schools serves two purposes: teaching students the academic knowledge they can use in their daily lives and in a choice of profession, and more importantly, socializing them.

Paragraph 1 of Article 26 of Universal Declaration of Human Rights (1948) states: "Everyone has the right to education. Education shall be free, at least in the elementary and fundamental stages. Elementary education shall be compulsory. Technical and professional education shall be made generally available and higher education shall be equally accessible to all on the basis of merit." Paragraph 2 continues: "Education shall be directed to the full development of the human personality and to the strengthening of respect for human rights and fundamental freedoms. It shall promote understanding,

tolerance and friendship among all nations, racial or religious groups, and shall further the activities of the United Nations for the maintenance of peace" (<http://www.un.org/en/documents/udhr/>). Article 26 was prepared in the aftermath of the destruction of World War II based on the common understanding that human beings need to be protected from one another.

Certainly, the Article's proposal of compulsory education is not related to the ability of future generations to acquire academic knowledge in schools, but to the necessity of their socialization. World War II had shown that there was no limit to how badly people can treat each other, that they have very different ways of killing each other and that they can easily justify their actions by differences in races, political views, religions and sects,

E-mail: [kayabaris1974@yahoo.com](mailto:kayabaris1974@yahoo.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/)

geographical locations and the need for raw materials.

The world's population is now 7.324 billion people (<http://populationpyramid.net/world/2015/>), each with their own different personalities. It is normal to expect mutual liking among individuals; however, they also have the right not to like each other. Individuals may not like each other, but living together in a community, country or the world brings with it obligations of mutual respect, tolerance and forgiveness. Also, the need to produce and share collectively in order to live well and prosper requires that people be honest, sharing, helpful and productive. The need to possess all these traits at the same time means that people have to know each other and work together. In brief, the second aim of education requires people to socialize and be socialized, the primary purpose of which is to give people the opportunity to acquire the capacity for empathy.

People with empathy would not so easily cause the type of destruction of humankind seen in World War II. For this reason, compulsory elementary education became part of the Declaration. School is the only place to socialize humankind in a systematic, disciplined and planned manner, to get them to know each other, to allow them to acquire empathy and to get them to produce collectively in society. Belonging to a community brings awareness of solidarity and mutual attachment among people. This awareness occurs by making the contributions and resources available for the needs of individuals and groups, developing care and empathy, and learning to be interested in diverse communities with ethnic, cultural and social differences (Gay and Hanley, 1999).

Empathy, no doubt, is an important skill. It helps people to be aware of others' feelings and thoughts. It allows us to understand their intentions, predict their actions and experience emotions triggered by their emotional experiences. Empathic skills facilitate effective communication in the social world. It is like a "glue" in the community helping us to help others and deterring us from hurting others (Baron-Cohen and Wheelwright, 2004).

## Empathy

The English word, empathy, derives from the Greek word, *empathia*. The prefix, *em*, means within or inside, and *pathia* means feeling (Gülseren, 2001). In the twenty-first century, empathy is frequently discussed in psychiatry and psychology and a topic of research in the fields of clinic, social and communication psychology. Although many researchers have contributed to the comprehension of empathy, the first name that comes to mind today is Carl Rogers. Today, Empathy's irreplaceable importance in psychotherapy and interpersonal relations is the result of his persistent

studies (Dinçyürek, 2004). The most commonly accepted definition of empathy sees it as the process of understanding and feeling accurately what another individual is experiencing by placing oneself in another's position and letting the other individual know about this (Rogers, 1975).

Emphasizing that the scope of the concept of empathy should be limited, Freud defined empathy as a practice that plays a role in understanding something strange to the self of an individual (Ünal, 1972). According to Badea and Pana (2010), empathy is a way of understanding the feelings of others, not experiencing them. An individual should be sensitive to the feelings of other individuals and should recognize, understand and interpret these feelings to show empathy. Being able to understand other individuals' feelings before they express them is the core of empathy. Being empathetic means reading other individuals in an emotional way (Moller, 2000).

Zinn (1993) described empathy as: "the intellectual identification with, or experiencing emotions, thoughts, or attitudes of another; the imaginative ascribing to an object, as a natural object or work of art, feelings, or attitudes present in oneself" (as cited in Marshall and Marshall, 2011).

Liew et al. (2003) defined empathy as an effective reaction caused by fear, anxiety or the expectation about what another individual feels or will feel.

Rota and Reiterer (2009) defined empathy as: "the individual's struggle to identify themselves in imaginative or real life conditions" (cited in Dewaele and Wei, 2012).

Feshbach (1987), Miller and Eisenberg (1988) claim that empathy underlines pro-social behavior, and in the absence of empathy, individuals display aggressive and acquisitive behaviors while ignoring the rights or suffering of others (cited in Marshall and Marshall, 2011). Empathy includes the notion of understanding multiple perspectives on people's actions, historical events and the ability to take an empathic stance (Grant, 2001). According to Foster (1990), without important aspects of empathy, contrary to common sense, empathy is neither synonymous with sympathy or imagination, nor is it a skill for understanding the world through someone else's eyes (cited in Grant, 2001).

Hoffman (1991) stated that the motivation needed for moral actions depends on empathy. Putting oneself in the other's place, understanding his feelings and his experiences in every condition is the highest level of empathy (cited in Kirsli, 2003).

There are many elements to be considered for a definition of empathy. For example, how do empathy and sympathy differ, if they actually do differ? Is empathy a cognitive or an affective response to the suffering of others? Recent research has conceptualized empathy as having both cognitive and affective aspects

(Marshall and Marshall, 2011).

### Dimensions of empathy

There are many explanations of the multidimensional nature of empathy. Social psychologists define empathy using two main approaches. The first, cognitive empathy, is understanding others' states of mind with the help of the imagination, and the second, emotional empathy, is defined as one's emotional reaction to another's emotional reaction. In the literature, affective empathy is used to refer emotional empathy (Lawrence, Shaw, Baker, Baron-Cohen and David, 2004).

Lamm and Majdandzic (2015) stated that since the explanation of the concept of sharing another individual's feelings (Empathy: Em – inside/internal / patheos: emotion, feeling) through neurological networks (MR imaging) began approximately 10 years ago, empathy is handled in the field of social neuroscience (neuroscience in behavior and learning, neurology in medicine and neurobiology). Emphasizing that the bases of empathy which is a very important and complex social skill should be revealed empirically as a neurological substructure, Lamm and Majdandzic (2015) pointed out how important and determinant shared neural activity—especially the relationship between empathy and mirror neurons—is for empathy.

Empathy is a conscious, intrinsic capacity that can be caused in two ways. Firstly, empathy can be caused by observing one's emotional state and briefly experiencing affective resonance (affective empathy). Secondly, it can be caused by intentionally adopting someone else's psychological perspective (cognitive empathy) (Decety and Moriguchi, 2007; cited in Segal, Cimino, Gerdes, Harmon and Wagaman, 2013).

Contrary to commonsense, emotional empathy is not related to sensitivity against injustice to others. Rather, due to individual differences, cognitive empathy and empathic concern involve a predictable sensitivity to justice for others, in addition to adherence to a moral code (Decety and Yoder, 2015).

In this study, the emotional reactivity sub-factor of the survey was conceptualized as a component of emotional regulation. Many researchers think that structure of emotional regulation potentially indicates that it has a unifying effect on maladaptive behaviors. For example, Linehan et al. (1993) asserted that the primary etiological cause of borderline personality disorder is emotional dysregulation (Becerra and Campitelli, 2013).

In this study, the emotional reactivity sub-factor of the survey was conceptualized as a component of emotional regulation. Many researchers think that structure of emotional regulation potentially indicates that it has a unifying effect on maladaptive behaviors. For example, Linehan et al. (1993) asserted that the primary

etiological cause of borderline personality disorder is emotional dysregulation (cited in Becerra and Campitelli, 2013).

Interestingly, cognitive and social neuroscience research is increasingly supporting emotional reactivity as the primary explanation for individual disposition towards sensitivity to justice. In two different studies, Yoder and Maya (2014) showed that sensitivity to justice was an important element in rating predictable approved and disapproved behaviors and moral actions (cited in Decety and Yoder, 2015).

Emotional regulation includes intrinsic and extrinsic processes aimed at monitoring, evaluating and modifying emotional reactions. Emotional reactions, especially their temporal and intensive features, help individuals to achieve their goals. In addition, these reactions include both voluntary and self-inflicted regulation processes (Becerra and Campitelli, 2013). Moreover, these processes are specifically responsible for changing these reactions to be able to reach certain goals (Thompson, 1994; cited in Onat and Otrar, 2010).

It is obvious that individuals' emotional reactions differ from context to context and, in every context of conscious life, play a key role in the personal experience of emotions (Nock et al., 2008).

Several surprising studies examined the effects of depression on emotional processes across cultures. Many other studies of emotional reactions and depression were conducted with European Americans. Clinical reports have shown that patients with manic depressive disorder suffer from extremely negative emotional expressions, experiences and sadness. However, scientific findings contradicted the reports showing that both depressed and non-depressed individuals give the same or only slightly different responses to the same negative emotions and stimulants (Dutton et al., 2007).

### Relationship between curriculum and empathy

According to the NCSS (National Council for Social Studies) (1994), parents who care about raising their children into healthy individuals help create citizens who respect other people and their rights, struggle to improve public policies by participating in public protests and enjoy learning, which is also the aim of social studies experts. Activities that contribute to this goal include modules that teach empathy, assertiveness, anger management and problem-solving skills, as well as those that build self-esteem (cited in Berson and Berson, 1999).

Teachers have to assist students to explore beyond their personal and national experiences, to learn their rights and develop empathy for others, to understand issues with an open mind and to like their colleagues

**Table 1.** Curricula in Turkey involving direct instruction about empathy.

Course	Grade
Education of Religion and Ethics	4-8
Education of Religion and Ethics	9-12
Chess Teaching (Elective)	1-8
Social Studies	4-7
Critical Thinking (Elective)	6-8
Art Activities (Elective)	1-8
Education for Human Rights, Citizenship and Democracy	4
Geography	9-12
Education for Human Rights and Democracy (Elective)	10-12
Drama Education (Elective)	5-6
Drama Education (Elective)	10-12
Thinking Abilities (Elective)	1-8
Emotional and Social Development (Elective)	1-8
Aesthetics (Elective)	10-12
Visual Arts (Elective)	10-12
Music Education (Elective)	10-12
Health Information	9
Analysis of Art Work (Fine Arts High School)	12
Sports Accident Prevention and First Aid (Fine Arts and Physical Education High School)	9
Sports Massage (Fine Arts and Physical Education High School)	10
Social Activities	10-12
Social Studies/Sociology (Social Studies High School)	9-10
Sociology of Sports (Fine Arts and Physical Education High School)	12
Fundamentals of Religion(İmam Hatip Secondary School)	5-8
Fundamentals of Religion (Islam-I-II) (İmam Hatip High School)	9
International Relations (Elective)	10-12

Taken from Kaya and Çolakoğlu (2015).Adaptation of Empathy Quotient Scale (EQS).İnönü University Journal of the faculty of education, 16(1), 17-30. DOI: 10.17679/iuefd.16127895

(Gaudelli and Fernekes, 2004).

Since 2005, many additional elective courses have been added into the curriculum. In 2015, there were total of 188 courses (curriculum) at the primary, secondary and high school levels, and in 27 of them empathy was classified as “direct instruction”. These curricula are listed in Table 1.

Developing empathy helps students establish a positive relationship with teachers so that they can understand problems and find solutions together. When students realize that their teachers are trying to put themselves in their position and understand what they feel, in other words, they notice their teachers' empathetic skill, it is likely that they will feel intimate with them, trust them and be impressed by them (Kuzgun, 2000).

According to Checkley (2008), empathy, the ability to walk in someone else's shoes, has been a necessary focus in the Turkish Republic's curricula since 2005. Table 1 indicates that the social studies curriculum is

one where empathy is directly instructed. This study sought answers to these questions below from pre-service teachers who will teach social studies in the future.

1. Does gender significantly affect the empathy levels of pre-service social studies teachers?
2. Does age significantly affect the empathy levels of pre-service social studies teachers?
3. Does playing an active role in the community significantly affect the empathy levels of pre-service social studies teachers?

#### MATERIALS AND METHOD

This is a descriptive study using the survey method. The sample consisted of 149 pre-service social studies teachers. The participants completed the Empathy Quotient Scale developed by Kaya and Çolakoğlu (2015). A Likert scale with 13 items and 3 sub-factors was used: social skills, cognitive empathy and

**Table 2.** Descriptive analysis results for the empathy quotient scale and its sub-factors.

Independent variables	N	Mean	SD
Social Skills	149	3.07	0.63
Emotional Reactivity	149	3.26	0.55
Cognitive Empathy	149	3.21	0.53
Empathy Quotient Scale	149	3.19	0.42

**Table 3.** The *t*-test scores for gender effects on the empathy quotient scale and its sub-factors.

Independent variables	Gender	N	Mean	SD	t	p
Social Skills	Female	87	3.09	.60	.375	0.71
	Male	62	3.05	.66		
Emotional Reactivity	Female	87	3.42	.50	4.281	0.00*
	Male	62	3.04	.56		
Cognitive Empathy	Female	87	3.19	.56	-.589	0.58
	Male	62	3.24	.50		
Empathy Quotient Scale	Female	87	3.23	.41	1.366	0.17
	Male	62	3.14	.42		

\*  $p < 0.05$ .

emotional reactivity. Its reliability coefficient (Cronbach's alpha) was found to be 0.776 by Kaya and Çolakoğlu (2015). Its reliability coefficient for this study's 149 participants was 0.794. IBM SPSS 13.0 software was used to analyze the data. The independent samples *t*-test was used to compare participants' empathy levels with their demographics.

## FINDINGS

The sample consisted of 87 females and 62 males ( $n=149$ ). Of them, 63.8% were age between 17 and 21 years of age, 41.6% were over 22, and 62% played an active role in the community.

The participants' mean scores on "empathy level" and sub-factors as shown in Table 2 indicate that their empathy level scores were above the average. In addition, the lowest sub-factor score was social skills, and the highest was cognitive empathy.

### Gender effects on students' empathy level and sub-factor scores

The first research question investigated whether there was a difference between the scores of males and

females on the empathy level scale and its sub-factors. The results of the comparisons are shown in Table 3, revealing that there was no significant difference between scores of males and females on the empathy level and its sub-factors, except for the emotional reactivity sub-factor scores ( $t=4.281$ ,  $p < 0.05$ ). The females' emotional reactivity scores ( $M=3.42$ ) were significantly higher than males ( $M=3.04$ ), indicating that the females' emotional reactions were more intense.

### Age effects on students' empathy level and sub-factor scores

The second research question investigated whether the participants' age affected their empathy level and sub-factor scores. The results of the comparisons are shown in Table 4:

Table 4 shows that there was no significant difference between the 17-21 age group and the over-22 age group, except in the emotional reactivity sub-factor scores ( $t=2.463$ ,  $p < 0.05$ ). The mean score of emotional reactivity for the 17-21 age group was 3.34, and for the over-22 age group it was 3.12. Based on the results, younger pre-service teachers were more sensitive than

**Table 4.** The *t*-test scores for age effects on the empathy quotient scale and its sub-factors.

Independent variables	Age	N	Mean	SD	t	p
Social Skills	17-21	95	3.09	.61	.400	0.69
	Over 22	54	3.05	.66		
Emotional Reactivity	17-21	95	3.34	.51	2.463	0.02*
	Over 22	54	3.12	.60		
Cognitive Empathy	17-21	95	3.25	.55	1.020	0.31
	Over 22	54	3.16	.50		
Empathy Quotient Scale	17-21	95	3.23	.41	1.435	0.15
	Over 22	54	3.13	.43		

\*  $p < 0.05$ .**Table 5.** The *t*-test scores for playing an active role in the community effects on the Empathy Quotient Scale and its sub-factors.

Independent Variables	Playing an Active Role in Community	N	Mean	SD	t	p
Social Skills	Yes	92	3.10	.63	.839	0.40
	No	57	3.02	.62		
Emotional Reactivity	Yes	92	3.29	.57	.809	0.42
	No	57	3.22	.53		
Cognitive Empathy	Yes	92	3.27	.52	1.476	0.14
	No	57	3.13	.54		
Empathy Quotient Scale	Yes	92	3.23	.41	1.544	0.13
	No	57	3.12	.42		

older teachers.

### The effects of playing an active role in the community on pre-service teachers' empathy level and sub-factor scores

The third research question investigated whether playing an active role in the community affected the pre-service teachers' empathy level and sub-factor scores. The results are shown in Table 5.

There was no significant difference between the groups' empathy level and sub-factor scores, indicating that an active role in the community had no effect on pre-service teachers' empathy levels.

## DISCUSSION AND CONCLUSION

This study concluded that the emotional reactivity sub-

factor of the pre-service social studies teachers' empathy levels showed a significant difference by gender. The difference was in favor of females. This may be due to the fact that, according to Turkish family structure, manners, customs and traditions, girls begin to prepare for the responsibility of motherhood at early ages, to be a mother and housewife by means of their playing and toys (baby dolls, kitchen toy sets, etc.), and that Turkish society teaches them to behave more compassionately and emotionally towards their children and husbands in the future. The results of other studies conducted in Turkey mentioned below support these results.

A research investigating empathy or empathic tendency found similar results. Ekinci and Aybek's (2010) research on pre-service teachers found that gender significantly affected pre-service teachers' empathic tendencies in favor of females. Ikiz (2009) found that female psychological counselors working at primary schools had higher scores for empathic ability

than males. Akbulut and Sağlam's (2010) research on primary school teachers' empathic ability found that female teachers' mean scores for empathic tendency were higher than those of males. Duru (2002) researched the effects of some psychosocial variables on pre-service teachers' empathic tendency and found that females had significantly different empathic tendency scores. Kapıkıran's (2009) study of the empathic tendency and self-monitoring of pre-service teachers, found that female teachers scored higher than males and that male pre-service teachers were more egocentric.

Fitness and Curtis' (2005) research on the effects of emotional quotient, empathy, attributional complexity and self-control in interpersonal conflicts concluded that females had higher mean scores for empathy than males. Dereli and Aypay (2012) studied the empathic tendency of pre-service teachers in evening education programs and found that females had an advantage over males. Akyol and Salı (2013) investigated the effect of working and non-working adolescents' perfectionist traits on empathic tendency and found that females had significantly higher scores. Myyry and Helkama's (2001) research on university students' value priorities and emotional empathy showed that gender, in favor of females, accounted for a significant difference in empathy.

Self-reports give the most reliable and valid results for gender differences. According to these reports, females are much more empathic than males (Davis, 1983; Eisenberg and Lennon, 1983; Mehrabian et al., 1988; Rueckert and Naybar, 2008; cited in Rueckert et al., 2011). In several Master's theses investigating empathic tendency, females had higher empathic tendencies than males.

Many studies of emotional expressiveness and emotional reactivity have found females to be more emotional than males, or at least more emotionally expressive (Kring and Gordon, 1998). In this research, the emotional reactivity of the female pre-service social studies teachers was significantly different to that of the males. When Demirtaş and Dönmez (2006) researched jealousy in intimate relations they found that females had more emotional reactions than males. Rueckert et al. (2011) conducted a self-report study to investigate whether gender differences in empathic tendency are caused by differences in emotional reactivity. The results showed that women had higher levels of empathy. Sharma (2014) investigated the effect of gender on the daily life stress and major depressive disorders of 60 participants between the ages of 18 and 40 years, and the results showed that stress-coping skills differed with respect to gender. Males were much more practical in problem-solving and less affected by their emotions than females. Males had significantly greater depth of feelings, were less affected by their

own feelings and had a greater control over their feelings. Parkins (2012) investigated the emotional expressivity of males and females in social networking realms, such as Facebook and Twitter and concluded that females were much more emotionally expressive in face-to-face communication than males. Like much of the literature's findings on empathy, the pre-service social studies teachers' empathy levels, and emotional reactivity as a sub-factor, differed by gender.

This study also found that pre-service social studies teachers' emotional reactivity was significantly affected by age. Younger pre-service teachers had higher emotional reactivity than older pre-service teachers. In this study, the emotional reactivity of pre-service social studies teachers in the age group of 17-21 and in the age group of 22 and older was investigated. The results showed that the 17-21 age group had higher scores of emotional reactivity sub-factor than those of the age group of 22 and older, indicating that the younger pre-service teachers are more sensitive. No research investigating the relation between pre-service teachers' empathy levels, age and emotional reactivity was found in the literature.

Kunzmann and Grün (2005) investigated the emotional reactions of young adults and older adults in the presence of emotion-arousing stimulus, but found that age did not affect emotional reactivity. Silvers et al. (2012) conducted a study with children and young adults (10-23-years-old). By showing them negative and neutral photos, they attempted to establish the effect of age on emotional reactivity, regulation sensitivity and rejection sensitivity. The results indicated that age had no effect. Gojmerac (2009) investigated the relation between emotional regulation and age in a doctoral study and found no difference between younger and older adults. Ekinçi and Aybek's (2010) research into pre-service teachers' empathic tendencies and critical thinking skills found that senior students had higher emotional tendencies than freshmen, but in this research did not investigate emotional reactivity. Kliegel et al. (2007) investigated emotional development in adulthood by carrying out a procedure which caused negative moods and found that emotional reactivity is more intense for older adults than younger people. Smith, Hillman and Duley's (2005) research with 18-23 year-old participants and 60-71 year-old participants examined emotional reactivity by showing participants touching pictures. They found that the group of older participants had much more intense emotional reactions.

This study found no significant relation between playing an active role in the community and the empathy levels of pre-service social studies teachers. However, this may be due to the limitation of having only pre-service social studies teachers participating in the research.

It is recommended that further research should be

conducted using the Empathy Quotient Scale developed by Kaya and Çolakoğlu (2015), with pre-service teachers from different departments in faculties of education to compare the results. Due to results of this study, the effects of variables other than age and gender on emotional reactivity as a sub-factor of the Empathy Quotient Scale should also be investigated.

### Conflict of Interests

The author has not declared any conflicts of interest.

### REFERENCES

- Akbulut E, Sağlam Hİ (2010). Sınıf öğretmenlerinin empatik eğilim düzeylerinin incelenmesi, *Uluslararası İnsan Bilimleri Dergisi* 7(2):1068-1083.
- Akyol AK, Salı G (2013). A study on the perfectionist personality traits and empathic tendencies of working and non-working adolescents across different variables, *Educational Sciences: Theory Practice*, 13(4):2017-2042.
- Badea L, Pana NA (2010). The role of empathy in developing the leader's emotional intelligence, *Theoretical and Appl. Econ.* 2(543):69-78.
- Baron-Cohen S, Wheelwright S (2004). The empathy quotient: an investigation of adults with asperger syndrome or high functioning autism, and normal sex differences, *J. Autism and Devel. Disorders*, 34(2):163-175.
- Becerra R, Campitelli G (2013). Emotional reactivity: critical analysis and proposal of a new scale, *Int. J. Appl. Psychol.* 3(6):161-168.
- Berson MJ, Berson RI (1999). Studying child abuse, neglect, and exploitation in middle school social studies, *The Clearing House: J. Educ. Strat. Issues and Ideas*, 72(6):371-376.
- Checkley K (2008). *Priorities in Practice, The Essentials of Social Studies, Grades K-8: Effective Curriculum, Instruction and Assessment*, Association for Supervision and Curriculum Development 1703 N. Beauregard St. Alexandria, USA.
- Decety J, Yoder KJ (2015). Empathy and motivation for justice: cognitive empathy and concern, but not emotional empathy, predict sensitivity to injustice for others, *Social Neuroscience*. (<http://dx.doi.org/10.1080/17470919.2015.1029593>)
- Demirtaş HA, Dönmez A (2006). Yakın ilişkilerdeki skançlık: bireysel ilişkilerde durumsal değişkenler, *Türk Psikiyatri Dergisi*, 17(3):181-191.
- Dereli E, Aypay A (2012). The prediction of empathetic tendency and characteristic trait of collaboration on humane values in secondary education students and the examining to those characteristics, *Educational Sciences: Theory Pract.* 12(2):1262-1270.
- Dewaele JM, Wei L (2012). Multilingualism, empathy and multicompetence, *Int. J. Multilingualism*, 9(4):352-366.
- Diñçyürek S (2004). Üniversite öğrencilerinin empatik becerilerinin çeşitli değişkenler açısından incelenmesi. *Marmara Coğrafya Dergisi* 10:95-116.
- Duru E (2002). "Öğretmen adaylarında empatik eğilim düzeyinin bazı psikososyal değişkenler açısından incelenmesi.", *Pamukkale Üniversitesi Eğitim Fakültesi Dergisi* 12(2):21-35.
- Dutton YEC, Tsai JL, Chu JP, Rottenberg J, Gross JJ, Gotlib IH (2007). Depression and emotional reactivity: variation among asianamericans of east asian descent and europeanamericans, *J. Abnormal Psychol.* 116(4):776-785.
- Ekinçi Ö, Aybek B (2010). Analysis of the empathy and the critical thinking disposition of the teacher candidates, *Elem. Educ. Online* 9(2):816-827.
- Fitness J, Curtis M (2005). Emotional intelligence and the trait meta-mood scale: relationships with empathy, attributional complexity, self-control and, responses to interpersonal conflict, *E-Journal Appl. Psychol.: Soc. Section* 1(1):50-62.
- Gaudelli W, Fernekes, WR (2004). Teaching about global human rights for global citizenship, *Soc. Stud.* 95(1):16-26.
- Gay G, Hanley MS (1999). Multicultural empowerment in middle school social studies through drama pedagogy, *The Clearing House: J. Educ. Strat. Issues and Ideas* 72(6):364-370. (<http://www.tandfonline.com/loi/vtch20>)
- Gojmerac, C. B. (2009). Age-related changes in emotion regulation using a startle modulation paradigm, unpublished doctoral dissertation, Department of Psychology, University of Toronto.
- Grant SG (2001). It's just the facts, or is it? the relationship between teachers' practices and students' understandings of history, *Theory Res. Soc. Educ.* 29(1):65-108.
- Gülseren Ş (2001). Eşduyum (Empati): Tanımı ve kullanımı üzerine bir gözden geçirme. *Türk Psikiyatri Dergisi* 12(2):133-145.
- Ikiz FE (2009). Investigation of empathy levels of the psychological counselors who work in the elementary schools, *Elem. Educ. Online* 8(2):346-356.
- Kapıkıran NA (2009). Öğretmen Adaylarının Empatik Eğilim ve Kendini Ayarlama Açısından İncelenmesi. *Pamukkale Üniversitesi, Eğitim Fakültesi Dergisi* 26(2):81-91.
- Kaya B, Çolakoğlu ÖM (2015). Empati düzeyi belirleme ölçeği (EDBÖ) uyarılma çalışması, İnönü Üniversitesi Eğitim Fakültesi Dergisi, 16(1):17-30. DOI: 10.17679/iuefd.16127895.
- Kırsı T (2003). The moral concerns and orientations of sixth- and ninth-grade students, *Educational Research and Evaluation: Int. J. Theory Pract.* 9(1):93-108. <http://dx.doi.org/10.1076/edre.9.1.93.13545>
- Kliegel M, Jäger T, Phillips LH (2007). Emotional development across adulthood: Differential age-related emotional reactivity and emotion regulation in A negative mood induction procedure, *Int'l. J. Aging Hum. Dev.* 64(3):217-244.
- Kring AM, Gordon AH (1998). Sex differences in emotion: expression, experience, and physiology *J. Pers. Soc. Psychol.* 74(3):686-703.
- Kunzmann U, Grünh D (2005). Age differences in emotional reactivity: The sample case of sadness, *Psychol. Aging* 20(1):47-59.
- Kuzgun Y (2000). *İlköğretimde Rehberlik*, Ankara: Nobel Yayın Dağıtım.
- Lamm C, Majdandzic J (2015). The role of shared neural activations, mirror neurons, and morality in empathy – A critical comment, *Neurosci. Res.* 90:15-24.
- Lawrence EJ, Shaw P, Baker D, Baron-Cohen S, David AS (2004). Measuring empathy: reliability and validity of the empathy quotient, *Psychol. Med.* 34:911-924.
- Liew J, Eisenberg N, Losoya SH, Fabes RA, Guthrie IK, Murphy BC (2003). Children's psychological indices of empathy and their socioemotional adjustment: does caregivers' expressivity matter? *J. Family Psychol.* 17(4):584-597.
- Linehan MM (1993). *Cognitive-Behavioral Treatment of Borderline Personality Disorder*. New York: Guilford.
- Marshall LE, Marshall WL (2011). Empathy and antisocial behaviour, *J. Forensic Psychiatry Psychol.* 22(5):742-759.
- Moller C, Bar-On R (2000). *Heart work*. Hillerod, Denmark: TMI Publishing.
- Myrri L, Helkama K (2001). University students' value priorities and emotional empathy, *Educational Psychology: Int. J. Exp. Educ. Psychol.* 21(1):25-40.
- Nock MK, Wedig MM, Holmberg EB, Hooley MJ (2008). The emotion reactivity scale: development, evaluation, and relation to self-injurious thoughts and behaviors, *Behavior Therapy* 39:107-116.
- Onat O, Otrar M (2010). Bilişsel duygu düzenleme ölçeğinin Türkçeye uyarlanması: geçerlik ve güvenilirlik çalışmaları, *M.Ü. Atatürk Eğitim Fakültesi Eğitim Bilimleri Dergisi* 31:123-143.
- Parkins R (2012). Gender and emotional expressiveness: an analysis of prosodic features in emotional expression, *Griffith Working Papers in Pragmatics and Intercultural Communication*, 5(1):46-54.
- Rogers CR (1975). Empathic: an unappreciated way of being, *The Counseling Psychologist*, 5:2-10.
- Rueckert L, Branch B, Doan T (2011). Are gender differences in

- empathy due to differences in emotional reactivity?, *Psychol.* 6(2):574-578.
- Segal EA, Cimino AN, Gerdes KE, Harmon JK, Wagaman MA (2013). A confirmatory factor analysis of the interpersonal and social empathy index, *J. Soc. Soc. Work Res.* 4(3):131-153.
- Sharma P (2014). Gender differences in emotional reactivity to daily life stress in major depressive disorder: thesis paper, *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, 13(7):55-59.
- Silvers JA, Gabrieli JDE, McRae K, Gross JJ, Remy KA, Ochsner KN (2012). Age-Related differences in emotional reactivity, regulation, and rejection sensitivity in adolescence, *Emotion* 12(6):1235-1247.
- Smith DP, Hillman CH, Duley AR (2005). Influences of age on emotional reactivity during picture processing, *J. Gerontology: Psychol.* 60B(1):49-56.
- Ünal C (1972). İnsanların anlamakabilitesi, *Ankara Üniversitesi Eğitim Bilimleri Fakültesi Dergisi* 5(3):71-93.
- Population Pyramids of the World. Retrived September 08, 2015, from <http://populationpyramid.net/world/2015/>
- United Nations: The Universal Declaration of Human Rights. Retrived September 08, 2015, from <http://www.un.org/en/documents/udhr/>

*Full Length Research Paper*

# Developing reflective thinking instructional model for enhancing students' desirable learning outcomes

Satjatam Porntaweekul<sup>1\*</sup>, Sarintip Raksasataya<sup>2</sup> and Teerachai Nethanomsak<sup>3</sup>

<sup>1,2,3</sup>Department of Curriculum and Instruction, Faculty of Education, Khon Kaen University, Thailand.  
<sup>1,2,3</sup>Mittrabab Road, Nai Muang Subdistrict, Muang District, Khon Kaen 40002, Thailand.

Received 02 July, 2015; Accepted 27 October, 2015

This work aims to investigate the reflective thinking instructional model for enhancing empowerment of pre-service and in-service educational students in Roi-Et Rajabhat University, Thailand. In this research, qualitative methods, observation, interview, short note, and group discussion were used to indicate students' desirable learning outcomes, teaching and learning targets, social system relationships, indirect and direct specifications, performances, and specifications. Students' reflections are related to the social system and conceptualizations affecting students' activities. Persuasive thinking and experience reinforce the experimental exchanged report and reflections scales. Students' behaviours and recalling thinking of their experimentation toward their learning outcomes were found. Specification problems with their decision and belief positions on empirical data were satisfied. Students were able to select and presume the positions of the management existing evidence that solved their problems and developments. Students' skills and strategies of their reflective thinking involve increasing desirable outcomes purposeful and solving problems, formulating inferences, calculating likelihoods, and making decisions thoughtful and effectively in a particular context.

**Key words:** Development, instructional model, interview, observation, qualitative method, reflective thinking, empowerment, educational student, learning outcome.

## INTRODUCTION

This paper gives a background of reflective thinking of teachers and students' instructional model. Qualitative method was used in this study. Education in Thailand is provided mainly by Thai Government through the Ministry of Education from pre-school to senior high school. A free education of twelve years is guaranteed by the constitution, and a minimum of nine years' school attendance is mandatory. Formal education consists of at least twelve years of basic education, and higher

education. Basic education is divided into six years of elementary education and six years of secondary education, the latter being further divided into three years of lower- and upper-secondary levels. Kindergarten levels of pre-elementary education, also part of the basic education level, span 2–3 years depending on the locale, and are variably provided. Non-formal education is also supported by the state. Independent schools contribute significantly to the general education infrastructure.

\*Corresponding author. E-mail: [s\\_porntaweekul@yahoo.com](mailto:s_porntaweekul@yahoo.com), [toansakul35@yahoo.com.au](mailto:toansakul35@yahoo.com.au).

Administration and control of public and private universities is carried out by the Office of Higher Education Commission, a department of the Ministry of Education. A teacher is a professional, which is admired by all; he develops people's economic and social daily life, and also provides education for students. The role of teacher is often formal and ongoing; it is carried out in school or other place of formal education. Teachers, like other professionals, may have to continue their education after they qualify; it is a process known as continuing professional development. Teachers may use a lesson plan to facilitate students' learning, provide a course of study, known as curriculum with particular knowledge or skills in the wider community setting.

One of the researchers of this work is an instructor at the higher education system, the Training Teacher College in Roi-Et Rajabhat University. The student-teachers have Bachelor degree; the senior student teachers must improve themselves to be able to trainee students who will teach in local basic school commission. The established Roi-Et Rajabhat University, the higher educational committee is under the jurisdiction of the Ministry of University Affairs in the government sector. It offers excellent programmes especially in the fields of education, arts, humanities, and information technology, although many students prefer to study law and business abroad or those local schools in Thailand. The researchers use the reflective thinking model for preparing teacher students who have desirable learning outcomes toward their teaching. Reflective thinking, that is, mentally-engaging in cognitive processes for understanding conflicting factors in a situation is a critical component of the learning process (Atkins and Murphy, 1993; Dewey, 1933; Moon, 1999; Schön, 1991). This mental engagement results in a person actively constructing knowledge about a situation in order to develop a strategy to proceed within that situation (Hmelo and Ferrari, 1997).

According to the Training Educational Teacher Commission in Roi-Et Rajabhat University, a teacher unlike an ordinary worker, acts as a master, crafts man, an artist, a strategist and a powerful motivator. Pre-service education is education of teachers before they enter into service as teachers. During this period of teacher education programmes, teaching practice goes side by side, while they are getting knowledge about theory papers. A good deal of improvement in the teacher education programme is needed. Pre-service education is carried out for preparing different types of teachers. Pre-service teacher preparation is a collection of unrelated courses and field experience. Research based curriculum development of pre-service teacher education

is yet to take roots. These programmes are intended to support and enhance teachers' learning, inculcating in them a greater degree of self-confidence. The beginning teachers in this case learn from their practice and the culture and norms of the unique school settings wherein they are placed. It is important for teacher educators to learn how to get in touch with the core qualities of a good teacher and how they can stimulate these qualities in student teachers. This will lead to a deeper involvement in the learning process of teacher educators as well as student teachers. The inclusion of appropriate content knowledge about essential qualities of a good teacher in relevant theory papers and practice of effective domain related traits in school situation for a longer duration could help promote these traits in student teachers. The teacher education programme needs to allow the development of teachers' personality as people who are reflective, introspective and capable of analyzing their own life, so that they can be agent of change.

The moment a teacher has completed his training in a college of education in Rajabhat Roi-Et University, it does not mean that he is now trained for all times to come. A teaching degree, like B.Ed. makes him enter into service as a teacher. Thereafter his job continues well only if he continues his studies everyday in the classroom situations and outside the classroom; if he comes across problems he is expected to sort them out. There is need of more and more knowledge, more and more education for making him a better teacher. There are formal and informal programmes of in-service education organized from time to time. The higher authorities concerned with education want to ensure that the standards of education are properly maintained. That is possible only if the teachers refresh their knowledge and keep it up to the mark. The different agencies, therefore, keep on organizing teacher education programmes for enriching the knowledge of teachers and also for over all proficiency and betterment. In-service education is the education a teacher receives after he has entered the teaching profession and after receiving his education in a teacher's college. It includes all the programmes – educational, social and others in which the teacher takes a virtual part, all the extra education which he receives at different institutions and other professional courses.

Schön (1983), in his book titled, 'Historical background of development of reflective thinking', introduced concepts such as *reflection-on-action* and *reflection-in-action* which explain how professionals meet the challenges of their work with a kind of improvisation that is improved through practice. However, the concepts underlying reflective practice are much older. Earlier in the 20th century, John Dewey was among the first to

write about reflective practice with his exploration of experience, interaction and reflection. Soon thereafter, other researchers such as Kurt Lewin and Jean Piaget developed relevant theories of human learning and development. Some scholars have claimed to find precursors of reflective practice in ancient texts such as Buddhist teachings and meditations of Stoic philosopher Marcus Aurelius. Central to the development of reflective theory was interest in the integration of theory and practice, the cyclic pattern of experience and the conscious application of lessons learned from experience. Since the 1970s, there has been a growing literature and focus around experiential learning and the development and application of reflective practice. Boud et al. explained: "Reflection is an important human activity in which people recapture their experience, think about it, mull it over and evaluate it. It is this working with experience that is important in learning" (Wikipedia, the Free Encyclopedia, 2014).

For this exact reason, researchers were interested in developing the reflective thinking instructional model of student teachers, and to administer three steps of methodological research, namely; synthesis in texts, references, and reflective thinking, where building up of data related to the reflective thinking instructional model for student teachers' learning outcomes is the first step. The second step is to develop and synthesis various instructional methods, which have been recommended to support reflective thinking. Yet the nature of the underlying factors in these methods is unclear, such that exploratory factor analysis was used to determine the factors prompting reflective thinking for their thinking skills. The final step is to suggest that student teachers perceived three method clusters as supporting their reflection, namely:- reflective learning environments and reflective teaching methods- development of solving problem of students' satisfaction of their learning outcomes and relationships between students' development of their thinking processes and their attitude to their professional teacher. How can the methodology of this research develop the reflective think instructional model of teacher and teacher students?

Song et al. (2005) said that reflective thinking was important to young adolescents as they developed their thinking skills. Results of this study suggested that young students perceived three clusters of methods as supporting their reflection: reflective learning environments, reflective teaching methods, and reflective scaffolding tools. McBrien (2007) reported that reflective thinking can be an important tool in practice-based professional learning settings where people learn from their own professional experiences, rather than from

formal learning or knowledge transfer. It may be the most important source of personal professional development and improvement. It is also an important way to bring together theory and practice. Choy and Oo (2012) reported reflective thinking instructional model in Malaysia and described that the concept of reflective thinking as a precursor for incorporating critical thinking has not been adequately researched. Most research has not given any effective strategies on how to incorporate these two concepts. There is a constant need to incorporate critical thinking into the classroom without much success. This study would be attempted to show a link between reflective thinking and its ability to stimulate critical thinking. Teachers often perceive that critical thinking skills need to be taught. The use of reflective thinking might be a precursor to stimulating critical thinking in teachers. The research questions were on the reflective thinking skills of teachers and how they perceived themselves and their teaching. This study showed that most of the teachers did not reflect deeply on their teaching practices. According to Boody (2008), teachers' reflection can generally be characterized as: retrospection, problem-solving, critical analysis and putting thoughts into action. For this review, we integrated the theoretical frameworks by Boody (2008), Hamilton (2005) and Schon (1987) and will discuss reflective thinking based on the following characteristics.

The importance of need assessment to assess teacher students' reflective thinking is developed from the findings of educators and researchers. This is because of the starting place in Dewey's philosophy and educational theory is the world of everyday life. Unlike many philosophers, Dewey did not search beyond the realm of ordinary experience to find some more fundamental and enduring reality. For Dewey, the everyday world of common experience was all the reality that man had access to or needed. Dewey was greatly impressed with the success of the physical sciences in solving practical problems and in explaining, predicting, and controlling man's environment. He considered the scientific mode of inquiry and the scientific systematization of human experience the highest attainment in the evolution of the mind of man, and this way of thinking and approaching the world became a major feature of his philosophy. In fact, he defined educational process as a "continual reorganization, reconstruction and transformation of experience" (Dewey, 1916: 50); for he believed that it is only through experience that man learns about the world and only by the use of his experience that man can maintain and better himself in the world. This thinking interested our teams.

Overall, critical reflection is the process of analyzing,

reconsidering and questioning experiences within a broad context of issues like ethical practices, learning theories and use of technologies. There are assumptions that individuals hold are subject to distortions and may limit their views of reality. Many ideas have highlighted that critical thinking is social in nature and requires reflection on the part of the learner. However, it must also be noted that how reflective teachers are toward their lessons would also influence students' critical thinking skills. As such, the current investigation focuses on the reflective practices of teachers in planning their lessons, the perceptions the teachers have of themselves, their students and their work. It attempts to study: the reflective practice of teachers and how it influences their teaching in supporting teacher students in their learning outcomes in Roi-Et Rajabhat University, Thailand.

### Research aims

1. To develop a methodology for the reflective thinking instructional model to enhance both pre-service and in-service educational student teachers' reflective learning environments and teaching methods.
2. To enhance student teachers' desirable learning and teaching outcomes.

### Research questions

This section analyzes uses the research questions on each phase of the research methodology; it focuses on developing the reflective thinking model.

1. What are the effects, procedures, and strategies to develop the reflective thinking of student teachers?
2. How are the designs of the reflective thinking used for enhancing student teachers' desirable learning outcomes?
3. Do the student teachers use the reflective thinking model in teaching their students in school?

### RESEARCH FRAMEWORK

This study determined the development of reflective thinking model for enhancing teachers and student teachers' learning and teaching outcomes, the relationships between reflective thinking model and syntax teaching phase, associations between student teachers' learning and teaching outcomes and social system. Environmental responding principal of learning reaction, supporting system to enhance the teaching and learning designs that must be got to straighten learning

and teaching goals and the application of using learning and teaching positions with the reflective thinking model were done.

The reflective thinking model from previous research studies was used to develop the reflective thinking of this work, using meta ethnography. Students' responsibility was described using the learning theory of David (1975). The *Kolb's reflective model* was highly influenced by earlier research conducted by John Dewey and Jean Piaget. Adapted version of the original reflective thinking from the single loop of learning of Chris and Dodald (1978) was examined. The structured reflection involved in Kolb's (2005) experiential learning cycle with Gibbs (1988) was discussed. A structured mode of reflection was designed that provides a practitioner with a guide to gain greater understanding of student teachers' practice, according to Johns (1995). Brookfield (1998) suggested that reflective practitioners should constantly research their assumptions by practice through four complementary ideas. However, this study follows completely Gary Rolfe's reflective model (2001) based on Terry Borton's 1970 developmental model. Finally, the concept of the *design cycle* describes the reflective and repetitive structure of design processes, with this structure underlying all such processes of Ganshirt (2007)

This study involves investigation, interview, and observation using both qualitative approach and the reflective thinking theories of the followings: Schon's theory, Rolfe's theory, Gibbs' theory, and Argyris' theory. A sample of lecturers and student teachers of Roi-Et Rajabhat University, Thailand was used.

### METHODOLOGY

The focus on this research study was to analyze and arrange the aims of the research target in 3 phases (Table 1):

Firstly: To synthesis previous researches on developing reflective thinking and suggesting effects and strategy of student teachers' reflective thinking with the meta ethnography.

Secondly: To develop the teaching and learning of reflective thinking formats to the educational personnel who train student teachers with the Participatory Action Research.

Thirdly: To develop the reflective thinking model for supporting students doing internship in schools. The reflective thinking model was used to improve their attitude towards teaching and students' responsibilities in schools. Trainee students were assessed of their development using the reflective thinking model.

### Sampling group

1. The research articles are composed of 30 manuscript using the Meta ethnography technique.

**Table 1.** Details for research procedure at the research phase.

Property	Procedure	Targets and goals
Research Question		To determine, process, and strategy to support thinking development of student teachers.
Purpose		Synthesis of previous researches of 30 titles that ought to indicate that the student teachers develop process of reflective thinking development
Methodology		To synthesis of the application on students' properties with the meta ethnography
Educational units	Sample	Reporting previous research in fields of reflective thinking
	Variable	Determinant, format, strategy of enhancing teacher students of their reflective thinking
Assessment	Assessing technique	Document analysis and recording paper note
	Research instruments	-Recording data of research property -Recording assessment of research quality
	Methodological technique/statistic	-Frequency and percentage -Means and standard deviation
Evaluation	Discussion	-Comparisons between variables -Investigation and conclusion

2. The Participatory Action Research technique was administered on the sample sizes of 126 student teachers in 5 subject educational programs, namely; Mathematics, Science, English, and Music educations, and 4 participating educational teachers in the Trainee Teacher College in Roi-Et Rajabhat University.

3. There are 4-experts in field of reflective thinking educators for improving learning and teaching designs.

4. The Case Study Research on the learning and teaching designs was done with a sample of 24- sophomore student teachers doing Science, English, and Mathematics programs.

### Accumulating data

The following qualitative research instruments - observation, interview, group discussion, and post learning short note techniques were administered according to these procedural steps (Figure 2).

#### Step I: Synthesis data

The literature review, texts, documents, thesis reports, and relative research were synthesized to build up a model of the reflective thinking instructional model for teaching and learning in sample classes, and developing the learning skills of student teachers. Thereafter scaffolding tools such as interactive journals, question prompts, and concept maps also prompted reflective thinking, namely the *Teaching Model Dummy*.

#### Step II: Framework model

Researchers who prefer inquiry-oriented activities help students to

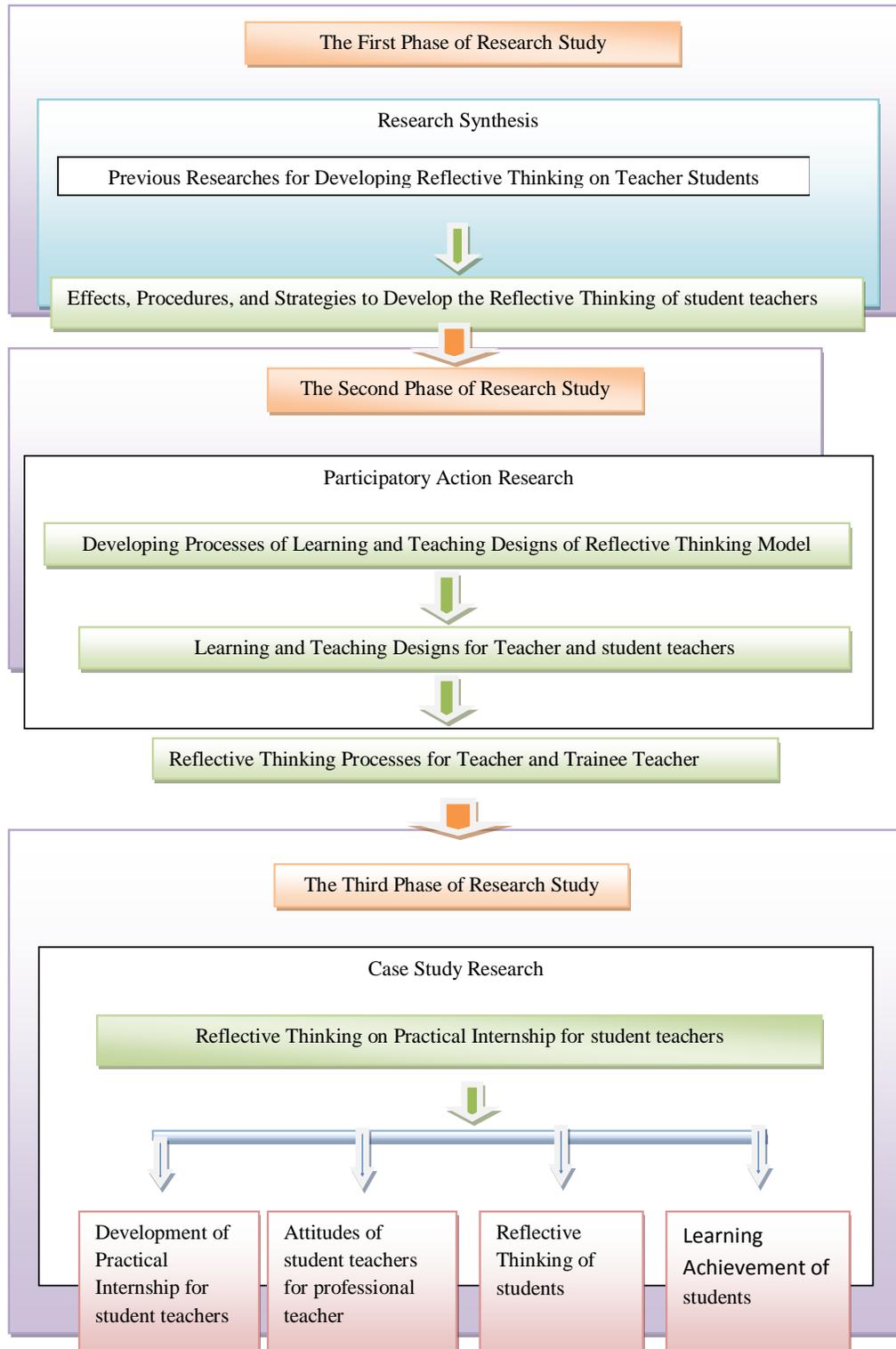
reflect on a situation by asking thoughtful questions. Following Joyce and Weil (2010)'s suggestion, who present what is considered to be a classic model in the field, this work covers the rationale behind the major models of teaching, and applies these models using scenarios and examples of instructional materials. These models accelerate students' learning and act as lifelong learning tools with the major psychological and philosophical framework, namely Reflective Thinking Model for Teaching and Learning (Figure 3).

#### Step III: Experimental teaching

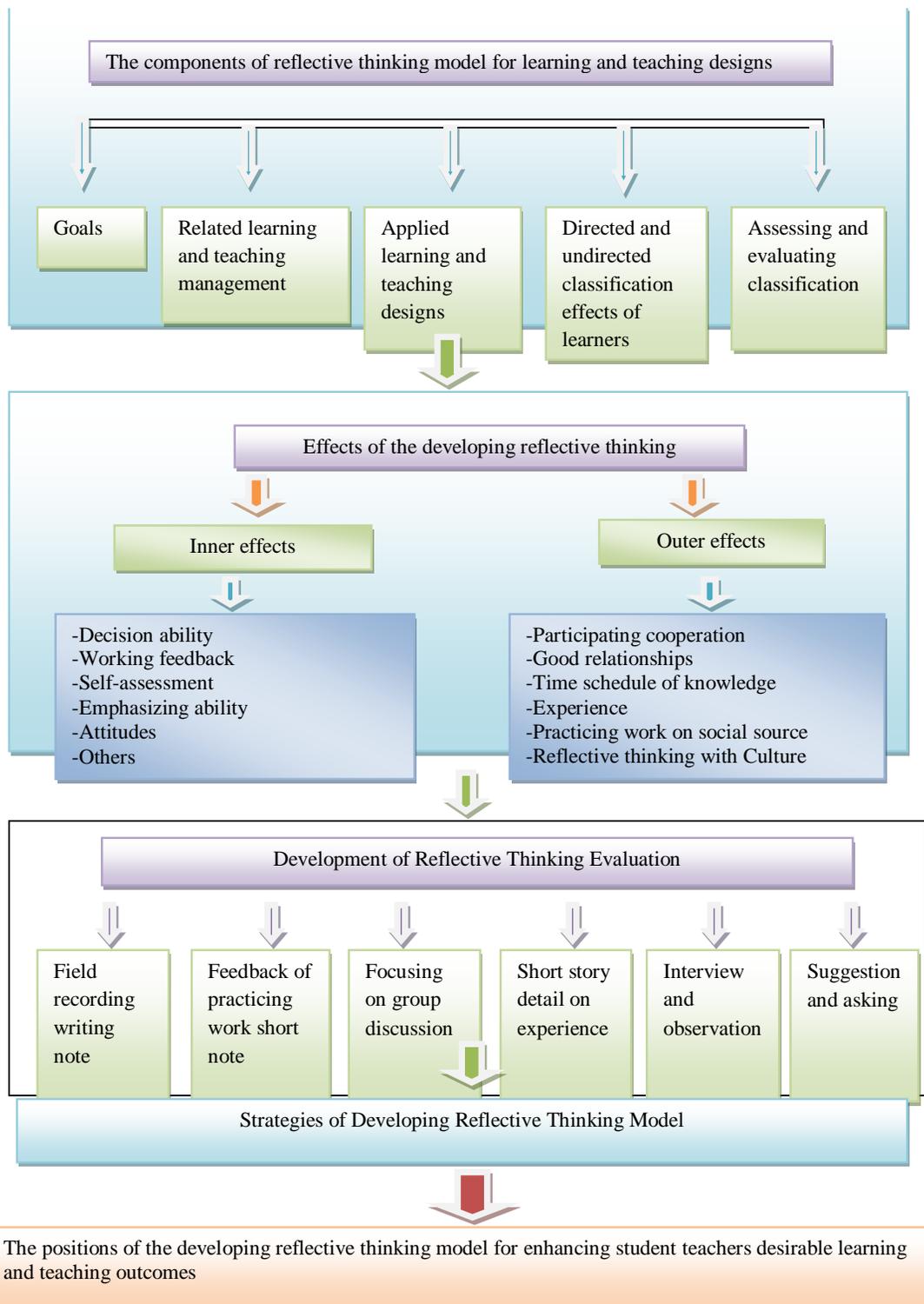
Normally, the *learning environment* might prompt students to construct meaning actively and reflectively. The *Framework Reflective Thinking Model for Teaching and Learning* was also used with an experimental group of 26 junior Mathematics student teachers in Roi-Et Rajabhat University in the first semester, 2011. Providing learner-controlled instruction encourages students to make their own decisions regarding their learning progress so as to improve the Reflective Thinking Model (Figure 4).

#### Step IV: Checking quality of model

Collaborative learning, in which students explore their understandings and misunderstandings together, helps students to think about what they already know, what they need to know, and how they would present and defend their own ideas in reaction to an instructional situation. Researchers presented this model for adaption, improvement, and advice by the related-senior professional educators who were able to check its validity according to the IOC (Index Of Concordance) for efficiency value. This step is



**Figure 1.** Reflective thinking model for developing learning and teaching designs of teacher students.



**Figure 2.** Model of developing reflective thinking model for enhancing teacher students of their self-minding desirable learning and teaching outcomes.

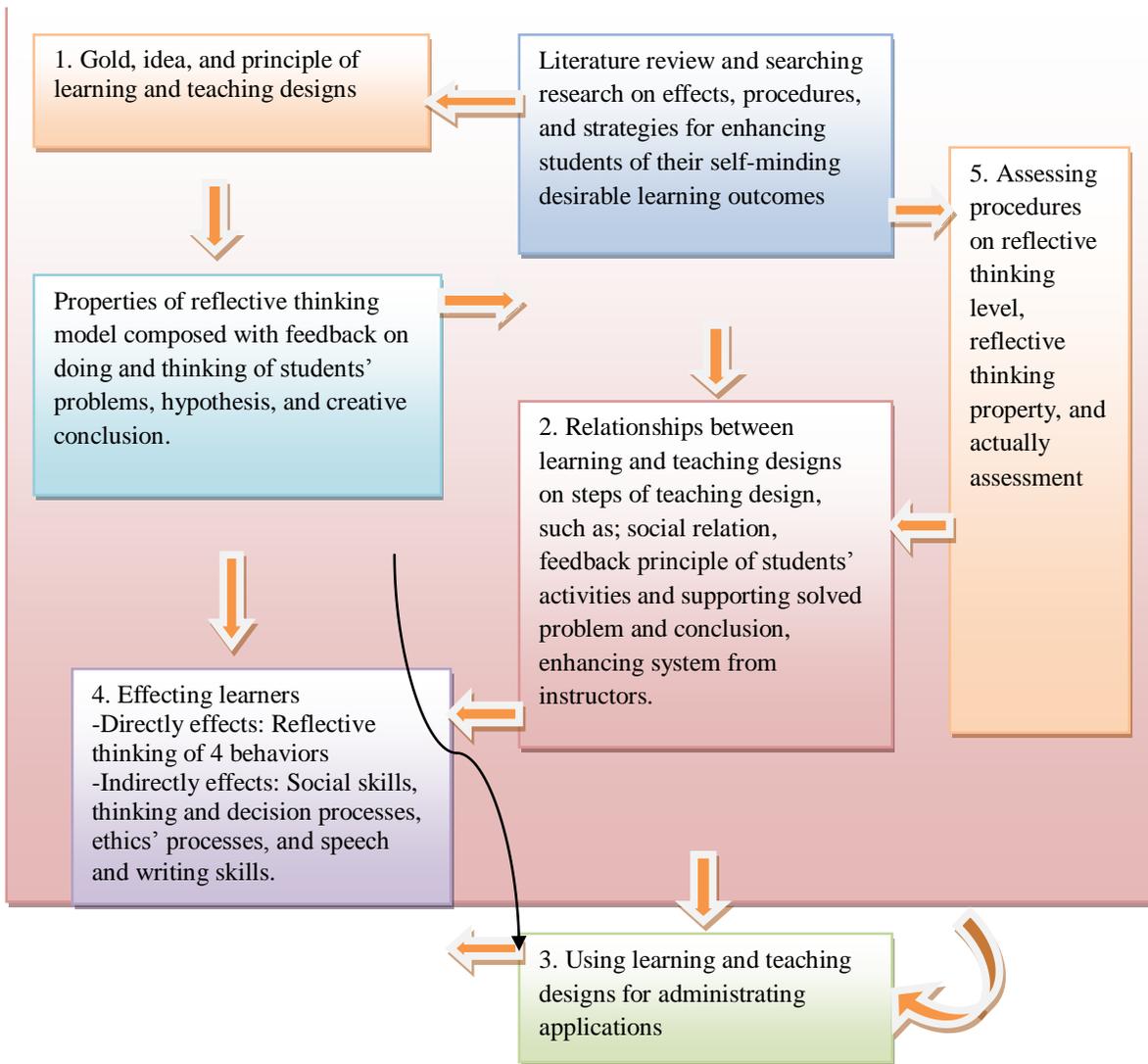


Figure 3. Framework reflective thinking model for teaching and learning.

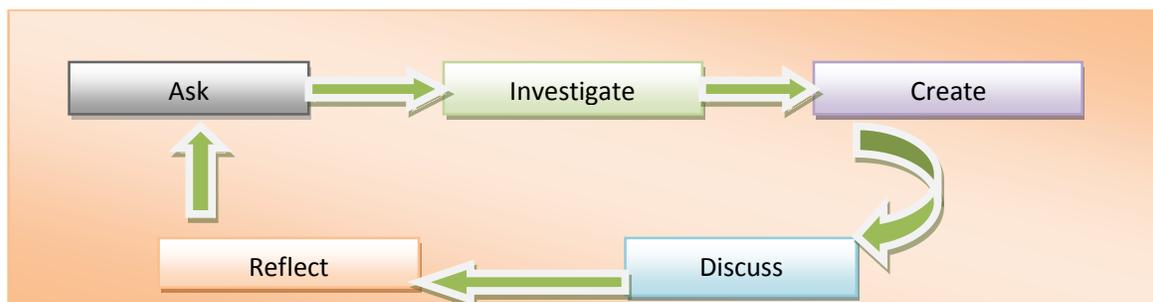


Figure 4. Reflective thinking model.

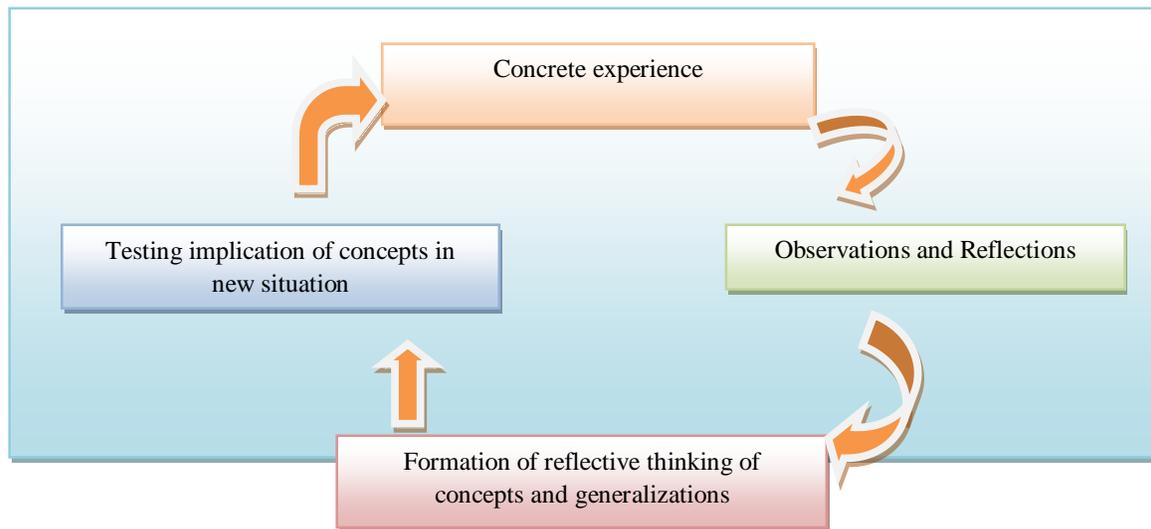


Figure 5. Improving quality reflective thinking model.

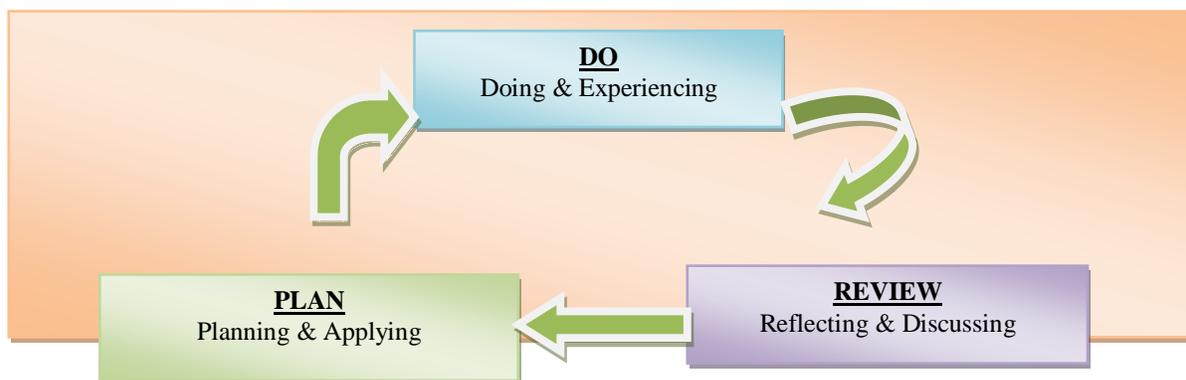


Figure 6. A quality reflective thinking model.

called the improving quality reflective thinking model (Figure 5).

**Step V: Propagandized model**

Complex learning activities requiring student teachers to learn from *A Quality Reflective Thinking Model* of information was adapted. Researchers taught this model to the four lecturers taking part in the participatory action research (Figure 6).

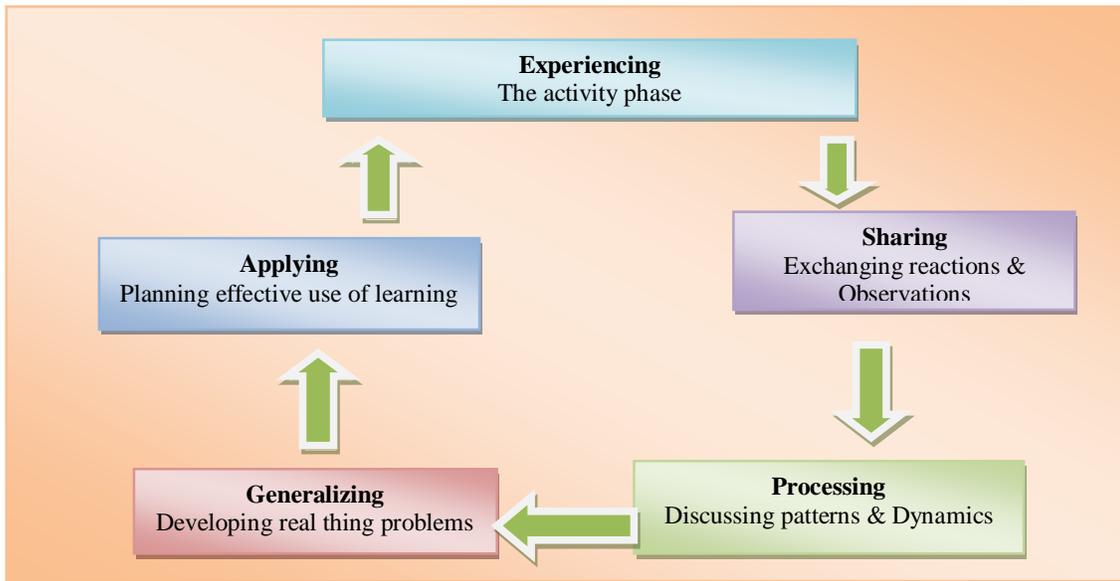
**Step VI: Using model for teaching and learning processes**

A further investigation on individual difference in student teachers' reflective skills is also needed, so as to discover which underlying factors are meaningful. Students may perceive the effectiveness of

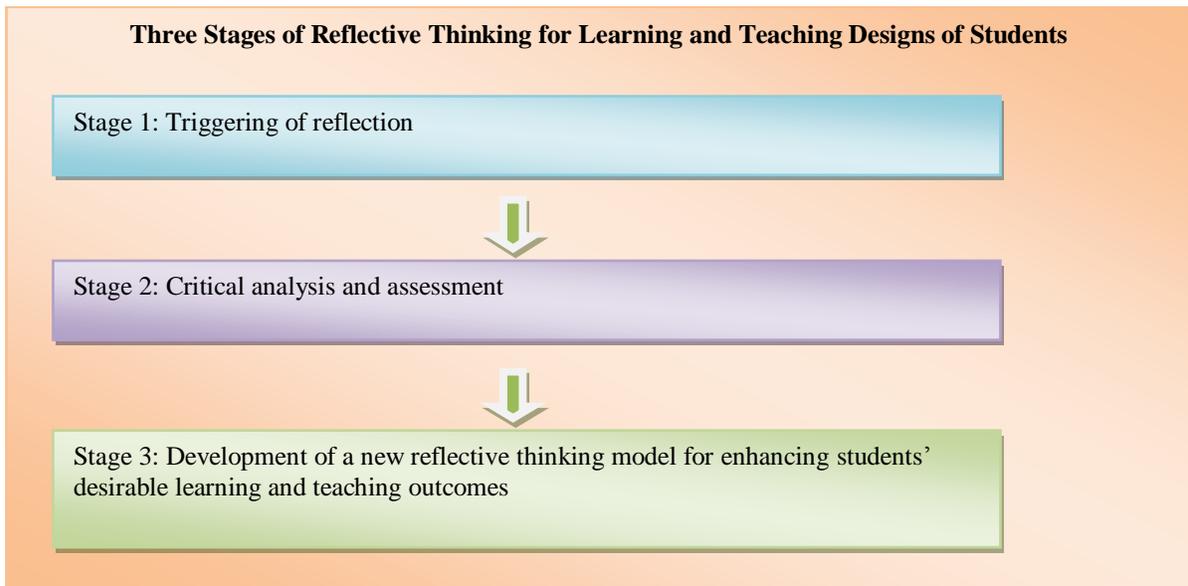
particular design factors differently according to their individual characteristics. A qualitative technique utilizing observation, interview, group discussion, and post learning short note techniques was developed by the researchers and used because no pre-existing instruments were available to measure the perceived helpfulness of factors prompting reflective thinking. The survey instrument was composed of carefully targeted question items, based on an extensive examination of the reflective-thinking literature, namely- Reflective Thinking Instructional Model (Figure 7).

**Step VII: Conclusion**

This study identified five design factors that a sample of student teachers perceived as helpful in prompting their reflective thinking.



**Figure 7.** The reflective thinking instructional model.



**Figure 8.** Three stages of reflective thinking for learning and teaching designs of teacher students.

Researchers participated with willing researchers to conclude the metacognitive model on self-explanation strategies used for specific problems connected to students' understanding of the process of reflection (Figure 8).

**Data analysis**

To ensure content validity, experts in the area of reflective thinking in Training Education College, Roi-Et Rajabhat University, Thailand

were asked to review the questions and assess the potential sample by the following means: recorded field notes, data codes and group dynamics.

Here, data were explained and interpreted to develop the *Reflective Thinking Instructional Model*.

## RESULTS

The development of the reflective thinking instructional model for supporting student teachers is an important aspect of departmental education, upholding the fundamental belief that all student teachers are able to learn. Researchers emphasize on developing the reflective thinking model on learning and teaching designs; however, students have different learning preferences and educational subject status. Therefore, the researchers agree with Joyce et al. (2009) that teachers must not only be knowledgeable about the content they teach, but must also know and be committed to making decisions that involve the use of a variety of instructional strategies and approaches suited for particular purposes, and these must be appropriate to meet the diverse learning needs of students. Our argument here describes some of the most important models and techniques. The reflective thinking instructional model was composed of instructional strategies.

### The reflective thinking instructional model

The five characteristics of the Reflective Thinking Instructional Model for supporting teacher students are indicated as follows:

#### ***Characteristic I: Goals of reflective thinking instructional model***

The reflective thinking instructional model developed the ability of reflective thinking instructional processes of student teachers; their inner and outer behaviours toward reflective thinking abilities. The abilities are students' reflective thinking in learning environments and reflective teaching methods.

*Step I: Relationship of Reflective Thinking Instructional Model.* Guidelines for administrating organizers ought to be integrated into classroom materials to prompt students to learn.

*Step II: Social System Relationship of Reflective Thinking Instructional Model.* Social learning environments ought to prompt collaborative work with peers, teachers, and

experts

*Step III: Reflective Learning Responses of Reflective Thinking Instructional Model.* Questioning strategies should be used to prompt the reflective thinking, specifically getting students to respond to *why*, *how*, and *what* specific decisions are described.

*Step IV: Supporting System of Reflective Thinking Instructional Model.* Learning experiences should be designed to include advice from teachers and co-learners. Classroom activities ought to be relevant to real-world situations and provide integrated experiences. Classroom experiences should involve enjoyable, concrete, and physical learning activities whenever possible, so as to ensure proper attention to the unique cognitive, affective, and psychomotor domain development of average school students.

#### ***Characteristic III: Application guideline of reflective thinking instructional model***

The reflective thinking instructional model is applied to administer supporting learning and teaching steps: the natural satisfied and flexible course, learners' response to prompt reflective thinking from teachers' questions of *why*, *how*, and *what*. Social learning environments should encourage prompt collaborative work with peers, teachers, and experts. Students should have ethics attitudes, free expression of opinion, their reasons and empirical data. Students should do well in their assignments, be able to write and discuss through reflective thinking and specify their role in learning experiences of internal and the external classes.

#### ***Characteristic IV: Effects of Student Teachers on Reflective Thinking Instructional Model***

##### ***Case I: Direct effects***

These include to develop student teachers' reflective thinking abilities, to be able to think reflectively within the social learning environments; to have the freedom of expression, to have the opportunity to presume and solve problems to develop their needs, and create guideline data of management.

##### ***Case II: Indirect effects***

Most student teachers ought to develop their self-confidence and social skills, to listen to individual divergent thinking, and to have a democratic system for

considering management guidelines. Thinking and decision foundational processes should be satisfactory in theory, and follow the right reason and context. Ethics of thinking process should include self-thinking and self-performance; written communication and speaking skills should be fixed up with the discussion of role-plays and self-decision.

### ***Characteristic V: Assessing guideline on reflective thinking instructional model***

Many questions from researchers who are teachers or instructors ought to be designed to help students know their identity and clarify overall and subordinate problems. Many opportunities have to be sought to engage students in gathering information to look for possible causes and solutions; ideas and activity sheets ought to help students evaluate the evidence they gather; questions should prompt students to consider alternatives and implications of their ideas; questions and activities should help students to draw conclusions from the evidence they gather and pose solutions. There should be opportunities for students to choose and implement the best alternative, and to monitor and reevaluate their results throughout the entire unit.

## **DISCUSSION**

Developing the reflective thinking instructional model for student teachers' outcomes provided them a helpful framework for integrating certain models of their teaching. Ultimately, the value of the model is derived from the extent to which the teachers are able to use it to meet their instructional goals effectively and efficiently. Using cognitive approaches, Calhoun (2010)'s Information-Processing Teaching Model consists of techniques that are clearly cognitive in nature. They emphasize ways of enhancing students' innate desire to make sense of the world by acquiring and organizing information, solving problems, and developing concepts for conveying them. When administering this nature of model to four sample classes, it is interesting to reflect on students' responses, which can be seen to reflect from Vygotsky's socio-cultural theory of development, and the position in which it still applies to classrooms (Eggen and Kauchak, 2010).

With a focus on developing reflective thinking and an instructional model for supporting learning outcomes of student teachers, Dewey (1933) suggested that reflective thinking is an active, persistent, and careful consideration of a belief or supposed form of knowledge, of the grounds

that support that knowledge, and of the further conclusions to which that knowledge leads. It gives awareness to students who are controlled by learning by actively participating in reflective thinking, assessing what they know, what they need to know, and how they bridge that gap during learning situations.

Looking at the development of the reflective thinking instructional model, it has been found that this situation was often associated with the work of Bruner (1966) and Piaget (1960), where discovery learning is one method of inquiry-based instruction. This approach often involves structured or directed activities that require students to formulate and test "hypotheses through hands-on experience" (Schunk, 2012, 491). One popular discovery-based procedure of this study is the three-step learning cycle.

Derived from Piaget's developmental theory, lessons based on this instructional model typically begin with exploration that involves a concrete, hands-on activity related to the lesson objectives. This concrete experience leads to concept invention step, during which students discover an important concept or relationship. The third stage of the learning cycle, concept extension, requires students to "directly apply the concept or skill learned during the invention activity" (Hartshorn, 2005: 2).

In terms of student teachers' outcomes using the instructional model for the development of reflective thinking, this model involves a wide range of thinking skills leading toward desirable outcomes and reflective thinking. It focused on the process of making judgments about what has happened. However, reflective thinking is most important in prompting learning during complex problem-solving situations, because it provides students with an opportunity to step back, to think about how they actually solve problems, and to consider how a particular set of problem solving strategies is appropriated for achievement (Moon, 1999).

This research study focused on the development of the reflective thinking instructional model for teacher students, not only just about how individuals think, but also about how they construct experiences more generally, including their thoughts, feelings, and social relations. This only requires individuals to reach a level of social maturity that allows them to distance themselves from social pressures, to take different perspectives, to make independent judgments, and to take responsibility for their actions.

## **SUGGESTIONS AND IMPLEMENTATIONS**

The research study developed the reflective thinking

instructional model of student teachers using the participatory action research. The research methodology designed and developed learning and teaching model. Group members will then be able to compare and contrast their colleagues' interpretations of the project experience with their own. Students may learn about the strengths and weaknesses of the group, as it comprised the competencies and assumptions of its individual participants.

Considering this result, reflective thinking is an excellent tool for identifying positive and negative aspects of a group work experience. By spending time seriously and contemplating the overall process, both during and after the project, it is possible for group members to learn from their experience, and to work toward improving their group work skills for the future.

It is important to prompt reflective thinking in educating institutional students to support them in their reflective thinking. During this time period, students experience intellectual, emotional, social, and physical development. If they begin to shape their own thought processes and are at an ideal time to begin developing thinking, learning, and metacognitive strategies, reflective thinking provides average level students with the skills to mentally process learning experiences, to identify what they learned, to modify their understanding based on new information and experiences, and to transfer their learning to other situations. Scaffolding strategies should be incorporated into the learning environment to help students develop their ability to reflect on their own learning.

Normally, teachers face a myriad of daily choices: how to organize classrooms and curriculums, how to interpret students' behaviours; how to take individual learning process, and so forth. Many choices involve matters that a teacher can make and implement decisions automatically. Teachers make other decisions in the midst of an evolving situation after quickly reviewing the situation and recalling what has worked in similar scenarios. But teaching also involves complex choices about difficult problems that, if left unaddressed, often escalate. A different type of thinking is needed to address such choices.

Tough choices call for teachers to engage in sophisticated reflection, including their own self-reflection. Expert teachers adjust their thinking to accommodate the level of reflection called for in a given situation.

Their teaching is characterized by an intentional competence that enables them to identify and replicate best practice; refine serendipitous practice, and avoid inferior practice. Because of their ability to reflect, great teachers know not only *what* to do, but also *why* they do it.

## Conflict of Interests

The authors have not declared any conflicts of interest.

## ACKNOWLEDGEMENT

This research manuscript was supported by the Commission on Higher Education of Thailand SCHOLARSHIP. Thank you very much in Training Teacher College in Roi-Et Rajabhat University, Thailand. Great thanks to the student teachers and researchers whose research has made this work and management successfully.

## REFERENCES

- Atkins S, Murphy K (1993). Reflection: a review of the literature. *J. Advanced Nursing*, 18:1188-1192.
- Boody RM (2008). Teacher Reflection as Teacher Change, and teacher change as moral response. *Educ.* 128(3):498-506.
- Brookfield S (1988). *Training Educators of Adults*. New York: Routledge.
- Bruner J (1966). *Toward a theory of instruction*. Cambridge, MA: Belknap Press of Harvard University.
- Choy SC, Oo PS (2012). Reflective thinking and teaching practice: A precursor for incorporating critical thinking into the classroom. *Int. J. Instr.* 5(1):167-182
- Dewey J (1933). *How we think: A restatement of the relation of reflective thinking to the educative process*. Massachusetts: D.C. Heath and Company.
- Engen P, Kauchak D (2010). *Educational psychology: Windows on classrooms* (8th ed.). New Jersey: Pearson.
- Gibbs G (1988). *Learning by doing: a guide to teaching and learning methods*. London: Further Education Unit. ISBN 1853380717. OCLC 19809667. Retrieved 10 November 2011.
- Hamilton SJ (2005). Development in Reflective Thinking. Abstract retrieved May 25, 2008, from [http://www.reap.ac.uk/reap07/portals/2/csl/trydy%20banta/Development\\_in\\_Reflection\\_Thinking.pdf](http://www.reap.ac.uk/reap07/portals/2/csl/trydy%20banta/Development_in_Reflection_Thinking.pdf)
- Hmelo D, Ferrai M (1997). The problem-based learning tutorial: Cultivating higher order thinking skills. *J. Educ. Gifted* 20(4):401-422.
- Johns C 1995. Framing learning through reflection within Carper's fundamental ways of knowing in nursing. *J. Advanced Nursing* 22(2):226-234. doi:10.1046/j.1365-2648.1995.22020226.x. PMID 7593941
- Joyce B, Weil W, Calhoun E (2010). *Models of Teaching and Learning* (8th Edition). Boston: Allyn and Bacon.
- Kolb DA (2005). Learning styles and learning spaces: enhancing experiential learning in higher education. *Acad. Manage. Learn. Educ* 4(2):193-212. doi:10.5465/AMLE.2005.17268566. CiteSeerX: 10.1.1.127.6489.
- Piaget J (1960). *The child's conception of the world*. London: Routledge.
- Schon DA (1983). *The reflective practitioner: how professionals think in action*. New York: Basic Books. ISBN 046506874X. OCLC 8709452
- Schon DA (1987). *Educating the reflective practitioner: toward a new design for teaching and learning in the profession*. San Francisco: Jossey-Bass.
- Schön DA (1991). *The reflective turn: Case Studies in and on educational practice*. New York: Teachers Press, Columbia University.

- Song HD, Koszalka TA, Grabowski BL (2005). Exploring Instructional Design Factors Prompting Reflective Thinking in Young Adolescents. *Can. J. Learn. Technol.* 31(2):120-132.
- Vygotsky LS (1978). *Mind in society: The development of psychological processes*. Cambridge, MA: Harvard University.
- Wikipedia, the free encyclopedia (2014). Teacher. Available at <http://en.wikipedia.org/wiki/Teacher>. Accessed 22 January 2014.
- Wlodarsky RL, Walters HD (2006). The Reflective practitioner in higher education: The nature and characteristics of reflective practice among teacher education faculty. *National Forum Teacher Educ. J.* 16(3):1-16. Ashland University. Available at <http://www.nationalforum.com/Electronic%20Journal%20Volumes/Wlodarsky%20Rachel%20L%20The%20Reflective%20Practitioner%20in%20Higher%20Education.pdf>. Accessed 3 May 2006.

*Full Length Research Paper*

# The use of personalized texts for teaching Turkish as a second language

Demet Kardaş

Turkish Language Learning Research and Application Center, Gazi University, Turkey.

Received 26 October, 2015; Accepted 2 February, 2016

This study attempted to identify the advantages of using personalized texts for teaching Turkish grammar rules to foreigners. The sample comprised two homogenous groups, one experimental and one control, who studied at TÖMER (Turkish Language Learning Research and Application Center) at Gazi University. The students in the experimental group were taught grammar classes using personalized texts based on information obtained from a student-completed personal information form (including their age; the names of their parents; their birthday and marital status; the names of their children, if any; and their occupation, country, and address). Similarly, the pre- and post-tests contained questions that were specifically designed for them. On the other hand, the students in the control group were taught grammar classes using the examples included in the grammar textbook. The results showed that those in the experimental group exhibited higher achievement in the grammar classes and were quicker to make progress in using the language.

**Key words:** Teaching Turkish as a second language, teaching grammar, personalization.

## INTRODUCTION

Human beings express their feelings and ideas using the language they acquire first from their family and later from their society. In this ever-changing world, it is now an obligation to learn a second language. The choice of the language to be learned depends on the economic benefits of learning the language as well as its political influence and prevalence. For example, the reason for the great popularity of English is that it is used extensively around the world, shaping politics and economics. It is obvious that the employment prospects for fluent speakers of English are greater than they are for other languages.

With its developing economy, regional power, political stability, and universities, Turkey has been an attractive destination, especially to young people in Middle East, Balkan States, Central Asia, and even in Europe. This, in turn, has influenced teaching Turkish as a second language (TSL) (this sentence is deleted). Currently, there are more than 60 TÖMER (Turkish Language Learning Research and Application Center) in official and Foundation University who is currently teaching Turkish to foreigners in Turkey. This also emphasizes the importance of teaching Turkish to foreigners (Bakır, 2014). Although teaching Turkish to foreigners has been

E-mail: demetkardas@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/)

**Table 1.** Basic Turkish level a1 and a2 achievements and content.

S/N	Achievement	Content
A1	<ol style="list-style-type: none"> <li>1. Understanding information related to a person's name, date of birth, nationality, profession, education level, etc.</li> <li>2. Understanding basic concepts related to family</li> <li>3. Understanding basic concepts and qualifiers related to social and physical environment</li> </ol>	<ol style="list-style-type: none"> <li>1. Country, nationality, city, place and date of birth, profession</li> <li>2. Mother, father, siblings, spouses, children, numbers (year, month, age, telephone number, date of birth)</li> <li>3. City, country, district, avenue, street, house number, parts of a house, big, small, crowded, high, low</li> </ol>
A2	<ol style="list-style-type: none"> <li>1. Understanding letters narrating and questions related to basic personal information, situations and feelings</li> <li>2. Understanding basic texts narrating what is done in a school/work day or holiday</li> <li>3. Understanding basic texts narrating leisure time activities and hobbies</li> </ol>	<ol style="list-style-type: none"> <li>1. Profession, surrounding environment, basic and simple physical and psychological descriptions (short, long, fat, skinny, happy, tired, boring, etc.)</li> <li>2. Summer holiday, weekend, working hours</li> <li>3. Basic models (I like doing..., I enjoy...); reading book, shopping, football, cinema, theater, internet</li> </ol>

Source: The common European framework of reference for languages (2009).

a centuries-old effort, the Turk Institutes, the Presidency for Turks Abroad and Related Communities, and the Turkish Language Learning Research and Application Centers have been modernizing the way Turkish is taught as a second language.

Programs for teaching Turkish to foreigners, classes and textbooks are generally designed according to basic language skills such as comprehension (reading-listening), writing and speaking. According to the Common European Framework of Reference for Languages (2009) these skills are classified in 6 levels:

- A1 - A1 (Breakthrough): Beginning or exploratory level
- A2 (Waystage): Middle level or remaining in communication level
- B1 (Threshold): Threshold level
- B2 (Vantage): Advanced level or independent user level
- C1 (Effective Operational Proficiency): Autonomous level
- C2 (Mastery): Mastery level

Turkish grammar skills required for the targeted level for each of these are different. Due to the nature of the Turkish grammar rules are the structures added onto each other. If grammar is not taught accurately at A1 level, it is not possible for the student to move to C1 level. Turkish is different from other languages as it is an agglutinative language, it has various types of affixes and these affixes form new words by assuming different functions. It is necessary to take into account this peculiarity in efforts to teach Turkish to foreigners.

Grasping these structural properties of Turkish language is a must for those who intend to teach it to foreigners. Because of the agglutinative structure mentioned earlier, it is necessary to understand different functions of different affixes that are added to stems. Many new concepts are expressed by same stems that

are combined with different affixes which have different tasks. Writing, comprehension and speaking classes make students sense the functions that have been conferred to the stem by affixes. In grammar classes, agglutinative system of the Turkish language is taught as auxiliary to other subjects. Possessive, plural, case and simple time suffixes are taught at A1 and A2 levels. In this way, the purpose is to enable students to use Turkish language in daily life together with other classes. The Common European Framework of Reference for Languages (2009) defines the achievements and the contents for A1 and A2 level Turkish in Table 1.

Personalized texts are used while providing students with templates of Basic Turkish at A1 and A2 levels: the background for achievements in reading, writing, listening and speaking is established with grammar knowledge. A student who has not yet learned possessive suffixes cannot correctly write or speak about his/her country, family, date and place of birth.

Teaching Turkish as a Second Language (TSL) curriculum, courses, and textbooks are primarily focused on basic language skills: comprehension (reading and listening), writing, and speaking. The core of these skills is grammar, since Turkish is an agglutinative language and has a mathematical structure. The importance of grammar in Turkish is further highlighted by the fact that suffixes have different functions in different sentences and contexts.

### Teaching Turkish as a second language (TSL)

The TSL textbooks consist of sections for reading, writing and listening. However, there is a separate course for grammar. According to Öz (2001), grammar is made up of rules that are necessary for a proper and effective use of a language. In other words, grammar supports

**Table 2.** Turkish grammar order of topics.

Level of education	Order of grammar topics
A1	1. Phonetics (abc, vowels consonants, syllables, vowel and consonant harmonies, consonant softening)
	2. Morphology (nouns, singularity and plurality of nouns, possessive affixes, copula, simple present tense, 'there is not...', sentences)
	3. Verb conjugations (present tense, past tense)
A2	1. Conjugation of nouns (case suffixes and genitive suffixes genitive construction)
	2. What time is it?
	3. Pronouns
	4. Verb conjugations (past tense, future tense, simple present tense)
	5. Can/Could
B1	1. Moods (Obligation, imperative, operative moods)
	2. Moods of copula (Past tense, if clauses)
	3. Adjectives
	4. Comparison of adjectives
	5. Adverbs
B2	1. Gerundials
	2. Direct – indirect expression
	3. Combined Modes
	4. Word construction
C1	1. Prepositions
	2. Conjunctions
	3. Exclamations
	4. Shift of meaning and time in verbs
	5. Meaning of words
	6. Sentences and Elements of Sentence
	7. Types of sentence
	8. Defects in Expression

Resource: Gazi Tömer (2015), Turkish grammar for foreigners (A1-A2- B) and Turkish grammar for foreigners (B2-C1).

comprehension and expression. Therefore, teaching grammar should involve activities to enable students to fully and properly understand what they are listening to or reading and to express their feelings and ideas in a verbal or written way.

Memorization of rules should not form the basis for language instruction. Instead, the primary focus should be on teaching rules using texts and examples. When students comprehend language rules from speech sounds to meaningful texts, they develop grammatical competence. According to the Common European Framework of Reference for Languages (2009):

Grammatical competence can be described as the ability to know and use the grammatical materials of a language. The grammar of a language is generally viewed as the principles of constructing a regular and meaningful order

out of sentence components and phrases. Grammatical competence does not mean memorizing sentence patterns and then retrieving them, but is the ability to comprehend and express phrases and sentences that are regularly created. In this respect, the grammar of a language is rather complicated, and no study has ever been able to produce decisive results or to cover all the bases. Order of grammar topics is presented in Table 2.

In teaching TSL, grammar rules are not governed by the learning attainments but by the order in which they are taught. In grammar instruction, making rules functional is just as important as the order of topics. Özbay (1997) defined grammar as an instrument for proper thinking, speaking and writing. Grammar instruction allows students to unearth the possibilities, limitations, and secret power of a language. There is no point in knowing the definitions of the terms *adjective*, *preposition*, or *verb*

by heart. What matters is that students should internalize the ability to use Turkish properly, nicely and effectively.

They should comprehend and perceive ideas and feelings discussed in a text or speech and take pleasure in doing so. There are several problems in teaching grammar. Özbay (2006) identified these problems as following:

1. Today, most of the teachers give grammar lessons in a traditional way as taught to themselves previously or shown in the textbooks unaware of new theorems.
2. Grammar teaching is based on memorization.
3. Not learning the language well enough results in deficiencies in speaking and writing.
4. New approaches developed by linguistics (the science of language) are not reflected to language teaching or Turkish grammar textbooks.

Application of new and contemporary methods to grammar teaching in the light of developments in linguistics could be a remedy. It is necessary to take into accounts these three stages:

1. Making student sense the rule with examples of sentences and texts,
2. Giving information and definition to the student who has already sensed the rule.

It is essential to ensure that students turn this knowledge into skills. (Temizkan, 2010). Teaching grammar rules to foreigners is, needless to say, more difficult than teaching them to Turkish students. Different methods and techniques are needed during instruction as well as in other language teaching for foreigners. Using the information of students for giving examples about topics enables students to join the learning environment. Therefore, this research is an important source to guide the lecturers who teach Turkish to foreigners.

### Using personalized texts

Personalized teaching is based on cognitivism as newly learned information is created again, re-organized and a new schema is created with the help of cognitive structure existing in the mind while, it is also based on structuralism as student can become an active part of the process, develop his/her own strategies to understand the information and contribute to the design of an learning environment suitable for himself/herself (Sampson et al., 2002).

Personalization means that students are in the center of the instructional material. Texts and examples are created in accordance with their background and interests. They learn at their own pace; classes are a means of motivation, not information. Significant instructional

components include student-teacher communication, emphasis on the written word, test administration, guidance and social interaction (Keefe, 2007).

The purpose of personalization is not only to enable students to progress at their own pace; the instructional content should make reference to their lives, too. This is, in effect, an attempt to make the instructional content approximate the real world. The key to this is personalized instructional content, in which students encounter information or problems from their own lives. If the instructional content and materials include people, events or information that represent students' lives (in the form of scenarios or simulations), their learning will be permanent (Çakır, 2008).

There are a number of approaches to personalized instructional content. Lopez and Sullivan (1992), Lopez (1989) and Herndon (1988) used both individual and group personalization. In the former, people, events, objects, or interests are picked up from a student's life and embedded in the instructional content. In group personalization, these elements are potentially common for a group of students. Personalized instructional content comprises not only elements from a student's personal life; students can also be allowed to choose their learning content from a set of contents, as was the case in a study by Ross et al. (1985).

Another example of personalized instructional content is the personalization of test questions, which will ideally make it easier for students to comprehend questions and state an opinion about them. Personalization can be used in every aspect of instruction and ensures the permanency of learned information, since the students themselves are involved in it. Language instruction, in particular, requires personalization. When students encounter examples or texts that are related to their lives, they will find it easier to perceive Turkish grammar rules and use them to speak and write.

### The purpose of the study

Grammar instruction is significant because it lays the foundation for other language skills. Although grammar is a body of rules, one should not attempt to memorize them. For agglutinative languages such as Turkish, students must be able to perceive, not memorize, the suffixes and all the meanings they add to words and sentences. The most important material for teaching rules-second only to textbooks-consists of example sentences. The purpose of this study is to prove that examples based on students' lives and their physical and psychological characteristics will ensure the success of instruction and the permanency of learning.

As a secondary objective, this study attempted to find an answer to the following question: Is there a significant difference between students who learn Turkish as a

**Table 3.** Experimental design of the research.

Group	Pre-test	Process	Post-test
Experimental group	The Turkish test form (Pre-test)	teaching with a personalized learning environment	The Turkish test form (Post-test)
Control group	The Turkish test form (Pre-test)	The ongoing process	The Turkish test form (Post-test)

**Table 4.** The distribution of the sample by country.

Control group			Experimental group			
Country	Language	<i>n</i>	Country	Language	<i>N</i>	-
Afghanistan	Afghan	1	Albania	Albanian	1	-
Algeria	Arabic	1	China	Chinese	1	-
China	Chinese	1	Palestine	Arabic	1	-
Ethiopia	Amharic	1	Georgia	Georgian	1	-
Palestine	Arabic	3	Iraq	Arabic	2	-
France	French	1	Kosovo	Albanian	1	-
Iraq	Arabic	2	Libya	Arabic	4	-
Kazakhstan	Kazakh	1	Sierra Leone	English	1	-
Syria	Arabic	1	-	-	-	-
<i>N</i>	-	12	-	-	12	$\Sigma = 24$

second language in a personalized instructional environment and those who learn it using ordinary instructional methods?

## METHODOLOGY

### Research model

The study used a pre- and post-test control group, a true experimental design employing a univariate model. Experimental design is used by researchers to explore relationships between variables (Büyüköztürk, 2001). In univariate models, there is one independent variable to test. For instance, only one independent variable (method A) is tested in the experimental and control groups (Karasar, 2005). Research pretest-posttest control group was designed according to the experimental design. Split-plot (2x2) is defined as pre-test and post-test control pattern group design, one repeated measures (pre and post-test), the subjects found in others of different categories (experimental and control groups) showing two factors is described as an experimental design (Table 3).

### Sample

The study was carried out in the Turkish Language Learning Research and Application Center, Gazi University, during the spring of the 2014 to 2015 academic year. The sample was composed of 24 students for six weeks. Varying nationalities: 12 in the control group and 12 in the experimental group. The students were randomly selected from among students who studied TSL in different groups but at the same level. Table 4 presents the distribution of the students by country. Experimental research is likely to be patterned to a person of the number of subjects

(Büyüköztürk, 2001). Therefore, the design of the research group is limited to 24 students. In addition, the experimental and control groups are shown in Table 4.

The Turkish taken pre-test scores from the Test form, shows there is no significant difference between the averages. In line with these results between the groups has concluded that there is no significant differences in terms of personalized learning environment with the dependent variable of the study. Therefore, it was deemed appropriate to the research carried out by the group in question (Table 4).

### Data collection instruments

#### *The student-completed personal information form*

First, the literature was reviewed to determine what personal information would be included in the form. Then, a group of specialists were asked to give their opinion. In addition, 45 foreign students were asked what three pieces of personal information they would like to see in a text. In accordance with the theories in the literature and the opinions of the specialists and 45 students, a personal information form was created.

The form contained 19 items calling for personal information, such as name and surname, country, date and place of birth, names of parents, number of siblings marital status, number and gender of the children, level of education (graduate, postgraduate, doctorate etc), the university graduated, profession, height, weight, hair color, skin color, place of residence.

#### *The Turkish test form (pre- and post-test)*

Two forms, one for the pretest and the other for the post-test, were

**Table 5.** Descriptive data on the homogeneity of the scores of the students in the experimental and control groups on the pretest.

Pretest	N	$\bar{x}$	SS	T	Sd	P
Control	12	70.8	7.50	-1.423	11	0.182
Experimental	12	76.0	10.47			

P=0.01.

developed for the students. Since they would have moved from A1 to A2 by the time of the administration of the post-test, the pretest involved gap-filling, whereas the post-test consisted of both gap-filling and open-ended questions. The pretest and post-test were piloted and contained 25 and 40 questions, respectively. Furthermore, an answer key and rubric were developed for the tests and revised in accordance with the advice of the specialists. The maximum possible score was 100. Some of the questions based on personalized data are provided below:

1. The name of the country was given and asked to write the country's name suffixed.
2. The name of the student's sister/brother was given and asked to write it in a sentence with suffixes according to Turkish grammar rules.
3. The physical appearances were given and asked to write them in correct sentences.
4. The name of the place where he/she lives was given and asked to write it with case suffixes.

#### Administration

The students in the experimental group were taught using the examples generated on the basis of the information obtained from the Student-Completed Personal Information Form. For six weeks, normal education continued, forms containing personal information were further developed through research and practice and then personalized study forms were created. The pretest, which was administered six weeks later, was prepared in reference to the same information. Primarily, through evaluation and review of 5 stories, the type of information to be used in the stories was determined. Then, two area experts were consulted about the adequacy of personal information obtained and the personal information form was given its final shape. However, no personalized examples were used for the control group. Their pretest was based on unreal information. Four weeks later, the groups took their post-tests. The one for the experimental group consisted of personalized questions, whereas the one for the control group contained questions based on unreal information. As the grammar topics became more advanced and the students made progress in Turkish, more about the students' lives also became known. Therefore, their weekend activities, tastes, habits, future plans, countries, and families were treated as personalized data and inserted into the examples.

#### Data analysis

As the benefit of using personalized samples in language teaching was theoretically mentioned, a research was designed accordingly. The data were analyzed using statistical package for the social sciences (SPSS) 18. The analysis involved frequencies ( $f$ ), arithmetic means ( $\bar{x}$ ), and standard deviations (sd). In addition, a  $t$ -

test was performed for single-factor repeated measures and for the analysis of the differences between two paired samples. The level of significance was 0.01.

## FINDINGS

The findings including the results of exams prepared with personalized data applied to experimental and test groups are as presented in Table 6. The students arriving to TOMER for learning Turkish take a general test and they are classified into subgroups in accordance with their level. Students in the classes under experimental and control groups, which the researcher teaches, were subjected to a grammar exam containing personalized questions developed by the researcher. No difference was found out between students belonging to experimental and control groups before any application was made [ $t(24) = -1.423, p > 0.01$ ]. That is to say, it was concluded that attending students (both in control and experimental groups) were distributed homogeneously. The fact that both groups were homogeneous and they did not have any prior knowledge of Turkish contributed to the healthy progress of the experimentation. The test applied to students without any prior knowledge of Turkish was prepared in English and Arabic (Table 7).

Both the experimental group for which personalized teaching was applied and the control group for which no personalized information was given in none of the examples in class, took an exam in which no personal information was used. In control group average academic success level was 74.5 while it was 89.3 in experimental group for which the same grammar topics were taught. According to these results, there exists a statistically meaningful difference between experimental group, for which personalization was used in classroom and in the exams, and control group for which personalization is not used [ $t(24) = -4.465, p < 0.01$ ]. Strictly speaking, it was found out that in control group where personalized teaching was not applied, students did not learn Turkish grammar rules sufficiently. Although these students learned the Turkish grammar topics to an extent, their success level were not as high as those of students in experimental group (Table 7).

## DISCUSSION AND CONCLUSION

Personalized education is a method by which students' special qualities, interests and necessities are taken into account and the education environment is designed accordingly. From this perspective, a good example is personalization of content, that is, personalization of instruction, exams and questions (Sezer, 2015). Personalized education is tempting because it is a sign of departure from the education system preparing students with standard knowledge and similar talents. It is obvious

**Table 6.** A comparison of the scores of the experimental group on the pretest and post-test.

Pretest/Post-test	N	$\bar{x}$	SS	T	sd	p
Experimental pretest	12	76.0	10.48	-13.442	11	0.000
Experimental post-test	12	89.3	9.25			

P=0.01.

**Table 7.** A comparison of the scores of the students in the experimental and control groups on the Post-test.

Post-test	N	$\bar{x}$	SS	T	Sd	p
Control	12	74.5	7.50	-4.465	11	0.001
Experimental	12	89.3	10.47			

P=0.01.

that in this approach differences among students are respected and dealt with.

When the literature is reviewed, it is observed that most of the applications are developed as web-based. It is seen that in some of the applications, data bases and ontologies are used to store demographic information, contents to be used in teaching processes and information on adaptation methods. Information related to students entering the system are collected through a survey, and then this information is analyzed and directed towards content and subjects related to students.

A great deal of content and material appropriate to students' learning styles and individual characteristics has been developed in practice. Among these, graphic animations, videos, presentations, graphics, drawings and texts, can be cited as examples. In some of the applications developed, students can share their problems and questions, thus, peer learning takes place. Moreover, these applications do not have a hierarchical structure. It is witnessed that work related to personalized learning environments generally takes place in secondary and higher education. It is suggested that these applications should be used in earlier levels as well (Şahin and Kışla, 2013).

While a personalized education environment attracts students with use of students' own personal information, it provides students with a capacity to relate information to their own life; to make analysis and synthesis. Although majority of the existing work is related to mathematics and computer based education, results of this study suggest its positive contribution to language education as well.

According to study, meaningful difference between experimental and control groups in terms of their pre- and post-test success has been recorded. Thus, it can be

stated that personalized education could be successful in teaching Turkish to foreigners. Teachers should know their students very well and construct the teaching upon students' knowledge. For this purpose, a data base containing all information related to students, such as student's age, country, physical properties, his likes and dislikes etc., can be established.

The essence of language teaching is to make best use of students' efforts. Understanding the language rules, writing and speaking according to these rules depend on placement of these rules in their world of language. While teaching language to foreigners, especially grammar teachers should know that rules of a language can be taught as a result of students' own efforts under teacher's supervision. Teaching grammar with texts containing information related students' own lives can lead to success.

Preparing individualized texts or exams brings an additional work load to teachers. That's why, it may not be preferred by teachers. However, results of the study show that preparing individualized texts and exams in small classes leads to success in teaching of grammar.

### Conflict of Interests

The author has not declared any conflicts of interest.

### REFERENCES

- Bakır S (2014). Türkiye'deki Yabancılarla Türkçe Öğretim Merkezleri ve Atatürk Üniversitesi Dil Eğitimi Uygulama ve Araştırma Merkezi (DİLMER). Erzurum: Ankara Üniversitesi Türkiyat Araştırmaları Enstitüsü Dergisi (TAED), 51:435-456. (Centers of Teaching Turkish to Foreigners in Turkey and Atatürk University DİLMER).

- Büyüköztürk Ş (2001). *Deneyisel Desen. (Experimental designs)*. Ankara: PegemA.
- Çakır Ö (2008). The effect of personalized mathematical word problems usage on students' achievement in computer and classroom based environments. Ankara University Institute of Educational Sciences Department of Computer Education and Instructional Technologies Program of Educational Technology. (Doctoral dissertation).
- European common text for language (2009). Retrieved 9 May 2015 from [www.dilbilimi.net/ab\\_diller\\_icin\\_ortak\\_avrupa\\_basvuru\\_metni\\_meb](http://www.dilbilimi.net/ab_diller_icin_ortak_avrupa_basvuru_metni_meb)
- Herndon JN (1988). Achievement and continuing motivation under differing levels of personalized instruction. Unpublished PHD, Arizona State University. Center for Positive Structures. Retrieved 4 June 2015 from <http://www.positivepractices.com/Personal/Personalization/Abstracts.html>
- Karasar N (2005). *Bilimsel Araştırma Yöntemleri. (Scientific research method)* (15. Baskı). Ankara: Nobel.
- Keefe JW (2007). "What is personalization?". *Phi Delta Kappa International*. November, 213-223.
- Lopez CL (1989). Levels of personalization and the achievement and attitudes of Hispanic students (Unpublished Doctoral Dissertation, Arizona State University). Center for Positive Structures. Retrieved 22 June 2015 from <http://www.positivepractices.com/Personal/Personalization/Abstracts.html>
- Lopez CL, Sullivan HJ (1992). Effect of personalization of instructional context on the achievement and attitudes of Hispanic students. *Educ. Technol. Res. Dev.* 40(4):5-13.
- Öz MF (2001). *Uygulamalı Türkçe Öğretimi. (Applied Turkish education)*. Ankara: Anı Yayıncılık.
- Özbay M (1997). *Türkçe Özel Öğretim Yöntemleri I. (Turkish special teaching methods)*. Ankara: Öncü Kitap.
- Özbay M (2006). *Türkçe Özel Öğretim Yöntemleri II. (Turkish special teaching methods)*. Ankara: Öncü Kitap.
- Sampson D, Karagiannidis C, Kinshuk (2002). Personalised Learning: Educational, Technological and Standardisation Perspective. *Interact. Educ. Multimedia* 4:24-39.
- Sezer B (2015). Impact of personalized mathematic problems over academic success, teaching technologies, *Theory Pract.* 5(2):73-88.
- Ross SM, McCormick D, Krisak N (1985). Adapting the thematic context of mathematical problems to students' interests: individual versus group-based strategies. *J. Educ. Res.* 79(1):245-252.
- Şahin M, Kışla T (2013). Personalized Learning Environments: Literature Review, *J. Res. Educ. Teach.* 2(1):81-91.
- Temizkan M (2012). Text-based grammar teaching and practice. *Teaching grammar from the perspective of Turkish education*, (Ed. Özbay, M.) Ankara: Pegem Akademi.

*Full Length Research Paper*

# Development of democratic teacher behavior scale (DTBS)

Gülşen Özcan

Abant İzzet Baysal Üniversitesi, Bolu, Turkey.

Received 17 November, 2015; Accepted 11 February, 2016

**This study aims to develop an instrument that could be used to measure democratic teacher behavior in a valid and reliable manner. The research was carried out in fall semester 2014 to 2015 with a total of 500 high school students recruited from four different schools. Expert opinions were obtained to determine the scale's content validity and face validity. Additionally, exploratory factor analysis and confirmatory factor analysis were performed to assess the construct validity of the scale's measures. Confirmatory factor analysis yielded a construct that is consisted of 17 items and three factors that explained 46,85% of the total variance. These factors were: participation, curriculum and Relations. Findings obtained from confirmatory factor analysis demonstrated that the construct with 17 items and three factors had adequate fit indexes. The reliability of the measures obtained using the three subscales were examined via cronbach alpha, which produced reliability coefficients that fell within acceptable limits. Based on the research results, it can be stated that the scale is an instrument that produces valid and reliable measures, and that can be used to determine democratic behavior of teachers. Suggestions for future scale development efforts on democratic teacher behavior are outlined.**

**Key words:** Democratic teacher, democratic education, behavior, scale, high school.

## INTRODUCTION

Given the recent social, political and technological improvements in the world, geographical borders have almost lost their importance. Hence, people can change their location easily, communicate with other people across the globe as well as share the distinct culture globally in pluralistic societies, which make democratic education even more significant.

To date, the notion of democracy and democratic education have been documented as universally crucial factors encompassing the values such as freedom,

equality, justice, respect, tolerance, reconciliation, and becoming rational (Doğan, 2005; Morrison, 2008; Subba, 2014; Tannebaum, 2015). Dobozy (2007) defines democratic education as a medium where students are treated equally regardless of their social background. This medium is based on the notion that people are equal in terms of value and that they should be treated equally by law and justice. In this regard, equality in education is not only to provide people to attend schools with the equal chance but to provide them with equal opportunity; to

E-mail: [guloz69@hotmail.com](mailto:guloz69@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/)

enable them to improve their skills and to contribute to their accomplishments with the allowance of equal chance. Furthermore, Morrison (2009) emphasizes that democratic education can be provided by inner-class practices in the micro level, and by the practices in the school in the macro level. Similarly, Ritter (2010) remarks that teaching others how to teach democratic citizenship represents a process as teachers are the ultimate instruments of change.

Researchers in this field dealt with the aim of democratic education from a range of perspectives. They classify the aim in two main categories: the one that serves individual development and the one that serves social development. In this sense, the aims such as developing personal responsibility (Beane, 2005; Parker, 2003), developing the ability to solve problems (Barber, 1998; Goodlad, 2002), developing critical thinking, developing self respect and self control (Knight, 2001; Mac Math, 2008) fall in the first category. On the other hand, the latter category includes the aims such as developing social responsibility, developing the habit of working together (Vinterek, 2010), the participation in decision making, questioning, developing empathy (Aktan and Vural, 2003; Karakütük, 2001), respecting others' opinions, religious belief and gender or spouse preferences (Kubow and Kinney, 2000; Lappé, 2006; White et al., 2007).

Democratic medium in a class is an important aspect affecting human behavior. The medium in a classroom does not only provide the student accomplishment but also enables students to improve their democratic attitude toward others. The teachers who create a fair, tolerant and flexible classroom setting and utilize the instructional variables such as feedback, correction, reinforce and clue effectively can perform the sort of positive class setting. In such a setting, students can perform the tasks given at a desired level and they can carry on focusing on the subject matter throughout the course (Trent et al., 2010). In this vein, democratic medium and the visions of democratic teacher have interacting roles in students' conceptions of democratic behavior. Yeşil (2003) highlights seven significance in democratic education as follows:

1. Physical dimension
2. Knowledge dimension
3. Decision dimension
4. Freedom of expression dimension
5. Freedom of participation dimension
6. Social relations dimension
7. Responsibility dimension

Yeşil (2003) explains each component in detail and he points out that "physical" component refers to the medium of education that enables students to improve their skills. "Knowledge" component refers to the preconception of students' rights, freedom, their responsibility as well as

the outcome of their performances. As the third component, "decision" means the presence of the rules to follow in a classroom practice and the acceptance of the underlined rules by the whole students. The researcher divides freedom into two as freedom of expression and freedom of participation. While "freedom of expression" means that students should be able to express themselves based on the norms accepted by human rights, "freedom of participation" means students' active participation throughout the classroom practice in the process of decision making. Occupying the sixth dimension "social relations" is the dimension through which the importance of values such as respect to human rights, justice, co operation, responsibility in teacher-student as well as student to student relations is emphasized it is also underlined that interaction in a democratic education medium should be pursued within the framework of democratic rules. "Responsibility", the seventh dimension, refers to the responsibilities inherent in freedom and also the balance of freedom and discipline. When we consider all the dimensions outlined above, it is obvious that the responsibility to foster democratic behavior falls upon educators.

Researchers have advanced our understanding about democratic education by classifying a democratic classroom setting into four main components being realized in education programs. The first component, "participation", refers to take part in decision making on the issues related to them in a society (Dewey, 1970/2010a; Gutmann, 1999; Kubow and Kinney, 2000; Print et al., 2002; Rainer and Guyton, 1999; Riley, 2011). The second component, "curriculum", covers the participation of the students into the classroom rules and predetermined decisions given in a class. Students reflect their opinions both in evaluating and determining the aim of the course, selecting the content, method, technique to be focused (Arabacı, 2005; Girgin and Gürşimşek, 2004; Morrison, 2009; Print et al., 2002; Riley, 2011). The third component is "relationships" (Arabacı, 2005; Gimbert, 2002; Kubow and Kinney, 2000; Mac Math, 2008). The fourth component, "teacher", refers to the person who undertakes the crucial responsibility in acquiring democratic behavior in a class setting (Print et al., 2002; Mac Math, 2008; Riley, 2011).

The key responsibility for creating a democratic education environment at classroom level certainly belongs to teachers. Democracy should be an integral part of teachers' instruction in a classroom setting. Hence, they should act in line with a democratic ideology, and constitute a role model to the students through their model role of democratic behavior (Subba, 2014). A democratically minded teacher should give equal chance to students in determining the rules in a class. In other words, students' equitable access in forming the shared norms in education is of great importance (Darling-Hammond, 2006; Hostetler, 2012). What is more, the teachers should be able to inform and get the students

the acquire knowledge pertaining the reasons or contributions of behavior rather than punishing or rewarding them. As a democratic leader, a teacher should motivate students, getting them to participate in the process of active learning, and they should be able to present the variety of activities to students, getting their opinions during the practice of teaching (Başar, 2004; Parker, 2010).

In literature, there have been studies on developing scales to measure teachers' democratic behavior. For example, Shechtman (2002) developed a scale "Teachers' Democratic Belief" to obtain their democratic beliefs. The scale is composed of 34 items and three factors named freedom, equality and justice. Cronbach alpha measures of the subscales are in the range of .63 to .66. Dealing with the teacher- student relations in a classroom setting, Drugli and Hjemdal (2013) developed a scale called "Factor Structure of Student-Teacher Relationship Scale", yielding three subscales as closeness, conflict and dependency. The scholars, Readdy et al. (2013) developed a scale of classroom strategies consisting of four subscales names as student focused on learning and engagement, instructional delivery, promoting student thinking, and academic performance feedback. Reliability of the scale is reported to be 0.92. On the other hand, Kan (2013) conducted a study at a secondary school and developed "Scale of Equal Behavior In A Class".

The study found four subscales as emphasizing equity in a class, equity toward individual differences, establishing self confidence, objective behavior. The measure's Cronbach alpha coefficient was found to be 0.94. In another on teachers' democratic behavior, Gözütok (1995) adapted the scale into Turkish developed by Schwartz (1992). It was found out that the measure of Cronbach alpha coefficient was 0.87. The scale administered to the students using 5- point Likert type grading is composed of 50 items. Similarly, Korkmaz and Gümüşeli (2013) developed "Scale of Medium of Democratic Education" for primary, secondary and high school teachers. The scale is composed of 75 items and three subscales labelled as decision-making, curriculum instruction and teacher-relations. The measure of the scales' Cronbach alpha coefficient was found to be 0.94. Dealing with democratic values, Çermik (2013) developed "Scale of Democratic Values" composed of 17 items and four subscales as checking right for instances, respect to differences, justice and equity. The scale was administered to pre service teachers, yielded the measure of Cronbach alpha coefficient as 0.84. Kiroğlu et al. (2012) developed a scale of "in class tolerance" that was administered to instructors at a university. The scale was composed of 13 items and three subscales, the measure of Cronbach alpha was found to be 0.74. Yeşil (2010) developed a scale named "Determination of a Democratic Teacher Behavior" which was administered to secondary school teachers. The scale is composed of one subscale and 69 items, the measure of Cronbach's alpha was

found to be .98.

Apart from the scale development studies, there have been some other studies regarding democratic teacher and their behavior. Studies were conducted in the form of surveys, open ended questions as well as the studies where the scales are utilized (Bayındır et al., 2010; Cavkaytar, 2013; Dündar, 2013; Genç, 2006; Gömleksiz ve Çetintaş, 2011; Güven, Kaya and Aslan, 2014; Kayabaşı, 2011; Karatekin et al., 2013; Topkaya and Yavuz, 2011; Yiğit and Çolak, 2011).

To the best of the study knowledge, there have been succinct studies dealing with democrat teachers in a classroom setting. The purpose of this study is to develop a valid and reliable scale that could be used to measure "Democrat Teacher Behavior" (DTB). The study aim to contribute to student centered evaluations of teachers and facilitate democratic practice of instruction by empowering teachers. Additionally, it will contribute to the understanding of teacher profiles in relation to democratic behavior in Turkey.

## METHODOLOGY

### Participants

The present study was administered to a total of 500 students from two different state schools selected by random sampling method, located in Bolu, in Turkey, in the fall semester of the 2014 TO 2015 academic year. 400 students formed the first test group. Exploratory factor Analysis (EFA) was performed on scale items based on the students' answers. In order to verify structure validity of the 20-item scale, the scale items were given to another group of students consisting of 100 high school students for the second test group. Confirmatory factor Analysis (CFA) was conducted on the scale administered. A total of 18,675 students attended high schools in Bolu during the 2014 to 2015 academic year (8,816 female, 9,859 male) www.meb.gov.tr. Regarding the number of participants that should be included in factor analysis studies, Yazıcıoğlu and Erdoğan (2004) states that when the sampling ratio of the population is about 10.000 to 25.000, and that it is in the range of sampling error of 0.05, 270 to 280 participants could be acceptable. On the basis of meeting the criteria, it can be acceptable to recruit a total of 500 students, which make up the sampling of this study. The distribution of students both in the first test and the second test application of the scale are shown in Table 1. As seen in Table 1, there were 87 girls (36.4%) and 61 boys (38.4%) in the first school, 71 girls (29,7%) and 46 boys (28,9%) in the second school, and 81 girls (33,9%) and 52 boys (32,7%) in the third school. CFA was conducted in the fourth school for which 41 girls (41%) and 59 males (59%) participated.

### Developing items of the scale

Initially, literature in this field was reviewed to form the items that would take place in the scale. Based on the review, democratic teacher behavior was summarized under the headings of democratic school, democratic class setting and dimensions (Dewey, 1970/2010a; Hostetler, 2012; Kubow and Kiney, 2000; Print et al., 2002), democratic belief and democratic attitude (Korkmaz and Gümüşeli, 2013; Selvi, 2006; Subba, 2014; Yeşil, 2010). While writing the items of the scale, key concepts related to democratic teacher behavior were verbalized. Furthermore, 28 high

**Table 1.** Study group

	First test group			Second test group		
	I. School	II.School	III.School	Total	IV. School	
Gender	Female	87	71	81	239	41
		36.4%	29.7%	33.9%	100.0%	41%
	Males	61	46	52	159	59
		38.4%	28.9%	32.7%	100.0%	59%
Total		148	117	135	400	100
		37.0%	29.3%	33.8%	100.0%	100%

school students, representing the group for scale application, were requested to answer an open ended question "how should a democratic teacher treat the class?" The answers obtained from those students gave insights on developing the items of the scale. The students' answers were combined with the data in literature, and a pool of items was established, consisting of 40 items. In order to obtain the content validity and face validity, five experts' opinions at the university level were obtained: one from the field of democracy and human rights, three experts from program development and another expert in the field of program evaluation. On evaluating the feedback provided by the experts, the scale that initially was composed of 40 items was reduced to 30 items, and the final form of the scale was obtained for the test application. For the items in the scale, a 4-point Likert-type scale was used: None of them behaves so (1), Some of them behave so (2), Most of them behave so (3), All of them behave so (4).

### Exploratory factor analysis and findings

Factor analysis is a statistical analysis method to summarize data so that patterns and relationships can be interpreted. This method is used to regroup variables into limited set of clusters based on shared variance. Thus, it helps to isolate constructs and concepts. Factor analysis utilizes mathematical procedures in simplifying interrelated measures to enhance patterns in a set of variables (Bartholomew et al., 2011; Child, 2006). There are different opinions regarding the number of the participants that should be included in factor analysis studies. Comrey and Lee (1992) suggest that 100 participants is an insufficient number, 200 is mediocre, 300 is good, 500 is very good, and 1000 is perfect (Akbulut, 2010). On the other hand, Kline (1994) argues that 200 is generally satisfactory to obtain reliable results from the factor analysis, but in cases where the factor structure is clear and small, this can be reduced to 100; however, working with large samples is more appropriate. In estimates of appropriate sample sizes for use in factor analysis, meeting at least two of the criteria available in the literature is recommended (Cokluk et al., 2012).

Cattell (1978) suggests in his factor analysis studies that the participants as many as 3 to 6 folds of the number of items in the scale should be included in the study group, and characterizes that 200 participants is acceptable for factor analysis. Hair et al. (1979) find it sufficient that the participants as many as 20 folds of the number of items in the scale are included in the study group. In the present study, 400 participants for the first study group were recruited for the EFA. According to criteria given earlier, it can be stated that the number of participants in this study is sufficient for factor analysis. Another operation that needs to be performed for the same purpose is the examination of the Kaiser- Meyer- Olkin (KMO) value as well as Bartlett's test. The data are deemed suitable for factor analysis when KMO values are above 0.60., and when Bartlett's test is statistically significant (Buyukozturk, 2013). A factor

**Table 2.** KMO and Bartlett Test

<b>KMO</b>	<b>0.88</b>
Bartlett's Test of Sphericity	2443.631
Df	435
Sig.	0.000

load value of 0.45 or higher -an important value in factor analysis- is acceptable value for the selection. However, this value could be decreased until the level of 0.30 in application for low number of items (Büyükoztürk, 2013).

In the present study, as a result of the first analysis based on EFA, the items whose factor load values were over 0.40 were included in the scale. In addition, the items whose values were close to one another in two factors were excluded from the scale. Therefore, 20 items remained in the scale. The 20 scale items were included in factor analysis again by using varimax changing technique, which is a vertical changing technique. Varimax and Quartimax, which are vertical changing techniques, are used in social sciences in scale development generally (Büyükoztürk, 2013).

As shown in Table 2, the KMO value is 0.88. This value is quite higher than 0.60 limit value which is found appropriate for the KMO value. This indicates that the research data are appropriate for factor analysis. According to Bartlett test result,  $p=0.000<0.05$ . This value is a significant value for 0.05 of significance level.

### Determination of the themes in the scale

According to the result of EFA test conducted based on KMO and Bartlett test, a 20-item structure was obtained along with three factors. By examining the contents of these items and by considering the literature on democratic teacher behavior, factor names were decided. The factor loads and factor common variances of the items that were obtained in the fundamental components analysis are shown in Table 3 and Figure 1.

As seen in Table 3, the scale about the 20 questions is made of three factors. There are 10 items in the sub factor, 6 items in the second sub factor, and 4 items in the third sub factor. The factor loads of the items in the participation sub factor are between 0.43 and 0.70. Factor common variance varies between 0.23 to 0.55. The factor load values of the items in the program factor are between 0.42 to 0.72. Factor common variance changes between 0.43 to 0.56. The first of the three factors in the scale explains 21.45% of the total variance about the scale, and the second factor explains 13.06% and the third factor explains 12.33%. The total variance explained by the three factors is 46.85%. The

**Table 3.** Factor analysis results of democratic teacher behavior scale (DTBS).

Items	Factor common variance	Factor load
<b>Participation</b>		
They consider the needs of the students when planning their lessons	0.55	0.69
They direct them to be tolerant to different opinions in their classes	0.55	0.70
They determine class rules together with their students	0.33	0.53
They give an opportunity to their students in their classes to express themselves clearly	0.23	0.43
They are open to criticism about themselves and their classes	0.53	0.56
They care for us to make critical and logical comments in their classes	0.50	0.43
They care that we study in collaboration when studying class subjects.	0.41	0.45
They give the right to defend themselves to the students who violate class rules	0.28	0.47
They are careful to give equal right to speak in class to everyone	0.48	0.49
They give an opportunity to recognize different sides of ours by inner class activities.	0.36	0.52
<b>Curriculum</b>		
They treat students better or worse according to success level of the students	0.54	0.72
They are more understanding towards students they have sympathy with	0.52	0.68
They divide students into groups according to their success levels	0.48	0.65
They ignore mistakes of successful students	0.58	0.61
They are prodigious in many matters against students	0.51	0.59
They discriminate against girls and boys as teaching a lesson	0.55	0.42
<b>Relations</b>		
They are respectful to our ethnic culture	0.56	0.71
When we act in class reflecting our believes, they don't offend us	0.50	0.65
They are objective when they grade students who have unfavorable behavior in class.	0.43	0.63
They are respectful about matters that we are personally sensitive to	0.50	0.58

common variances of the three factors defined about the items change between 0.23 to 0.58.

### Confirmatory factor analysis and findings

CFA was applied to assess whether the second group's data would justify the EFA results obtained from 20 items and three factors. It was observed that the conformity indexes of the scale reached the acceptable values when the first and ninth item in the participation factor and the second item in the program factor were excluded. The road scheme shows the loads of each item in the three factors by the standardized solution. There are eight items in the participation factor, and item load values change between 0.36 to 0.72, and there are five items in the program factor and their item load values change between 0.51 to 0.64, and in the relationships factor there are four items the load values of which change between 0.57 to 0.77. In addition, it is observed that *t* values of the items change between 3.52 to 6.90. *t* values greater than 2.56 show that *t* values are significant at the level of 0.01 level (Jöreskog and Sörbom, 1996). In CFA, testing of a hypothesis or theory is performed to assess the relationship between the variables (Büyükoztürk, 2013).

Fit indexes of the model obtained were examined in CFA performed, and it was observed that DTBS's fit index values were as follows:  $\chi^2/sd = 1.137$ ,  $GFI = 0.86$ ,  $CFI = 0.98$ ,  $RMSEA = 0.044$ ,  $p = 0.08$ ,  $AGFI = 0.81$ ,  $NFI = 0.91$ ,  $NNFI = 98$ ,  $IFI = 0.98$ ,  $PNFI = 0.79$  and

$PGFI = 0.65$ ,  $RMR = 0.06$ . As shown in Table 4, CFA results range from perfect fit to acceptable fit. Table 4 demonstrates the acceptable and perfect fit values, which were examined in order to test the adequacy of the model; also shown are the fit index values obtained from the CFA, as well as the relevant results. The criteria used for acceptable and perfect fit indicate that the model with three factors obtained from the CFA fits (as shown in Table 4). (Byrne, 2001; Hooper, Coughlan and Mullen, 2008; Kline, 2011; Schermelleh-Engel and Moosbrugger, 2003; Sümer, 2000). Table 5 shows that the correlation values between the factors change between -0.450 to 0.757. Pearson Correlation coefficient (*r*) between 0.00 to 0.25, there is a very weak relationship between the factors, a weak relationship between 0.26 to 0.49, moderate relationship between 0.50 to 0.69, a high relationship between 0.70 to 0.80, and a very high level of relationship between 0.90 to 1.00 (Kalaycı, 2005). There is moderate relationship between the factors according to this table.

### Reliability of the measurement instrument

Another characteristic that needs to be present in a measurement tool is the reliability coefficient showing the consistency of the measurement tool. Cronbach alpha reliability coefficient of 20 items was as a result of the second application being 0.85 in the participation factor, 0.78 in the program factor, and 0.85 in the relationships factor and 0.68 in total. On the basis of the results revealed, it can be stated that the scale is reliable.

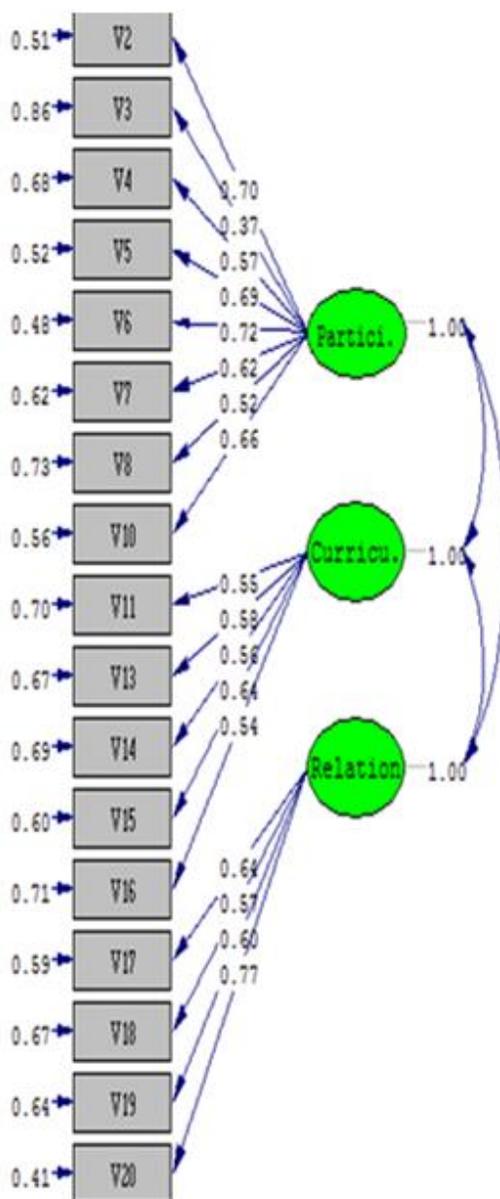


Figure 1. Confirmatory factor analysis results for DTBS

Table 4. Confirmatory indexes and confirmatory criteria obtained from confirmatory factor analysis (CFA).

Fit indexes	Perfect fit	Acceptable fit	Obtained index	Result
$\chi^2/sd$	$0 \leq \chi^2/sd \leq 2$	$2 \leq \chi^2/sd \leq 3$	1.37	Perfect fit
GFI	$0.95 \leq GFI \leq 1.00$	$0.90 \leq GFI \leq .95$	0.86	Acceptable fit
AGFI	$0.90 \leq AGFI \leq 1.00$	$0.85 \leq AGFI \leq .90$	0.81	Acceptable fit
CFI	$0.95 \leq CFI \leq 1.00$	$0.90 \leq CFI \leq .95$	0.98	Perfect fit
NFI	$0.95 \leq NFI \leq 1.00$	$0.90 \leq NFI \leq .95$	0.91	Acceptable fit
NNFI	$0.95 \leq NNFI \leq 1.00$	$0.90 \leq NNFI \leq .95$	0.98	Perfect fit
IFI	$0.95 \leq IFI \leq 1.00$	$0.90 \leq IFI \leq .95$	0.98	Perfect fit
RMSEA	$0.00 \leq RMSEA \leq .05$	$0.05 \leq RMSEA \leq .08$	0.044	Perfect fit
PNFI	$0.95 \leq PNFI \leq 1.00$	$0.50 \leq PNFI \leq .95$	0.79	Acceptable fit
PGFI	$0.95 \leq PGFI \leq 1.00$	$0.50 \leq PGFI \leq .95$	0.65	Acceptable fit

**Table 5.** Mean, standard deviation and correlation values of the subscales.

Sub factors	Participation	Curriculum	Relations
Participation	1.00	-.577**	0.757**
Curriculum	0.577**	1.00	0.450**
Relations	0.757**	0.450**	1.00
M	23.87	12,48	10,76
SD.	6.47	4,12	3,17

\*p<0.05, \*\*p<0.01 N=100.

## RESULTS

This study aimed to develop a scale to measure democratic behavior levels of high school teachers. EFA and CFA were conducted to measure the construct validity of the scale. CFA yielded a construct that consisted of 17 items and three factors that explained 46, 85% of the total variance. These factors were named as "participation", "curriculum" and "relations". Fit indexes of the model obtained were examined in CFA performed, and it was observed that DTBS's fit index values were as follows: CIMIN/DF, 1.147, GFI; 0.87, CFI; 0.97, RMSEA; 0.039'. Cronbach Alpha coefficient of the scale with its final form was 0.85 in the participation factor, 0.78 in the program factor 0.85 in the relationship factor and 0.68 as a total.

These results are in the range of 0.60 to 0.80, which is aligned with Alpar's (2001) statement of quite reliable. On the basis of the results, it can be stated that quartet likert type scale that was developed has the validity and reliability to measure democratic behavior of teachers serving in high schools in Turkey.

## DISCUSSION AND CONCLUSION

This study aimed to develop a scale to measure teacher behavior in relation to their being democratic. Teachers who have not adapted democratic behavior style cannot be expected to raise democratic students. A number of reserachers emphasized that teacher behavior has an important impact on students (Jeans, 1995; Wenglinsky, 2000) yet, no studies were found scrutinizing democratic behavior of teachers based on student evaluations. Aydoğan and Kukul (2003) argued that elementary and secondary school teachers referred to students' opinions at an "intermediary" level in the selection of lessons taught in the classroom and target, content, method and tools of other activities. They remarked that elementary school teachers were more democratic for considering the opinions and suggestions of the students who were minority in the classroom in terms of thought.

Duman and Koç (2004) pointed out that the democratic behavior was quite moderate or in poor level. Angell (1998) stated that the students' understanding of expressed opinion about the democratic teacher behavior

reflected the key entities such as information sharing, respect, creating opportunity for the development of skills, empathy, and being equal and fair. Pohan (2003) in a similar study, asserted that characteristics such as making a decision based on participation, liberal approach, and sensitivity to sociological phenomena are the attributes of a democratic teacher. Pryor and Pryor (2005) concluded in their research that acceptance of differences, creation of safety feeling, honesty, ethic norms, and equal and fair act were the foundation of democratic teacher behavior. Saraçoğlu et al. (2004) emphasized that although the instructors agreed on democracy principles, they were not able to reflect these principles in class, which indicates that further studies of democratic teacher behavior is called for.

In the present study, democratic behaviors of teachers based on student perception were questioned and it is thought that the study will contribute to the field as teachers should adopt democratic behavior in the context of education and pursue the attitude for the future generations. Furthermore, evaluation of teacher behavior by students seems to be worthwhile as a part of its democratic nature inherent within itself. Additionally, secondary school teachers' employing democratic behavior in Turkish context will add to the growing body of literature and shed light on developing better democrat behavior of teachers in diverse societies.

As it is the case in many studies, this study had some limitations. Because the scale was conducted with the students in four secondary schools in a city of Turkey, it may not be generalized to all cities in the country. Therefore, further studies with greater number of sample including several other regions and cities in the country are suggested so as to increase the scale's external validity.

## Conflict of Interests

The author has not declared any conflicts of interest.

## REFERENCES

- Alpar's R (2001). Spor bilimlerinde uygulamalı istatistik. Ankara: Nobel Yayın Dağıtım.  
Akbulut Y (2010). SPSS applications in social studies. İstanbul: İdeal Publishing.

- Angell AV (1998). Practicing democracy at school: A qualitative analysis of an elementary class council. *Theor. Res. Soc. Educ.* 26(2):149-172.
- Arabacı İB (2005). Student participation in teaching-learning process and democracy in classroom. *Contemp. Educ.* 316:20-27.
- Aydoğan İ, Kukul F (2003). Öğretmen ile öğretim üyelerinin demokratik davranışlarının analizi. *Educ. Res.* 3(11):23-32.
- Barber BR (1998). *A passion for democracy: american essays*. New Jersey: Princeton University Press.
- Bartholomew D, Knotts, M, Moustaki I (2011). *Latent variable models and factor analysis: A unified approach*. (3rd ed.). West Sussex, UK: John Wiley & Sons.
- Başar H (2004). Sınıf yönetimi. 11. Baskı. Ankara: Anı Yayıncılık.
- Bayındır N, İnan HZ, Demir S (2010). Öğretmen adaylarının sınıfta demokratik ortamı geliştirmeye ilişkin öngörüler. *Pamukkale Üniversitesi Sosyal Bilimler Enstitüsü Dergisi* 5:89-95.
- Beane JA (2005). A reason to teach: creating classrooms of dignity and hope. Portsmouth, NH: Heinemann.
- Büyüköztürk Ş (2013). *Sosyal bilimler için veri analizi el kitabı*. 13. Baskı. Ankara: Tarcan Matbaacılık.
- Byrne BM (2001). Structural equation modeling with AMOS, EQS, and LISREL: Comparative approaches to testing for the factorial validity of a measuring instrument. *Int. J. Testing* 1(1):55-86.
- Cattell RB (1978). *The scientific use of factor analysis in behavioral and life sciences*. New York: Plenum.
- Cavkaytar S (2013). Sınıf öğretmeni adaylarının Türkçe dersinde demokratik kültür bilincini geliştirmeye ilişkin görüşleri. *International Periodical For The Languages, Literature and Hist. Turk.* 8(13):607-631.
- Çermik H (2013). Öğretmen adaylarının demokratik değerleri ve bu değerlerin bazı değişkenler açısından incelenmesi. *NWSA-Education Sci.* 8(2):261-274.
- Child D (2006). *The essentials of factor analysis*. (3rd ed.). New York, NY: Continuum International Publishing Group.
- Cokluk O, Sekercioglu, G, Buyukozturk Ş (2012). *Multivariate statistics for the social sciences: SPSS and LISREL applications*. Ankara: Pegem Academy Publishing.
- Comrey AL, Lee HB (1992). *A first course in factor analysis*. Hillsdale, NJ: Erlbaum.
- Darling-Hammond L (2006). Constructing 21st century teacher education. *J. Teach. Educ.* 57(3):300-315.
- Dewey J (2010a). *Günümüzde eğitim [Education today]* (B. Ata & T. Öztürk, Trans. Ed., J. Ratner, Ed.). Ankara: Pegem Akademi. (Original work published 1970).
- Dobozoy E (2007). Effective learning of civic skills: democratic schools succeed in nurturing the critical capacities of students. *Educ. Stud.* 33(2):115-128.
- Doğan İ (2005). *Vatandaşlık demokrasi ve insan hakları*. Ankara: Pegem A Yayıncılık.
- Drugli MB, Hijemdal O (2013). Factor structure of student-teacher relationship scale for Norwegian school-age children explored with confirmatory factor analysis. *Scandinavian J. Educ. Res.* 57(5):457-466.
- Duman T, Koç G (2004). Eğitim fakültesi öğrencilerinin öğretim elemanlarının demokratik tutum ve davranışlarına ilişkin görüşleri. 13. Ulusal Eğitim Bilimleri Kurultayı'nda sunulan bildiri, İnönü Üniversitesi, Malatya.
- Dündar H (2013). Öğretmen adaylarının sahip olduğu değerler ile demokratik tutumları arasındaki ilişki. *J. Acad. Soc. Sci. Stud. Int. J. Soc. Sci.* 6(2):367-381.
- Genç SZ (2006). Demokratik kazanımların gerçekleştirilmesinde ilköğretim öğretmenlerinin etkililiğinin değerlendirilmesi. *Milli Eğitim Dergisi* 35(171):43-53.
- Gimbert B (2002). *The Responsive classroom: a practical approach for bringing democratic ideals into the daily fabric of classroom life*. Retrieved from <http://www.newhorizons.org/strategies/democratic/gimbert.htm> January, 10, 2016.
- Girgin G, Gürşimşek I (2004). The effects of acquisition of some concepts related with democratic attitudes by using active learning on learning level in preschool education]. *Proceedings of the International Symposium on Democracy Education, Çanakkale*. Turkey pp. 310-315.
- Goodlad J (2000). Education and democracy. *Phi Delta Kappan*. 82(1):86-89.
- Goodlad J (2002). Kudzu, rabbits, and school reform. *Phi Delta Kappan*. 84(1):16-23.
- Gömlüksiz MN, Çetintaş S (2011). Öğretmen adaylarının demokratik tutumları. *Dicle Üniversitesi Ziya Gökalp Eğitim Fakültesi Dergisi* 17:1-14.
- Gözütok D (1995). *Democratic attitudes of teachers*. Ankara: Türk Demokrasi Vakfı.
- Gutmann A (1999). *Democratic education*. Princeton: Princeton University Press.
- Guyton E, Rainer J (1999). Democratic practices in teacher education and the elementary classroom. *Teach Educ.* 15:121-132.
- Güven A, Kaya R, Aslan H (2014). Tarih öğretmen adaylarının demokratik tutumlarının çeşitli değişkenler açısından incelenmesi. *Middle Eastern Afr. J. Educ. Res.* 12:17-30.
- Hair JF, Anderson RE, Tatham RL, Grablovsky BJ (1979). *Multivariate data analysis*. Tulsa, OK: Pipe Books. <http://www.marthalakecov.org/~building/strategies/democratic/gimbert.htm>. Retrieved september, 12, 2015.
- Hooper D, Coughlan J, Mullen M (2008). Structural equation modelling: guidelines for determining model fit. *Electron. J. Bus. Res. Method.* 6(1):53-60.
- Hostetler A (2012). In pursuit of democratic practice: self study as a democratic approach to teaching social studies. *J. Inquiry Action Educ.* 5(1):63-82. [http://www.meb.gov.tr/meb\\_duyuruindex.php?KATEGORI=774](http://www.meb.gov.tr/meb_duyuruindex.php?KATEGORI=774) Okul ve öğrenci sayıları. İstatistik. retrieved January, 08, 2016 from [www.meb.gov.tr](http://www.meb.gov.tr).
- Jeans AB (1995). *Teacher education: an international research agenda*. world conference on teacher education. izmir: 9 Eylül Üniversitesi Yayınları.
- Jöreskog KG, Sörbom D (1996). *LISREL8 User's reference Guide*. SSI. Retrieved December 14, 2015, from <http://www3.stat.sinica.edu.tw/statistica/oldpdf/A8n37.pdf>
- Kalaycı Ş (2005). *SPSS uygulamalı çok değişkenli istatistik teknikleri*. Ankara: Asil Yayın Dağıtım.
- Kan Ç (2013). Sınıftaki eşitlikçi davranış ölçeğinin geliştirilmesi. *Electronic J. Soc. Sci.* 12(44):360-371. [www.osesder.org](http://www.osesder.org). ISSN:1304-0278.
- Karakütük (2001). *Demokratik laik eğitim (Çağdaş toplum olmanın yolu)*. Ankara: Anı Yayıncılık.
- Karatekin K, Meray Z, Kuş Z (2013). Öğretmen adayları ve öğretmenlerin demokratik tutumlarının çeşitli değişkenler açısından incelenmesi. *Kastamonu Eğitim Dergisi* 2(21):561-574.
- Kayabaşı Y (2011). Öğretmen adaylarının davranışlarının demokratik sınıf ortamı açısından değerlendirilmesi. *Gazi Eğitim Fakültesi Dergisi* 31(2):525-549.
- Kıroğlu K, Elma C, Kesten A, Egüz Ş (2012). Üniversitede demokratik bir değer olarak hoşgörü. *Sosyal Bilgiler Eğitim Araştırmaları Dergisi* 3(2):86-104.
- Kline RB (2011). *Principles and practice of structural equation modeling*. New York: The Guilford Press.
- Knight T (2001). Longitudinal development of educational theory: democracy and the classroom. *J. Educ. Policy* 16(3):249-263.
- Korkmaz HE, Gümüşeli, Aİ (2013). Development of The Democratic Education Environment Scale. *international online journal of educational sciences, International Online J. Educ. Sci.* 5(1):82-98.
- Kubow PK, Kinney MB (2000). *Fostering democracy in middle school classroom: Insights from a Democratic Institute in Hungary [Electronic version]*. *Soc. Stud.* 91(6):265-271.
- Lappé FM (2006). *Democracy's edge: choosing to save our country by bringing democracy to life*. San Francisco: Josey-Bass.
- Mac Math S (2008). Implementing a democratic pedagogy in the classroom: Putting Dewey into practice [Electronic version]. *Can. J. New Scholars Educ.* 1(1):1-12.
- Morrison KA (2008). *Democratic classrooms: incorporating student voice and choice in teacher education courses*. Retrieved september 14, 2015, from <http://www.newfoundations.com/Morrison.html>
- Morrison KA (2009). Making teacher education more democratic. *Educ. Horizons* 87(2):102-115.

- Parker WC (2003). Teaching democracy: Unity and diversity in public life. New York: Teacher College Press.
- Parker WC (2010). Social studies education eC21. *Social Studies Today: Research and Practice*. pp. 1-13.
- Pohan CA (2003). Creating caring and democratic communities in our classrooms and schools. *Childhood. Educ.* 79(6):365-373.
- Print M, Ornstrom S, Nielsen HS (2002). Education for democratic processes in schools and classroom [Electronic version]. *Euro. J. Educ.* 37(2):193-210.
- Pryor CR, Pryor BW (2005). Preservice teachers' attitudes and beliefs about democratic classroom practice: Influences on intentions for pedagogical integration. *Curr. Issues Educ.* 8 (6):1-11.
- Rainer J, Guyton E (1999). Democratic practices in teacher education and the elementary classroom [Electronic version]. *Teach. Educ.* 15(1):121-132.
- Riley CF (2011). Democratic ideals and practices in three public elementary classrooms. (Doctoral dissertation). Retrieved from Pro Quest dissertations and theses.
- Ritter JK (2010). Modeling self-study in social studies teacher education: Facilitating learning about teaching for democratic citizenship. In: A. R. Crowe (Ed.), *Advancing Social Studies Education through Self-Study Methodology: The Power, Promise, and Use of Self-Study in Social Studies Education*. Dordrecht, The Netherlands: Springer pp. 87-102
- Saraçoğlu AS, Evin İS, Varol SR (2004). İzmir ilinde çeşitli kurumlarda görev yapan öğretmenler ile öğretmen adaylarının demokratik tutumları üzerine karşılaştırmalı bir araştırma. *Kuram Uygulama Eğitim* 4:335-364.
- Schermelleh-Engel, K Moosbrugger H (2003). Evaluating the fit of structural equation models: Tests of significance and descriptive goodness-of-fit measures. *Methods Psychol. Res. Online* 8(2):23-74.
- Schwartz SH (1992). Universals in the content and structure of values: Theoretical advances and empirical tests in twenty countries. *J. Exp. Soc. Psychol.* 28:1-65.
- Selvi K (2006). Developing a teacher trainees' democratic values scale: validity and reliability analyses. *Soc. Behav. Pers.* 34(9):1171-1178.
- Shechtman Z (2002) Validation of the democratic teacher belief scale, assessment in education. *Principles Policy Pract.* 9(3):363-377.
- Steiger JH (2007). Understanding the limitation of global fit assessment in structural equation modeling. *Pers. Individ. Diff.* 42:893-898. DOI:10.1016/j.paid.2006.09.017.
- Subba D (2014). Democratic values and democratic approach in teaching: a perspective. *Am. J. Educ. Res.* 2(12):37-40. doi: 10.12691/education-2-12A-6.
- Sümer N (2000). Yapısal eşitlik modelleri: temel kavramlar ve örnek uygulamalar. *Türk Psikoloji Yazıları* 3(6):74-79.
- Topkaya EZ, Yavuz A (2011). Democratic Values and Teacher Self-Efficacy Perceptions: A Case of Pre-Service English Language Teachers in Turkey. *Austr. J. Teach. Educ.* 36(8):30-48.
- Vinterek M (2010). How to live democracy in the classroom [Electronic version]. *Educ. Inquiry.* 1(4):367-380.
- Wenglinsky H (2000). How teaching matters: Bringing the classroom back into discussions of teacher quality. Princeton, NJ: Educational Testing Service, Policy Information Center. ERIC Document Reproduction Service No. ED447128.
- White WE, Van Scotter R, Hartoonian HM, Davis JE (2007). The problem: democracy at risk. *Soc. Stud.* 98(6):228-230.
- Yazıcıoğlu Y, Erdoğan S (2004). Spss uygulamalı bilimsel araştırma yöntemleri. Ankara: Detay Yayıncılık.
- Yeşil R (2003). Demokratik eğitim ortamının insan hakları temeli. *Gazi Üniversitesi Kırşehir Eğitim Fakültesi Dergisi* 4(2):45-54.
- Yeşil R (2010). Demokratik öğretmen davranış kararlılığı ölçeğinin geçerlik ve güvenilirliği. *Kuram ve Uygulamada Eğitim Bilimleri Dergisi* 10(4):2665-2692.
- Yiğit EÖ, Çolak K (2011). Democratic attitudes of social studies pre-service teachers. *Int. J. Res. Teacher Educ. (Special Issue)*. 4(6):82-95.

*Full Length Research Paper*

## Facebook connection styles among Physical Education teacher candidates

Murat ERDOGDU

Faculty of Tourism, Department of Recreation Management, Necmettin Erbakan University, Konya, Turkey.

Received 05 January, 2016; Accepted 24 February, 2016

**The purpose of this study is to determine the Facebook connection styles of physical education (PE) teacher candidates. The participants were composed of 626 (age =  $21.21 \pm 2.024$ ) physical education teacher candidates from the departments of Physical Education and Sports. They teach in five different universities. It was done in 2014-2015 academic year. Research data were collected using Facebook Connection Styles Scale (FCSS). The mean scores obtained from the subscales and the total scale indicated that PE teacher candidates achieved the highest mean score on the subscale of "initiating". It was also discovered that Facebook connection styles of PE teacher candidates differed in terms of gender, frequency of connection, the number of people in the friend list and whether the people in the friend list exist in the social circle.**

**Key words:** Physical education, Facebook, social network, Facebook connection styles.

### INTRODUCTION

Developing and changing rapidly, technology today has become an essential need for the people of information age (Akkoyunlu, 2002). In the 21<sup>st</sup> century – the age of information and technology – the developments in information and communication technologies have affected social life politically, culturally, economically and socially (Erkoç and Erkoç, 2011). Communication has played a key role especially in the educational life and most people have been reported to widely use technology resources for communication purposes (Yalcin, 2012).

Of these developments occurring in the field of information and communication, the internet technology definitely is the most important one (Yaman and Erdoğan, 2007). A large number of people have started taking the

advantages of the internet since access to the internet has become easier, cheaper and naturally more common. They can access information and make the best of various services on the internet.

The ongoing developments, transformations and opportunities provided by the internet have affected communication channels, socialization of individuals and the areas of online interaction among people, and particularly the young ones. Changing into a leading and a preferred environment for social interaction, communication and information, the internet has been increasingly involved in the lives of communities (Gemmill and Peterson, 2006; Wang et al., 2010).

Today educational environments cannot any longer be

E-mail: [muraterdogdu06@gmail.com](mailto:muraterdogdu06@gmail.com). Tel.: +90 5052448182. Fax: +90 3322362150.

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

considered independent of technology, and the developing technological resources, leading to changes in the scope of education environments, have necessitated that educational institutions need to keep up with the changing technology. Individuals around the world keep in touch by means of network-based technologies, and using the internet (world wide web) they can communicate with each other as a part of a network (Ekici and Kıyıcı, 2012).

The internet has entered a new era with the Web 2.0 applications that connect people to each other and facilitate access to information (Warschauer, 2009). Social networks are considered an important component of Web 2.0 technology and one of the most popular social sharing sites (Karal and Kokoç, 2010).

Social networking sites, having a central place in the internet use (Aksüt et al., 2012), represent another type of reality occurring on the internet, which allows users to share their opinions in the direction of a common goal and facilitates their interaction with each other. Social networking sites have replaced face-to-face communication, and people started to leave their traditional way of commuting. Social networks have certainly played the key part in shaping how individuals communicate and form social groups (Erkoç and Erkoç, 2011).

Social networks are the websites that allow individuals to construct a public or semi-public profile within a bounded system, share a connection and view their list of connections and those made by others in the system; these are also the places where people in the online communities share their likes and activities and send each other messages, e-mails and videos, join discussion groups and live chats and do file sharing (Boyd and Ellison, 2007).

First appeared with Classmates (1995) and SixDegrees (1997), social networking sites have continued their development along with sites such as Ryze (2001), Friendster (2002), Hi5 and MySpace (2003), Bebo (2005), Facebook (2006) and Twitter (2008), all of which have new and unique designs and functions (Boyd and Ellison, 2007; Kim et al., 2010)

Among all these, Facebook is the leading online social sharing software through which young people can easily express themselves and it is mainly used by these young people to find friends (Kobak and Biçer, 2008), meet new people and make contact with others (Ellison et al., 2006). Facebook provides electronic data that allows young people to socially interact in a quick, comprehensive, dynamic and enjoyable manner (Golder et al., 2007). Therefore, several studies performed on university students in Turkey revealed that Facebook is the most commonly used one (Genç, 2010; Göker, Demir and Doğan, 2010; Öztürk and Akgün, 2012) with a higher frequency of use (Göker et al., 2010; Öztürk and Akgün, 2012; İşman and Hamutoğlu, 2013).

Turkey is ranked the 5<sup>th</sup> in the world in terms of the

number of total Facebook users. In 2008, there were 3.464.640 Facebook users, and only after three years in 2011, this number grew up to 29.459.200 (Nickburcher, 2011). It is seen that the number of Facebook quadrupled in 4 years.

Numerous features of Facebook could be the reason behind such a high rate of preference, including providing users with a rich variety of multimedia; easy sharing via other websites; the chance of making contact with large communities by offering options such as group, activity and practices; online and offline chat; an infrastructure that supports mobile devices to run various games; rich visual contents; and the language support for Turkish (Karademir and Alper, 2011)

Blackey and Chew (2009) reported the advantages of social networks for higher education students, academic staff, and teaching institutions in order to support learning and teaching experiences Gülbahar et al. (2010) suggest that compared to other learning management systems, social networking sites are easier to use as they are flexible and user friendly. To communicate and get feedback, they provide great convenience to students and researchers as these networking sites let them create a group by following some easy steps and share things among themselves.

Facebook receives a great deal of attention from university students as it is free and used by lots of people so the use of Facebook in higher education has become a need that should be fulfilled in certain situations. This software encourages cooperative learning due to an increased student to content, student to student and student to teacher interaction (Kalafat and Göktaş, 2011). Such networking sites bring a new dimension to interpersonal communication in academic environments (Yu et al., 2010). Moreover, knowledge about the reasons for using social networking sites is believed to guide researchers who want to use them for educational purposes since they are regarded as a pedagogical tool stimulating cooperative learning (Lee and McLoughlin, 2008; Lockyer and Patterson, 2008).

Within this context, the purpose of this study is to determine how PE teacher candidates use Facebook to establish and improve their social relations, and also to find out their opinions about the role of Facebook in the educational domain.

## METHOD

### Research design

The present study was planned and performed based on general survey methodology (Karasar, 2009; Büyüköztürk et al, 2010) in order to determine Facebook connection styles of PE teacher candidates and find out their opinions on the use of Facebook in the educational domain.

Research data was collected using Facebook Connection Styles

**Table 1.** Basic information about the participants.

	Variables	F	%
Gender	Female	232	37.1
	Male	394	62.9
Grade	1 <sup>st</sup> Year	136	21.7
	2 <sup>nd</sup> Year	193	30.8
	3 <sup>rd</sup> Year	135	21.6
	4 <sup>th</sup> Year	162	25.9
Access Facebook via	Mobile Phone & Tablet	455	72.7
	Computer	171	27.3
Frequency of Facebook use	Once a day	169	27
	More than once a day	237	37.9
	A few times in a week	155	24.8
	Once a week	65	10.4
Number of people in the friend list	100 or less	46	7.3
	101-200	129	20.6
	201-300	206	32.9
	301-400	148	23.6
	401- or more	97	15.5
Whether the people in the friend list are in social circle or not	Almost most of them are not in my social circle	37	5.9
	More than half of them are in my social circle	78	12.5
	Almost all of them are in my social circle	294	47
	All of them are in my social circle	217	34.7
	Total	626	100

Scale (FCSS) and the data was evaluated using SPSS statistical package programme.

### Participants

The participants were composed of 626 PE teacher candidates; 232 (37.1%) females and 394 (62.9%) males, selected randomly from first to fourth grade students attending Physical Education and Sports Teaching departments in five different universities in Turkey (namely Gazi University, Kirikkale University, Bartin University, Sakarya University, and Selcuk University) during 2014-2015 academic year. Out of these 626 PE teacher candidates, 136 (21.7%) were first-year students, 193 (30.8%) were second-year students, 135 (21.6%) were third-year students, and 162 (25.9%) of them were the fourth and last year students at the university (Table 1).

### Data collection instruments

Two instruments were used to collect data about the participants; "Personal Data Form" and "Facebook Connection Styles Scale".

**Personal Data Form:** This form was developed by the researcher himself to collect data on the demographics of PE teacher

candidates. Previous research studies were reviewed and expert views were sought to develop the form.

### Facebook Connection Styles Scale

"Facebook Connection Strategies Scale", originally developed by Ellison et al. (2011), was adopted to Turkish by Aktürk et al. (2014). The scale, designed as a 5-point Likert-Type Scale, includes 13 items and three subscales; "initiating, information seeking, and maintaining".

The first 9 items of the scale have response options as "not likely at all, not likely, not sure, likely and very likely" and the last 4 items requires selecting one of five possible answers - "strongly disagree, disagree, not sure, agree, strongly agree". The internal consistency coefficients for the subscales are as follows: 0.82 (information-seeking), 0.89 (maintaining), 0.80 (initiating). The analysis performed showed that the Turkish version of the scale was valid and reliable.

### Data analysis

Independent variables of the study included gender, frequency of Facebook use, the number of people in the friend list and whether the people in the friend list exist in the social circle. "Facebook

**Table 2.** Mean scores of the Facebook Connection Styles Scale (FCSS) for PE teacher candidates.

Variables	N	M	SS
Information-seeking	626	2.79	1.089
Maintaining	626	2.94	1.105
Initiating	626	3.10	1.001
Facebook Connection Total	626	2.95	.912

**Table 3.** Comparison of the FCSS mean scores by gender.

Variables	Gender	N	M	SS	t	Sd	p
Information-seeking	Female	232	2.40	.993	-7.158	624	.000
	Male	394	3.02	1.079			
Maintaining	Female	232	2.63	1.057	-5.510	624	.000
	Male	394	3.12	1.094			
Initiating	Female	232	2.95	.938	-2.896	624	.004
	Male	394	3.19	1.030			
Facebook Connection Total	Female	232	2.66	.810	-6.144	624	.000
	Male	394	3.11	.928			

$p < 0.05$ .

connection styles (FCS)" was defined as the only dependent variable in the study. The statistical analysis of the data was designed in a way to discover the effects of independent variables on the dependent variable. The distributions of the scores derived from the scale were transferred to the computer by coding them according to the independent variables.

Research data were analysed using SPSS 17.0. For the personal data, statistical values such as percentage and frequency were used to analyze the data concerning PE teacher candidates. Facebook connection styles were determined using the statistical techniques of "arithmetic mean" and "standard deviation". Independent samples t-test was performed to find out if there were any differences between the variables of the groups. And the differences between the variables with multiple groups were tested using the one-way analysis of variance (ANOVA). A Tukey post hoc test was conducted to ascertain the source of the difference. For statistical analyses, the level of significance was set at 0.05.

## FINDINGS

This section of the study presents the interpretations of the findings of the research.

Table 2 shows the mean scores of PE teacher candidates obtained from each subscale of FCSS and from their total scale scores. PE teacher candidates obtained a mean score of  $M = 3.10$  on the initiating dimension and  $M = 2.94$  and  $M = 2.79$  on the maintaining and information-seeking dimensions respectively.

A t-test was performed in order to compare the FCSS mean scores by gender. The results are presented in Table 3.

The mean scores that PE teacher candidates obtained on each subscale of FCSS and on the entire scale were compared by the gender variable and the comparison results were presented in Table 3. FCSS means of PE teacher candidates indicated a significant difference in favor of male teacher candidates ( $p < 0.05$ ).

The study also examined the connection styles of PE teacher candidates by comparing how often they connect to Facebook. The findings are shown in Table 4.

The results revealed significant differences in the Facebook connection styles of PE teacher candidates ( $p < 0.05$ ). Those who connect "more than once a day", "once a day" and "every few days" achieved higher mean scores compared to ones connecting "once a week".

The number of people in the friend list was another variable measured using one-way analysis of variance to compare the Facebook connection styles of PE teacher candidates. The results of the comparison are given in Table 5.

According to these results obtained in Table 5, significant differences were observed in terms of the number of people in the friend list of PE teacher candidates.

**Table 4.** Comparison of the connection styles by the frequency of Facebook connection.

Variables	N	M	SD	Sd	F	p	Difference Tukey
Once a week	65	2.52	.888				1< 2
Every few days	155	2.90	.869	3			1< 3
More than once a day	237	3.08	.872	622	6.699	.000	1< 4
Once a day	169	2.97	.967	625			
Total	626	2.95	.912				

p< 0.05.

**Table 5.** Comparison of the connection styles by the number of people in the friend list.

Variables	N	M	SD	Sd	F	p	Difference Tukey
100 or fewer	46	2.4891	.91247				1< 2
101 - 200	129	2.9587	.92216	4			1< 3
201 - 300	206	2.9292	.86822	621	4.530	.001	1< 4
301 - 400	148	3.1306	.87914	625			1< 5
401 or more	97	2.9278	.97276				
Total	626	2.9503	.91218				

p< 0.05.

**Table 6.** Comparison of the connection styles in terms of whether the people in the friend list are from their own social circle or not.

Variables	N	M	SD	Sd	F	p	Difference Tukey
Almost most of them are not in my social circle	37	2.36	1.012	3	5.934	.001	1< 2
More than half of them are in my social circle	78	2.90	.844	622			1< 3
Almost all of them are in my social circle	294	3.02	.864	625			1< 4
All of them are in my social circle	217	2.96	.949				
<b>Total</b>	<b>626</b>	<b>2.95</b>	<b>.912</b>				

p< 0.05.

Finally, Facebook connection styles were compared in connection with whether the people in the friend list are from their social circle or not. The related results are presented in Table 6.

As can be seen from the table, a significant difference was found in favor of those who had more people in their friend list.

## DISCUSSION AND CONCLUSION

This section presents the study results in relation to the Facebook connection styles of PE teacher candidates and the comparisons of the connection styles in terms of gender, year in school, frequency of Facebook connection, the number of people in the friend list and whether the people in the friend list exist in the social

circle.

The mean scores of PE teacher candidates provided by the subscales and the entire scale demonstrated that PE teacher candidates achieved the highest mean score on the subscale of "initiating". Also, it was seen that PE teacher candidates had lower mean scores on the subscale of "information-seeking" when compared to those obtained from the subscales of "initiating" and "maintaining" and also from the entire scale. The total mean score on the FCSS might suggest that Facebook connection styles of PE teacher candidates differed to some extent. Based on the scores PE teacher candidates obtained from the subscale of *initiating*, it could be argued that PE teacher candidates adopt behaviours that aim to meet new people or strangers, communicate and make friends with them. A similar result reported by Ellison et al. (2011) suggested that Facebook covers

many features that can be used to create new contacts as well as strengthen the existing social ties. In a similar study, Aksüt et al. (2012) emphasized “making friends” as the primary purpose of using Facebook among primary and secondary school students. Another study conducted by Şener (2009) revealed that communicating with friends was the main reason underlying Facebook use, followed by tracking down the friends and acquaintances and sharing favourite videos and photos. It is suggested that Facebook is mainly used to share favourite videos/photos because it gives them a chance to get to know each other better. Engin and Sarsar (2015) reported that technology and media tools are not efficiently used in a goal-oriented way. They stated that teacher candidates spend considerable time—as much as 6 hours or more each day – watching TV or using the internet and they use the social media tools such as Facebook and Instagram just as to know about the lives of others in their immediate environment and share photos of foods and drinks.

The data resulting from the subscale of initiating indicated that PE teacher candidates use Facebook mostly for meeting new and different people as well as searching for close friends, adding as a friend, making contact and meeting. It could also be suggested that Facebook is used least for searching for someone they meet in their social life and getting more information about the classmates and those living in the vicinity.

The study found that the comparisons between the FCSS scores of PE teachers and the variable of gender yielded significant differences. This finding suggests that Facebook connection styles, in other words the purposes of using Facebook, are different among male and female PE teacher candidates.

Erkoç and Erkoç (2011) reported that the majority of female and male students (84.37% and 93,88%) use Facebook to message each other. It was also underlined that a great proportion of male students use Facebook to play games in comparison with the females. It is noteworthy that male students much prefer Facebook to find their friends. In general, it could be asserted that males and females prefer to use Facebook for different purposes. This finding seems to be in agreement with the one reported in this study.

Another result revealed in the present study is related to the frequency of Facebook use and Facebook connection styles of PE teacher candidates. The result showed that there were significant differences in the Facebook connection styles of PE teacher candidates in terms of frequency of their Facebook use. PE teacher candidates who use Facebook “more than once a day”, “once a day” and every few days” had higher mean scores than those who use it “once a week”. Therefore, it might be suggested that teacher candidates using Facebook less often display different connection styles.

Torlak ve Ay (2015) reported that 71.7% of the individuals

login to their Facebook account more than once every day. In addition, it was underlined that individuals in the research sample spend approximately 2 h and 40 min on Facebook. Another study conducted by Göker et al. (2010) asked questions about the patterns of internet use and a large number of participants reported that they go online and take a look at their Facebook pages once a day at least. Accordingly, it is clear that the frequency of Facebook use seems really high. Based on the finding reported in the present study, it could be argued that frequency of Facebook use among PE teacher candidates is influential in their Facebook connection styles; in other words, it diversifies their Facebook connection styles.

There were also differences observed in the Facebook connection styles of PE teacher candidates in respect of the number of people in the friend list. Teacher candidates who have less friends conveyed lower Facebook connection styles compared to those who have more friends. Thus, it can be said that an increase in the number of people in the friend list or having a lot of friends in the list makes differences in the Facebook connection styles. Şener (2009) emphasized that increased number of Facebook friends leads to spending more time on Facebook. Also, another study (Öztürk and Akgün, 2012) reported that the average number of people on social networks is 246, which seems consistent with the result found in the present study.

Given that the number of people in the friend list actually mirrors the social circle of a person, a long list crowded with contacts is considered a privilege. Nevertheless, having a great number of people in the friend list is not enough to assume that the person maintains an active relationship with all the people in the list. Another study found the number of friends one of the major indicators for the Facebook activity. The more friends the user has, the more messages s/he receives and therefore the more people s/he shares the messages with. So, it was reported that the activity of Facebook use of a Facebook user changes mostly based on the number of friends (Göker et al., 2010).

The study finally compared Facebook connection styles of PE teacher candidates in connection with the variable of whether the people in the friend list are also in their own social circle. A significant difference was found in favor of those who have more people in their friend list.

Regarding the people in the friend list, PE teacher candidates who reported “*more than half, almost all and all of them are in my social circle*” had higher mean scores than those who responded “*almost most of them are not in my social circle*”. Consequently, it might be asserted that differences arise in the connection styles as fewer people in the friend list exist in the social circle of the teacher candidates, or, in other words, as the gap widens between the number of virtual friends and the friends in the real world. The social transformation triggered by the advanced communication technology

(Uslu and Karahan, 2007) has changed how individuals communicate and build a social circle (Erkoç and Erkoç, 2011). Göker et al. (2010) considered it important whether the Facebook friendships have a connection to the social circle and found that a considerable number of university students in their study sample reported that people in their friend list were also a part of their social circle. This is in line with the result of the present study. Moreover, they came to the conclusion that social ties are strengthened when the people in the friend list come from their social circle.

Facebook connection styles of PE teacher candidates were determined in the present study. Over and above this, Facebook connection styles were investigated in view of the variables of gender, frequency of Facebook use, the number of people in the friend list and whether the people in the friend list exist in their own social circle, all which are considered potentially influential in Facebook connection styles. Results of the study point to the conclusion that PE teacher candidates use Facebook commonly and also for different purposes as evidenced by the different Facebook connection styles of PE teacher candidates. Further research should be conducted to explore Facebook connection styles of PE teacher candidates using larger samples and different variables.

### Conflict of Interests

The author has not declared any conflicts of interest.

### REFERENCES

- Akkoyunlu, B (2002). Educational Technology in Turkey: Past, Present and Future. *Educ. Media Int.* 39(2):165-174.
- Aksüt M, Ateş S, Balaban S, Çelikkanaat A (2012). İlk ve Ortaöğretim Öğrencilerinin Sosyal Paylaşım Sitelerine İlişkin Tutumları (Facebook Örneği) Akademik Bilişim'12-XIV. Akademik Bilişim Konferansı Bildirileri 1 - 3 Şubat 2012 Uşak Üniversitesi
- Biçer S (2014). Akademisyenlerin Sosyal Ağlarda Bulunma Motivasyonları: Facebook Örneği. *Dumlupınar Üniversitesi Sosyal Bilimler Dergisi*, (40).
- Blackey H, Chew E (2009). Social Software Policy 2009–2012 for The University of Glamorgan. Retrieved from [http://scholar.google.com.tr/scholar?q=Social+Software+Policy+2009+2012+for+The+University+of+Glamorgan.+The+Policy+of+the+University+of+Glamorgan.&btnG=&hl=tr&as\\_sdt=0,5#1](http://scholar.google.com.tr/scholar?q=Social+Software+Policy+2009+2012+for+The+University+of+Glamorgan.+The+Policy+of+the+University+of+Glamorgan.&btnG=&hl=tr&as_sdt=0,5#1)
- Boyd DM, Ellison NB (2007). Social network sites: Definition, history, and scholarship. *J. Computer-Mediated Commun.* 13(1):11, 210-230. Retrieved from <http://jcmc.indiana.edu/vol13/issue1/boyd.ellison.html>
- Ekici M, Kıyıcı M (2012). Sosyal Ağların Eğitim Bağlamında Kullanımı. *Uşak Üniversitesi Sosyal Bilimler Dergisi* 5/2:156-167
- Ellison N, Steinfeld C, Lampe C (2006). Spatially bounded online social networks and social capital: The role of Facebook. Annual Conference of the International Communication Association (ICA), June 19-23, Dresden, Germany.
- Engin G, Sarsar F (2015). Sınıf Öğretmeni Adaylarının Küresel Vatandaşlık Düzeylerinin incelenmesi. *Int. J. Hum. Sci.* 12(1).
- Erkoç MF, Erkoç Ç (2011). Değerler eğitiminde etkinlik ortamı olarak sosyal ağ sitelerinin kullanımı: Facebook grupları. 5th International Computer & Instructional Technologies Symposium 22-24 September, Elazığ, Turkey.
- Gemmill E, Peterson M (2006). Technology Use among College Students: Implications for Student Affairs Professionals. *NASPA J.* 43(2):280-300.
- Genç Z (2010). Web 2.0 yeniliklerinin eğitimde kullanımı: Bir Facebook eğitim uygulama örneği. *Akademik Bilişim'10 - XII. Akademik Bilişim Konferansı Bildirileri*. Muğla Üniversitesi.
- Golder SA, Wilkinson DM, Huberman BA (2007). Rhythms of social interaction: Messaging within a massive online network. Third Communities and Technologies Conference, Michigan State University, USA (Proceeding) pp. 41-66.
- Göker G, Demir M, Doğan A (2010). Ağ toplumunda sosyalleşme ve paylaşım: Facebook üzerine ampirik bir araştırma. *e-Journal of New World Sci. Acad.* 5(2).
- Gülbahar Y, Kalelioğlu F, Madran O (2010). Sosyal Ağların Eğitim Amaçlı Kullanımı, XV. Türkiye'de İnternet Konferansında sunulan bildiri, İstanbul Teknik Üniversitesi, İstanbul. Alınan yer: <http://inet-tr.org.tr/inetconf15/ozet/10.html>
- İşman A, Albayrak E (2014). Sosyal Ağlardan Facebook'un Eğitime Yönelik Etkililiği. *Trakya Üniversitesi Eğitim Fakültesi Dergisi* 2014, Cilt 4, Sayı 1:129-138
- İşman A, Hamutoğlu B (2013). Sosyal ağların eğitim-öğretim sürecinde kullanılması ile ilgili karma öğrenme öğrencilerinin görüşleri: Sakarya Üniversitesi örneği. *Int. J. New Trends in Arts, Sports Sci. Educ.* 2(3).
- Kalafat Ö, Göktaş Y (2011). Sosyal ağların yükseköğretimde kullanımı: Gümüşhane Üniversitesi, Facebook örneği. 5th International Computer & Instructional Technologies Symposium, Fırat University, Elazığ-Turkey.
- Karademir T, Alper A (2011). Öğrenme ortamı olarak sosyal ağlarda bulunması gereken standartlar. 5th International Computer&Instructional Technologies Symposium, Fırat University, Elazığ.
- Karal H, Kokoç M (2010). Üniversite Öğrencilerinin Sosyal Ağ Siteleri Kullanım Amaçlarını Belirlemeye Yönelik Bir Ölçek Geliştirme Çalışması. *Turk. J. Comput. Math. Educ.* 1(3):251-263
- Kim W, Jeong OR, Lee SW (2010). On social Web sites. *Inform. Syst.* 35(2):215-236.
- Kobak K, Biçer S (2008). Facebook Sosyal Paylaşım Sitesinin Kullanım Nedenleri, 8 th International Education Technology Conference (pp. 567-571), 6-9 Mayıs 2008 Alınan yer: <http://ietc2008.home.anadolu.edu.tr/ietc2008/105.doc>
- Lee MJW, McLoughlin C (2008). Harnessing the affordances of Web 2.0 and social software tools: can we finally make "student-centered" learning a reality? Paper presented at the World Conference on Educational Multimedia, Hypermedia and Telecommunications, Vienna, Austria.
- Lockyer L, Patterson J (2008). Integrating social networking technologies in education: a case study of a formal learning environment. In. Proceedings of 8th IEEE international conference on advanced learning Technologies, Spain: Santander pp. 529-533.
- Nickburcher (2011). Facebook usage figures by country july. <http://www.nickburcher.com/2011/07/facebook-usage-figures-by-country-july.html> adresinden 21 Ağustos 2011 tarihinde erişilmiştir.
- Özmen F, Aküzüm C, Sünkür M, Baysal N (2011). Sosyal ağ sitelerinin eğitsel ortamlardaki işlevselliği. 6th International Advanced Technologies Symposium (IATS'11) 16-18 May, Elazığ, Turkey.
- Öztürk M, Akgün ÖE (2012). Üniversite öğrencilerinin sosyal paylaşım sitelerini kullanma amaçları, bu sitelerin olumlu-olumsuz etkileri ve eğitimlerinde kullanılması ile ilgili görüşleri. *Sakarya University J. Educ.* 2(3):49-67.
- Preeti M (2009). Use of social networking in a linguistically and culturally rich India. *Int. Infor. Library Rev.* 41(3):129-136.
- Şener G (2009). Türkiye'de Facebook kullanımı araştırması. XIV. Türkiye'de İnternet Konferansı, 12-13 Aralık, Bilgi Üniversitesi, İstanbul.
- Torlak Ö, Ay U (2014). Facebook'ta Bulunma Amacı ve Facebook Reklamlarına Duyulan İlgisi Arasındaki İlişki. *Anadolu University J. Soc. Sci.* 14(4).
- Uslu Karahan Z (2007) Yeni iletişim araçları ve toplumsal etkileri. *Sosyoloji Araştırmaları Dergisi* 10(1):224-234.

- Yalçın M (2012). Communication barriers in quality process: Sakarya University sample. *Turk. Online J. Educ. Technol.* 11(4):65-71.
- Yaman H, Erdoğan Y (2007). İnternet kullanımının Türkçe'ye etkileri: Nitel bir araştırma. *J. Lang. Linguist. Stud.* 3(2):237-249.
- Yu YA, Stella TW, Doug V, Kwok CW (2012). Can learning be virtually boosted? An investigation of online social networking impacts. *Computers Education. Comput. Educ.* 55(4):1494-1503.
- Wang SS, Moon S, Kwon KH, Evans CA, Stefanone MA (2010). Face off: Implications of visual cues on initiating friendship on facebook. *Computers Hum. Behav.* 26(2):226-234.
- Warschauer M (2009). Foreword. In M. Thomas (Ed.), *Handbook of research on web 2.0 and second language learning*, Hershey, PA: Information Science Reference pp. 19-20.

*Full Length Research Paper*

# Using menelaus' theorem and dynamic mathematics software to convey the meanings of indeterminate forms to students

Erdem Çekmez

Fatih Faculty of Education, Karadeniz Technical University, Trabzon, Turkey.

Received 16 January, 2016; Accepted 17 February, 2016

**This study investigates the effectiveness of a teaching activity that aimed to convey the meaning of indeterminate forms to a group of undergraduate students who were enrolled in an elementary mathematics education programme. The study reports the implementation sequence of the activity and students' experiences in the classroom. To assess the effectiveness of the adopted approach, an individual homework assignment, in which students were asked to generate examples for indeterminate forms as geometrical constructions, was applied. The findings revealed that the students had various misunderstandings about the meanings of indeterminate forms prior to the study. Moreover, the use of the term "indeterminate" to designate these limit forms was found to be inappropriate because of its connotation. In light of the results, some suggestions are made to improve the teaching of indeterminate forms.**

**Key words:** Calculus teaching, indeterminate forms, limit concept, concept of infinity.

## INTRODUCTION

Indeterminate forms are special cases of limits that occur when it is not possible to determine the limit value of an expression solely by recognizing the limiting behavior of its subexpressions. Possibly the most important indeterminate forms are the types  $\frac{0}{0}$  and  $\frac{\infty}{\infty}$ , because to

calculate the limit of the others, one should transform them to these types in order to apply L'Hopital's theorem. Instruction on types of indeterminate forms and how to use L'Hopital's theorem to compute their limit value is

covered in analysis courses at the university level. On several occasions during teaching, it has been seen that most of the students who were able to use L'Hopital's theorem to calculate the limits of indeterminate forms were unable to correctly grasp the meaning of what they stand for. Namely, most students cannot interpret  $\frac{\infty}{\infty}$  as

the ratio of two quantities that increase without bound, or  $\frac{0}{0}$  as the ratio of two quantities both approaching zero.

---

Email: [erdemcekmez@yahoo.com](mailto:erdemcekmez@yahoo.com)\_Tel:+90536 430 98 56. Fax: +90462 248 73 44.

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/)

Instead, they tend to regard these symbols as a division operation on two numbers, such as  $\frac{3}{5}$  or  $\frac{0}{-1}$ . It was

concluded based on the fact that in almost every teaching session involving this topic, students ask questions such as:

*“We know that any number multiplied by zero is zero; if this is so, why then do we regard  $0 \cdot \infty$  as indeterminate? Should not the result be zero?” or “Division by zero is meaningless, so why are we searching for the limit value of a meaningless expression?” or “Is not the division of zero by a number zero? So why do we call it indeterminate?”*

Although no study have specifically focused on students’ understanding of indeterminate forms, or one that reports similar observations, there is an extensive body of research about the concepts of limit, infinity, and division by zero; which together constitute indeterminate forms. In relation to the limit concept, one major difficulty reported in the literature is students’ belief that the limit of a function at a point is the same as the value of the function at that point or the point where the limit to be taken must belong to the domain of the function (Przenioslo, 2004; Bezuidenhout, 2001; Elia et al., 2009).

Another common difficulty that students face is the belief that a function can never reach its limit value. In other words, they see the limit as an endless process that approaches a certain value, but never reaches it (Cornu, 1991; Szydlik, 2000). One possible reason for this inaccurate reasoning about limit seems to be lack of comprehension of the distinction between potential and actual infinities. The research on this distinction has shown that the concept of infinity is mainly seen as a process, rather than an object; and consequently, this influences students’ ability to cope with problems that deal with actual infinity (Monaghan, 2001; Tirosh 1991). An additional factor that might impede the comprehension of the indeterminate form  $\frac{0}{0}$  is the difficulties that

students experience in the case of division by zero.

For instance, Ball (1990) interviewed 19 (10 elementary and 9 secondary) prospective mathematics teachers about a fictitious student’s question asking for the quotient of 7 divided by 0. The findings showed that only four students could give a satisfactory explanation as to why this operation is undefined. Seven other students explained the division by zero in terms of a correct rule, but they could not justify their answers; and five other students’ responses were based on the incorrect rule “anything divided by zero is zero”. In another study that focused on 35 in-service mathematics teachers, Quinn et al. (2008) used the same question that was applied in Ball’s study. The findings revealed that only thirty-one percent of the teachers could give the correct answer and

understood the underlying concept. Tsamir and Tirosh (2002) suggested that one reason for students’ difficulty in understanding why dividing by zero is undefined is the intuitive belief that every mathematical operation should result in a number.

In sum, teaching experiences indicate that students cannot grasp the meaning of indeterminate forms, and the earlier mentioned studies offer some explanations for this situation. To address this issue, the study designed a teaching activity that would help students in comprehending the meaning of indeterminate forms. The activity relies on the understanding that teaching should lead from concrete to abstract; therefore, it aims first to embody the indeterminate forms in geometrical context and to have students experiment on geometrical constructs; and then to have students link their actions to the algebraic context. This study reports the implementation of the teaching activity and students’ classroom experiences during the activity. Specifically, the study seeks to answer the following question:

Is the designed teaching activity effective in conveying the meaning of indeterminate forms to students?

At this point, to avoid any misinterpretation of the aim of the present study, the study wish to clarify the preference for the word “meaning” instead of “understanding” in the research question. In this sense, philosophers have differing interpretations of the link between understanding and meaning. While some expound meaning in terms of understanding, others explain understanding in terms of meaning (Sierpinska, 1994). For the researcher, the understanding of indeterminate forms requires, at least, the knowledge to answer why L’Hopital’s theorem works. However, the intention in designing the activity was not to present any formal knowledge about indeterminate forms to students, but rather to help students to comprehend the mathematical process that is represented by indeterminate forms. Thus, the term “meaning” was considered to be more appropriate to reflect the aim of the study.

**Menelaus’ theorem as a window on the meanings of indeterminate forms**

Menelaus’ theorem, named for Menelaus of Alexandria, is a theorem in plane geometry (Figure 1). The theorem states:

*Let ABC be a triangle, and F, E are two points on JAC[ and JAB[ respectively. If D is the intersection point of FE and CB, then  $\frac{|DB|}{|DC|} \cdot \frac{|CF|}{|FA|} \cdot \frac{|AE|}{|EB|} = 1$  .....* (I)

Although the theorem seems to be static on paper, it has a dynamic nature. This dynamism results from the

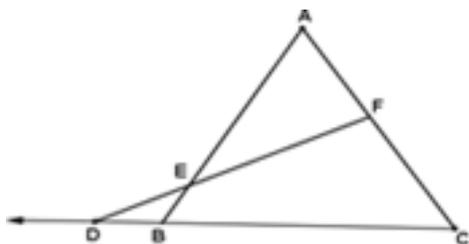


Figure 1. The depiction of Menelaus' theorem.

arbitrariness of the positions of the points F and E. As a consequence of this arbitrariness, the theorem includes some of the indeterminate forms in its structure. First, imagine that, holding point D as fixed and keeping points D, E, and F collinear, point F gets closer and closer to point A. Then the ratio  $\frac{|CF|}{|FA|}$  increases without bound, and the ratio  $\frac{|AE|}{|EB|}$  decreases continuously to zero. Therefore, as F approaches A, the limit of  $\frac{|CF|}{|FA|} \cdot \frac{|AE|}{|EB|}$  yields the indeterminate form  $\infty \cdot 0$ . Because the equality (I) holds irrespective of the positions of F and E, that limit is equal to the ratio  $\frac{|DC|}{|DB|}$ . In a similar manner, as point F approaches point A, the limit of  $\frac{|CF|}{|FA|} \cdot \frac{|EB|}{|AE|}$  yields the indeterminate form  $\frac{\infty}{\infty}$ . However, for the same reason, the limit is equal to the ratio  $\frac{|DC|}{|DB|}$ . Lastly, the indeterminate form  $\frac{0}{0}$  comes from the ratio  $\frac{|AE|}{|FA|}$  as point F approaches point A; as a result of equation (I), the limit of this ratio is equal to  $\frac{|DC| \cdot |AB|}{|DB| \cdot |CA|}$ . As a result of possessing these indeterminate forms in its structure, the researcher considered Menelaus' theorem to be an appropriate context to concretely represent these abstract concepts in order to help students grasp their meaning.

**METHODOLOGY**

**Participants and setting**

The research sample for this study consisted of 40 (12 male and 28 female) pre-service elementary mathematics teachers. The participants were in their second year at the university and had taken a Euclidean Geometry course in which Menelaus' theorem had been introduced, as well as a Calculus-1 course in which indeterminate forms and L' Hopital's theorem had been introduced, prior to the onset of the study. The structure of the Calculus-1

course was traditional, and the examples given for indeterminate forms were all in the form of operations on algebraically represented functions (i.e.  $\lim_{x \rightarrow 0} \frac{x}{\sin x}$ ); no examples in the form of geometrical constructions were given. Moreover, the Turkish calculus textbooks recommended to the students by their instructor for the Calculus-1 course did not include examples of indeterminate forms in the form of geometrical constructions; nor had the researcher encountered any Calculus textbooks written in Turkish that included examples in the form of geometrical constructions up to the time of the study.

The teaching activity reported in this study was administered in an elective course titled Graphical Calculus that was offered in the third semester of the teacher education program. The general aim of this course, of which the researcher was the instructor, was to introduce students to the geometrical representations of basic calculus concepts. The teaching session took place in a computer laboratory equipped with a projector that was connected to the instructor's terminal. The students formed pairs, and each pair had a computer on which the supplementary GeoGebra file was installed for the completion of the student worksheet (see Appendix 1). The instruction took place during two consecutive sessions. The first session lasted 80 min, followed by a 20 min break; and the second session lasted 40 min. All of the students had enough technical knowledge about the software to complete the worksheet.

**Data collection tools**

The data collection tools used in this study consisted of an open ended test, the researcher's classroom observation notes, and a homework assignment in which the students were asked to generate examples for indeterminate forms using geometrical constructions. Before the classroom intervention, in order to reveal the students' existing knowledge about the indeterminate forms  $\frac{\infty}{\infty}$ ,  $\frac{0}{0}$  and  $\infty \cdot 0$ , an open-ended test was administered. The questions on the test asked students to explain why these limit forms are called indeterminate.

While students were completing the worksheet in the classroom, the researcher was available for assistance and guidance if needed. During this time, the researcher took notes on important issues discussed between the partners, as well as between the pairs and the researcher himself. These field notes were used as a data source. After the instruction took place, the researcher assigned an individual homework task in which students were asked to generate at least one example for each type of indeterminate as a geometrical construction. The aim of this homework assignment was to assess whether the students had correctly grasped the meanings of these indeterminate forms. As a hint, the researcher recommended that students re-think the geometry theorems that they had covered in their Euclidean Geometry course in terms of whether they possess any of these indeterminate forms in their structures, as with Menelaus' theorem. The students were given one week to finish and return the assignment. The data presented in this paper were translated from Turkish into English while trying to maintain the essence of the meaning.

**Classroom activities and implementation sequence**

The teaching activities took place in two back-to-back sessions. The first session lasted approximately 80 min, and after a 20 min break, the second session began and lasted approximately 40 min. The

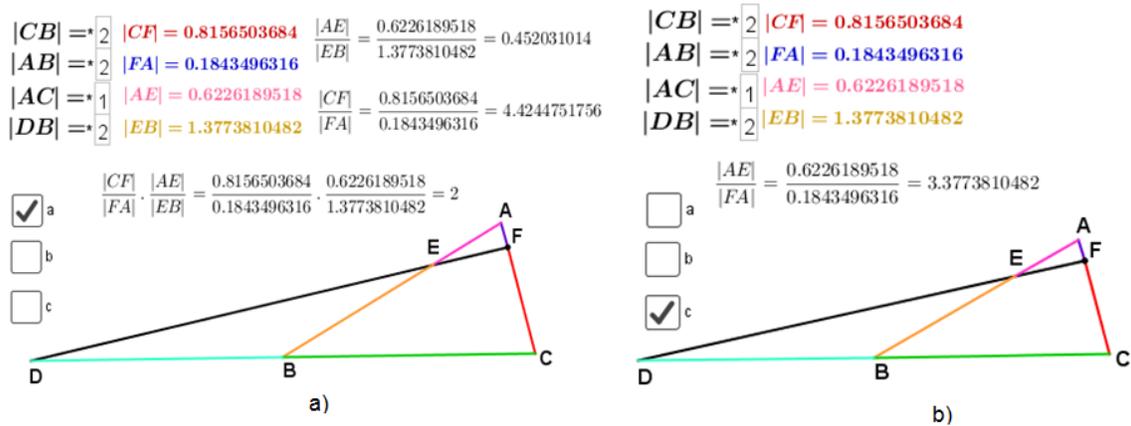


Figure 2. Screenshots for parts A and C in step 1.

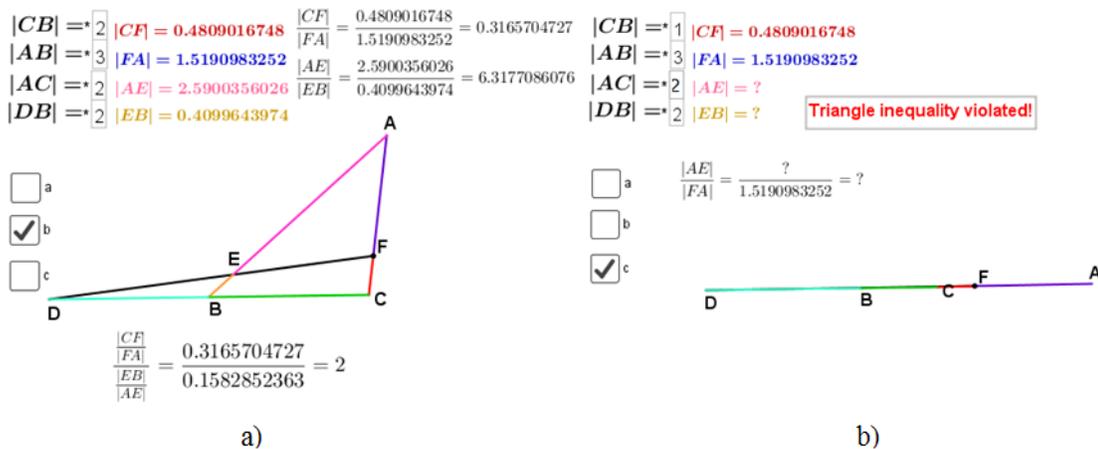


Figure 3. Screenshots for different assigned values for the lengths of the construction.

first session was devoted to the implementation of the student worksheet. In the second session, the researcher gave a presentation in which he investigated the limits in the student worksheet in the Cartesian coordinate plane by focusing on a specific case. The aim of the second session was to get students to link their actions in Euclidean geometry to the algebraic context. The implementation of these sessions is detailed below.

**Implementation of the first session**

In the first session of the teaching activity, the students were asked to complete the worksheet, which consisted of three phases: exploration, experimentation and generalization. The first three questions constituted the exploration phase, and in this phase, students did not make use of the software. The questions in this phase asked students to predict the indeterminate forms that would emerge as a result of point F approaching point A. The aim of these questions was to embody these rather abstract indeterminate forms

into geometrical entities in order for students to gain comprehension of their meaning.

The next three steps following the first three questions on the worksheet constituted the experimentation phase. After students had completed the first three questions, they opened the GeoGebra file developed by the researcher. In the first step, the students were asked to determine the results of the limits by making experimental observations with the software. At this point, students were able to check the predictions that they had made in the exploration phase. The students had the opportunity to change the position of point F and consequently observe the results of the calculations on the screen simultaneously. In Figure 2, screenshots of the software with the default lengths for parts A and C of step 1 are shown.

In steps 2 and 3, the students were asked to assign new integer values for the indicated lengths of the construction and re-investigate the associated limits. In Figure 3, screenshots for different assigned values are shown. Once a new value for a length using the input bars at the top left corner of the screen was assigned, the construction was changed accordingly (Figure 3a). If

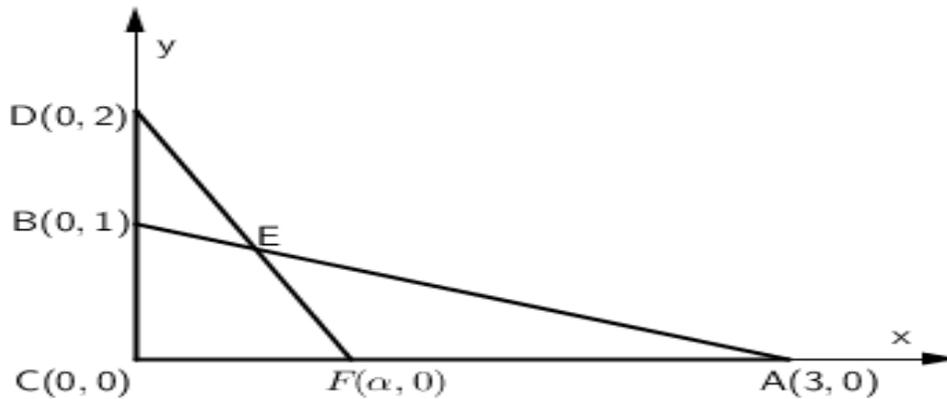


Figure 4. The construction for the figure in the worksheet.

the assigned value for a length did not suffice for triangle inequality, a warning message indicating that the triangle inequality was violated appeared on the screen (Figure 3b).

In step 2, assigning new values to  $|AB|$  and  $|AC|$  affects the result of the limit in part C; but it does not affect the results of the limits in parts A and B, because of the equation (1). However, in step 3, assigning new values to  $|CB|$  and  $|DB|$  does affect the results of all limits. Following several experimentations in steps 2 and 3, students were expected, at minimum, to notice that the results of the limits in parts A and B were equal to the same value, which is the ratio  $\frac{|DC|}{|DB|}$ , and also to comprehend that the results of the limits might be a consequence of Menelaus' theorem.

The final step on the worksheet constituted the generalization phase. In this step, students were asked to find expressions for the results of the associated limits when the lengths in the construction were given as variables. After all of the groups completed the worksheet, a class discussion about the results of the limits in step 4 and the relation between these results and Menelaus' theorem took place.

**Implementation of the second session**

In the second session of the teaching activity, the instructor gave a presentation that aimed to help students link the actions they had performed in the previous session in Euclidean geometry to the algebraic context. To this end, the researcher focused on a specific case of the construction and investigated the limits given on the student worksheet in the Cartesian coordinate plane. During the presentation, the students were not simply passive listeners; the instructor also asked questions as appropriate to ensure their active participation.

However, as they do not pertain directly to the study itself, these questions are not included here. In the course of the presentation, in order to make the calculations simpler and hence to make the content easier for the students to comprehend, the instructor chose a right triangle whose perpendicular sides lay on the coordinate axes in constructing the figure on the worksheet. The content of the presentation was as follows. The figure investigated in the worksheet was constructed in the Cartesian coordinate system as seen in Figure 4 (Let the arbitrary point F be on ]CA[ and its abscissa be represented by  $\alpha$ ).

First of all, let's determine the coordinates of point E in terms of

$\alpha$ . Point E lies at the intersection of AB and DF; therefore, we need to find the equations of these lines and then specify their intersection. By using the two-point form of a line, we get:

$$\overline{AB}: \frac{y-0}{x-3} = \frac{1-0}{0-3} \rightarrow y = \frac{-x}{3} + 1 \text{ and } \overline{DF}: \frac{y-0}{x-\alpha} = \frac{2-0}{0-\alpha} \rightarrow y = \frac{-2}{\alpha}x + 2$$

If we find the intersection of these lines using their equations, we get:

$$\overline{AB} \cap \overline{DF}: \frac{-x}{3} + 1 = \frac{-2}{\alpha}x + 2 \rightarrow x = \frac{3\alpha}{6-\alpha}$$

This gives us the abscissa of point E in terms of  $\alpha$ . To get the ordinate of point E, we can use the equation of  $\overline{AB}$ ; thus, we get:

$$y = \frac{-3\alpha}{6-\alpha} + 1 = \frac{6-2\alpha}{6-\alpha} \text{ hence } E\left(\frac{3\alpha}{6-\alpha}, \frac{6-2\alpha}{6-\alpha}\right).$$

Now that we have specified the coordinates of E, we can find the expressions for the lengths of the segments in terms of  $\alpha$ . By using the formula for the distance between two points, we get:

$$|CF| = \alpha, |FA| = 3 - \alpha, |AE| = \frac{2\sqrt{10}(3-\alpha)}{6-\alpha}, |EB| = \frac{\sqrt{10}\alpha}{6-\alpha}$$

Now let's transform the limits that we dealt with on the worksheet by using the variable  $\alpha$  in algebraic form.

Part a)

$$\lim_{F \rightarrow A} \frac{|CF|}{|FA|} \cdot \frac{|AE|}{|EB|} = \lim_{\alpha \rightarrow 3^-} \frac{\alpha}{3-\alpha} \cdot \frac{\frac{2\sqrt{10}(3-\alpha)}{6-\alpha}}{\frac{\sqrt{10}\alpha}{6-\alpha}} = \lim_{\alpha \rightarrow 3^-} \frac{2\sqrt{10}}{\sqrt{10}} = 2 = \frac{|DC|}{|DB|}$$

Part b)

$$\lim_{F \rightarrow A} \frac{\frac{|CF|}{|FA|}}{\frac{|EB|}{|AE|}} = \lim_{\alpha \rightarrow 3^-} \frac{\frac{\alpha}{3-\alpha}}{\frac{\frac{\sqrt{10}\alpha}{6-\alpha}}{\frac{2\sqrt{10}(3-\alpha)}{6-\alpha}}} = \lim_{\alpha \rightarrow 3^-} \frac{\frac{\alpha}{3-\alpha}}{\frac{\sqrt{10}\alpha}{2\sqrt{10}(3-\alpha)}} = 2 = \frac{|DC|}{|DB|}$$

Part c)

$$\lim_{F \rightarrow A} \frac{|AE|}{|FA|} = \lim_{\alpha \rightarrow 3^-} \frac{2\sqrt{10}(3-\alpha)}{6-\alpha} = \lim_{\alpha \rightarrow 3^-} \frac{2\sqrt{10}}{6-\alpha} = \frac{2\sqrt{10}}{3} = \frac{|DC|}{|DB|} \cdot \frac{|AB|}{|CA|}$$

## FINDINGS

In this study, the data were gathered from three sources: an open-ended test implemented before the instruction, the researcher's observation notes, and student-generated examples. The findings that emerged from these sources are presented in separate sections below.

### Findings from the test

Before the classroom intervention to reveal the meaning that students attached to the indeterminate forms  $\frac{\infty}{\infty}$ ,  $\frac{0}{0}$  and  $\infty \cdot 0$ , an open-ended test was administered. The students were asked to explain why each of these limit forms are called indeterminate. After analyzing the students' written responses, it was seen that the students' explanations as to why these limit forms are called indeterminate had similarities and differences. Based on these similarities and differences, the researcher assigned categories for the students' explanations. In Table 1, the categories, an excerpt of students' explanations for each category, and the number of students that fell in each category are presented.

The analysis of the responses showed that the students could not interpret the symbol " $\infty$ " as describing the process in which a quantity is increasing without bound. Instead, as seen from Table 1, students interpreted the symbol " $\infty$ " as an object to which they attached different meanings, and as a result, they used fallacious rationales in explaining why this limit form is called indeterminate.

The findings also indicate that the students interpreted the number zero in the indeterminate form  $\frac{0}{0}$  as an object; and hence, almost all of the students who provided an explanation proposed the impossibility of division by zero as a rationale to explain why it is called indeterminate. The students could not interpret the number zero as a process in which a quantity decreases to zero.

According to the data in Table 1, the frequency of students who did not provide an explanation for the  $0 \cdot \infty$  type was the highest among the others. In line with the previous cases, the students interpreted the symbol " $\infty$ " and the number zero as objects. Therefore, as shown in the last excerpt, the students expressed that the number zero might not absorb the number infinity because of its

incomprehensibly large value.

In summary, the findings that emerged from the students' responses did not contradict the researcher's expectations, because they are consistent with his previous experiences as outlined in the introduction.

### Classroom observations during the teaching sessions

While the students were making their experimental observations, using the software to complete the experimentation phase of the worksheet, some of the groups had difficulties in answering the questions in Step 1 and asked for help from the researcher. The dialogues occurring during the interactions between these groups and the researcher revealed two difficulties regarding the limit concept.

The first difficulty is related to the limit given in part C of step 1. Some of the groups could not arrive at a solution for that limit and asked for help. The result of that limit is  $\frac{|DC|}{|DB|} \cdot \frac{|AB|}{|CA|}$ , which is equal to 4, according to the default lengths. The dialogue between these students and the researcher showed that, although these students moved point F very close to point A by using the zoom feature and observed the value of  $\frac{|AE|}{|FA|}$  becoming very close to 4

(Figure 5), they still denied that the limit exists. To justify their conclusion, the students proposed that one could always make point F closer to point A, and hence make the value of the quotient larger; therefore, this quotient would never reach a constant value. Whereupon the researcher attempted to help the students realise that the value of the quotient could be made as close to 4 as desired; but the students seemed to be reluctant to agree that this limit exists. However, after the content of the second session was presented, these students, without being asked, told the researcher that they had changed their decision about the existence of the limit and realised their fallacious reasoning.

While the researcher was monitoring the students' activities in the classroom, he noticed that some groups concluded that the limits in parts A and B of step 1 did not exist. The result of these limits is  $\frac{|DC|}{|DB|}$ , which is equal to 2, according to the default values. Moreover, because the ratio  $\frac{|DC|}{|DB|}$  is independent of the position of point F, the numerical values of the expressions in these limits remain fixed (as can be seen in Figure 2a and Figure 3a) as point F moves. The researcher asked these students to explain the reasoning for their decisions. According to their understanding, these limits did not exist because the values of the expressions in these limits remain unchanged; and therefore, they do not approach a value.



limit of a constant function, they were able to overcome this misconception.

At the end of the instruction in the second session, one student asked a pedagogically valuable question out loud in the classroom. This student complained about the term “indeterminate” as used to designate these limit forms, and the other students backed him up in this idea. Because this issue may be context-bound, it would be beneficial to clarify the meaning of the term in Turkish that corresponds to “indeterminate.” Namely, the Turkish word used to designate these limit forms is “belirsiz,” which has the same meaning as the word “indeterminate”; and, as in English, it is the antonym of the word “belirli”, which has the same meaning as the word “determinate”.

The student asked, “If we can determine the value of these limit forms, why then do we call them indeterminate”? This question indicates that the term used to designate these limit forms does not convey the essential meaning of the forms to students.

### **Selected examples of indeterminate forms from students**

To evaluate the effectiveness of the activity designed for teaching students the meaning of indeterminate forms, the researcher used an individual homework assignment in which students were asked to generate examples of indeterminate forms in as geometrical constructions. The students were asked to turn in the assignment to the instructor in person, so that he would have the opportunity to ask them to explain their examples and thereby ensure that they had correctly grasped the meaning of a particular indeterminate form.

Moreover, if a student turned in an example that had been previously submitted by another student, the instructor asked the second student to change his/her example. By this means, the instructor aimed to prevent students from copying each other’s homework. In total, sixteen students provided an admissible example with their homework assignments; however, among these, two turned in examples that had been previously been submitted by other students. These students were asked to change their examples and re-submit their homework, but they failed to do so. All 14 of the students who turned in admissible examples were able to explain them and to justify the results of the limits that they had constructed. Furthermore, although they had not been asked to do so, ten students had also constructed their examples using the software and had checked their results experimentally before submitting the assignment.

Four of these students’ examples can be seen in Table 2. The first and second examples in the table belong to two of the students who had experienced the first and second difficulties related to the limit concept that are accounted respectively in the section on classroom

observations.

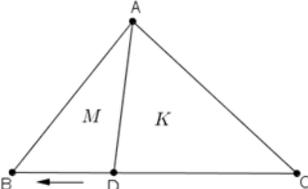
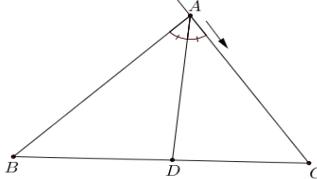
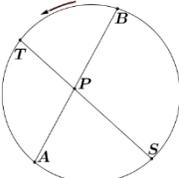
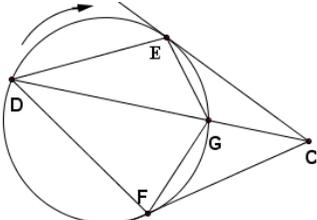
### **Conclusion**

The present study addresses the question “is the designed teaching activity effective in conveying the meaning of indeterminate forms to students”? The researcher’s informal interviews with the students about the effectiveness of the activity and his observations with respect to their success in interpreting the limit forms in subsequent lessons indicate a positive answer to this question. However, the proportion of the students who actually completed the homework assignment fell short of the researcher’s expectations. In total, fourteen out of 40 students provided an example and showed confidence in explaining the meaning of the limit forms that they had formed. Two reasons for this shortfall were identified. First, eight of the 40 students did not attend the second session of the teaching activity, and none of these students completed the homework assignment. Second, the assignment was not graded, and it did not contribute to the final grade in the course. Having discussed this with the students, the researcher realized that this adversely affected students’ motivation to complete the assignment.

The responses to the open-ended test that was administered prior to the teaching activity revealed that none of the students could correctly explain the meanings of the indeterminate forms, although they had encountered this topic in their calculus courses. It was found that the students interpreted the symbols 0 and  $\infty$  as objects, rather than as representing two processes. Consequently, they suggested the impossibility of division by zero and the impossibility of determining the value of infinity as rationales for referring to these limit forms as indeterminate. One possible cause for students’ understanding of infinity as an object representing a tremendously large number may be statements such as “x approaches positive/negative infinity” that are used in discussing limits involving infinity in the classroom. In this respect, due to the meaning of the verb “approach”, this statement seems to suggest that there is a number called infinity and that the variable x gets closer to it. To alleviate this misconception, the researcher recommends that it would be more appropriate to say “as x increases/decreases without bound”, instead. However, further investigation is needed to clarify this issue.

In addition to this misunderstanding, the students’ responses to the worksheet revealed two difficulties in grasping the limit concept. First, some of the students were unable to comprehend the distinction between *potential* and *actual* infinities. These students conceived of the limit as an endless process that approaches a certain value, but never reaches it; this misconception has also been reported by researchers such as Cornu

**Table 2.** Selected examples from the students for indeterminate forms.

Theorem	0/0	$\infty/\infty$	0. $\infty$
 <p>ABC is a triangle; if M and K are the areas of ABD and ADC respectively, then <math>\frac{M}{K} = \frac{ BD }{ CD }</math> (I)</p>	<p>As D approaches B along [BC], <math>\lim_{D \rightarrow B} \frac{M}{ BD }</math> yields the indeterminate form 0/0. However,</p> $\lim_{D \rightarrow B} \frac{M}{ BD } = \lim_{D \rightarrow B} \frac{K}{ CD } = h$ <p>h is the height of the altitude to the base BC.</p>	<p>As D approaches B along [BC], <math>\lim_{D \rightarrow B} \frac{\frac{ CD }{ BD }}{\frac{K}{M}}</math> yields the indeterminate form <math>\infty/\infty</math>. Because of the equation (I), the limit is equal to 1.</p>	<p>As D approaches B along [BC], <math>\lim_{D \rightarrow B} \frac{M}{K} \cdot \frac{ CD }{ BD }</math> yields the indeterminate form 0.<math>\infty</math>. Because of the equation (I), <math>\lim_{D \rightarrow B} \frac{M}{K} \cdot \frac{ CD }{ BD } = 1</math></p>
 <p>ABC is a triangle and [AD] is angle bisector. <math>\frac{ CA }{ CD } = \frac{ AB }{ BD }</math> (II)</p>	<p>As A approaches C along [CA], <math>\lim_{A \rightarrow C} \frac{ CA }{ CD }</math> yields 0/0 indeterminate form. However, as both  AB  and  BD  approach to  BC </p> $\lim_{A \rightarrow C} \frac{ CA }{ CD } = \lim_{A \rightarrow C} \frac{ AB }{ BD } = 1$	<p>As A approaches C along [CA], <math>\lim_{A \rightarrow C} \frac{\frac{ AB }{ CA }}{\frac{ BD }{ CD }}</math> yields <math>\infty/\infty</math> indeterminate form. Because of the equation (II), the limit is equal to 1.</p>	<p>As A approaches C along [CA], <math>\lim_{A \rightarrow C} \frac{ BD }{ CD } \cdot  CA </math> yields 0.<math>\infty</math> indeterminate form. Because of the equation (II), <math>\lim_{A \rightarrow C} \frac{ BD }{ CD } \cdot  CA  = \lim_{A \rightarrow C}  AB  =  BC </math></p>
 <p>The points B, T, A, and S are on the circle. P is the intersection of the chords.</p> $\frac{ PT }{ PB } = \frac{ PA }{ PS }$ (III)	<p>As B approaches T along the circle, <math>\lim_{B \rightarrow T} \frac{ PT }{ PB }</math> yields the indeterminate form 0/0. Because of the equation (III),</p> $\lim_{B \rightarrow T} \frac{ PT }{ PB } = \lim_{B \rightarrow T} \frac{ PA }{ PS } = \frac{ AT }{ ST }$	<p>As B approaches T along the circle <math>\lim_{B \rightarrow T} \frac{\frac{ PS }{ PB }}{\frac{ PA }{ PT }}</math> yields the indeterminate form <math>\infty/\infty</math>. Because of the equation (III), the limit is equal to 1</p>	<p>As B approaches T along the circle, <math>\lim_{B \rightarrow T} \frac{ PT }{ PA } \cdot \frac{ PS }{ PB }</math> yields 0.<math>\infty</math> indeterminate form. Because of the equation (III), the limit is equal to 1</p>
 <p>D, G, and C are collinear. E and F are tangency points.</p> $ DE  \cdot  FG  =  EG  \cdot  DF $ (IV)	<p>As D approaches E along the circle, <math>\lim_{D \rightarrow E} \frac{ DE }{ EG }</math> yields indeterminate form 0/0. However, as both  DF  and  FG  approach  EF ,</p> $\lim_{D \rightarrow E} \frac{ DE }{ EG } = \lim_{D \rightarrow E} \frac{ DF }{ FG } = 1$	<p>As D approaches E along the circle, <math>\lim_{D \rightarrow E} \frac{\frac{ DF }{ DE }}{\frac{ FG }{ GE }}</math> yields the indeterminate form <math>\infty/\infty</math>. Because of the equation (IV), the limit is equal to 1</p>	<p>As D approaches E along the circle, <math>\lim_{D \rightarrow E} \frac{ EG }{ FG } \cdot \frac{ DF }{ DE }</math> yields the indeterminate form 0.<math>\infty</math>. Because of the equation (IV), the limit is equal to 1</p>

(1991) and Szydlik (2000). Second, as a result of the meaning of the verb “approach”, some of the students believed that an expression that evaluates to a constant value does not have a limit. In this case, the researcher

has not come across any reports in the literature with similar findings. On the other hand, while the researcher did not aim to remedy these misconceptions in designing the teaching activity, it was found that the teaching

sessions did aid students in both realizing and overcoming their misconceptions. Thus, it may be argued that providing students first with the opportunity to investigate these limits in geometrical context by allowing them to experiment on geometrical entities, and then to establish a link to the algebraic context, was the main reason for this positive outcome.

Another important finding of this study is that the term “indeterminate” as used to designate these limit forms does not truly represent their meaning. As the students expressed in their complaints at the end of the teaching session, this terminology caused them to erroneously believe that the limit forms cannot have a limit value. Therefore, the researcher contends that using the term “ambiguous”, rather than “indeterminate”, to designate these limit forms would more accurately convey their meaning.

The teaching activity discussed in the study requires both a substantial investment of time in the classroom and students who have a certain degree of technical knowledge of the software used in implementing it. For these reasons, it may not be suitable for introducing students to these limit forms in calculus courses. However, the researcher recommends that beginning this topic with a discussing of a geometry theorem that possesses ambiguous forms and then translating them into algebraic expressions and re-investigating them might help students to gain a better understanding of their meanings.

### Conflict of Interests

The author has not declared any conflicts of interest.

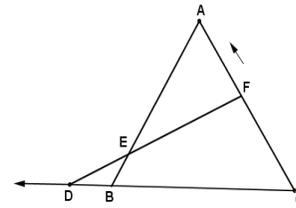
### REFERENCES

- Ball DL (1990). Prospective elementary and secondary teachers' understanding of division. *J. Res. Math. Educ.* 21(2):132-144.
- Bezuidenhout J (2001). Limits and continuity: Some conceptions of first-year students. *Int. J. Math. Educ. Sci. Technol.* 32(4):487-500.
- Cornu B (1991). Limits. In: D. Tall (Ed.), *Advanced mathematical thinking*. Netherlands: Springer. pp. 153-166.
- Elia I, Gagatsis A, Panaoura A, Zachariades T, Zoulinaki F (2009). Geometric and algebraic approaches in the concept of “limit” and the impact of the “didactic contract”. *Int. J. Sci. Math. Educ.* 7(4):765-790.
- Monaghan J (2001). Young peoples' ideas of infinity. *Educ. Stud. Math.* 48(2-3):239-257.
- Przenioslo M (2004). Images of the limit of function formed in the course of mathematical studies at the university. *Educ. Stud. Math.* 55(1-3):103-132.
- Szydlik JE (2000). Mathematical beliefs and conceptual understanding of the limit of a function. *J. Res. Math. Educ.* 31(3):258-276.
- Sierpiska A (1994). *Understanding in Mathematics*. London: Falmer Press.
- Tirosh D (1991). The Role of Students' Intuitions of Infinity in Teaching the Cantorian Theory. In: D. Tall (Ed.), *Advanced mathematical thinking*. Netherlands: Springer pp. 199-214.
- Tsamir P, Tirosh D (2002). Intuitive beliefs, formal definitions and undefined operations: Cases of division by zero. In G. Leder, E. Pehkonen, & G. Törner (Eds.), *Beliefs: A Hidden Variable in Mathematics Education?* Netherlands: Springer pp. 331-344.
- Quinn RJ, Lamberg TD, Perrin JR (2008). Teacher perceptions of division by zero. *The Clearing House: J. Educ. Strat. Issues and Ideas* 81(3):101-104.

**Appendix 1**

**Student worksheet**

In the figure to the right, ABC is a triangle,  $E \in ]AB[$ ,  $F \in ]AC[$ , D is a fixed point on the extension of [CB], and points D, E, F are collinear.



fixed point on the

**Answer the questions below concerning the given information.**

Q1. Which indeterminate form does the product  $\frac{|CF|}{|FA|} \cdot \frac{|AE|}{|EB|}$  yield as point F approaches closer and closer to point A?

Answer: .....

Q2. Which indeterminate form does the ratio  $\frac{\frac{|CF|}{|FA|}}{\frac{|EB|}{|AE|}}$  yield as point F approaches closer and closer to point A? Answer: .....

Q3. Which indeterminate form does the ratio  $\frac{|AE|}{|FA|}$  yield as point F approaches closer and closer to point A? Answer: .....

Open the GeoGebra file named Work. You will find the above figure constructed on the opening window. By clicking on the input boxes at the upper left corner of the graphical window, you can assign new values for the given parts of the construction (leave them in default until you move to step 2). By clicking on the question buttons, you will make visible the associated values on the screen. Point F lies on [AC] and can be dragged; as you drag it, you can monitor the values of the resulting segments on the screen. Try to answer the questions below.

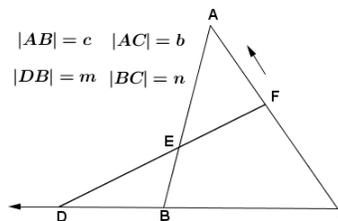
Step 1. Drag point F as close to point A as you can (use the magnification tool) and monitor the values of the product and the ratios in the above questions. Based on your experimentations, try to determine the results of the limits below.

a)  $\lim_{F \rightarrow A} \frac{|CF|}{|FA|} \cdot \frac{|AE|}{|EB|} =$       b)  $\lim_{F \rightarrow A} \frac{\frac{|CF|}{|FA|}}{\frac{|EB|}{|AE|}} =$       c)  $\lim_{F \rightarrow A} \frac{|AE|}{|FA|} =$

Step 2. Assign new integer values to  $|AB|$  and  $|AC|$  and then reinvestigate the limits above.

Step 3. Assign new integer values to  $|CB|$  and  $|DB|$  and then the limits above.

Step 4. Let the lengths of the segments in the construction be given as seen in the figure to the right. Based on your experiments so far, and Menelaus' theorem, can you determine the results of the above limits these variables?



reinvestigate

variables, as considering in terms of

*Full Length Research Paper*

# Application of trait anger and anger expression styles scale new modelling on university students from various social and cultural environments

Fethi Arslan

Mersin University, School of Physical Education and Sports Mersin, Turkey

Received 18 November, 2015; Accepted 08th February, 2016

The purpose of this study is to investigate the differences in anger traits of university students and teacher candidates studying in various social and cultural regions, of Batman and Denizli, Turkey. Modelling anger and anger expression style scale according to some variables such as age, gender, education level, number of siblings, parents' education level was used. The study was carried out in the academic year of 2014-2015. The study population consists of a total of 551 students: 263 are from Batman University; of these, 166 are females and 97 are males; 114 are between the ages of 16-20, and 121 are between the ages of 21 and 24, and 28 are over 25. 288 are from Pamukkale University; of this, 169 are females and 119 are males; 134 are between the ages of 16-20, and 135 are between the ages of 21 and 24, and 19 are over 25. Demographic characteristics and trait anger-anger expression style scale was employed as measurement tools in data collection. In order to test whether the structure of Trait Anger and Anger Expression Styles Scale (TAAESS), defined as 4 factors, was verified in predetermined participation group, Confirmatory Factor Analysis (CFA) (Garson, 2005) was conducted using LISREL program (Joneskog and Sorbom, 1998) and its Turkish version that was translated by Ozer (1994). After TAAESS validity and reliability study was carried out, first level 4 factor Robust ML model was developed in reliability study. Result of this study showed that 4 factors of scale can bring out more consistent results even with 30 items as well. Differences in anger subscales including trait anger, anger-in, anger-out, anger control level differences were found statistically meaningful. It can be proposed that the origin of these differences is probably from the participants' different social and cultural environments. Among suggestions given for professionalization of university students, and future educators against anger, it is proposed that model of 4 factor Robust ML with 30 items should be employed in researches by increasing social and cultural activities, raising awareness of society against anger and utilizing TAAESS.

**Key words:** Anger behaviours, education, Robust ML Model.

## INTRODUCTION

Recently, technology has advanced and improved at unprecedented levels. With this development, it has been

E-mail: [fethiarslan23@gmail.com](mailto:fethiarslan23@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/)

observed that human values and time shared with others have decreased dramatically. That these values have lost their importance causes people to spend less time together, not to listen to each other and unable to control their anger. Among these feelings, anger is one of the most crucial feelings we suffer from and we have difficulty controlling it. Anger can change from a slight depression to a high state of anger. If expressed properly, anger is extremely important for one's health. When it is out of control, it may cause problems with personal relations at school or work. There lies anger at the root of many problems (Wilde, 2006). Anger is defined as a feeling one has when his requests, needs, plans are hindered or when he feels there is a threat against him as injustice (Kisac, 1999). Anger may stem from inner and outer factors. Inner factors are feelings, while outer factors are threats such as physical injuries, frustrations, exposure to offense and injustice. When all these feelings combine, anger occurs (Kokdemir, 2004).

The behaviours of individuals are explained in three ways: when individuals are exposed to injustice, their level of anger increase; and when they are angry, and express their anger orally or with their behaviour, they express external pulse anger; however, when the individual keeps his anger in him, it represents the inner anger; and when he gets angry with others, how he controls himself is called anger control (Starner and Peters, 2004). It is necessary that individuals be taught that people who can control their anger can be healthier. The healthiest environments where these emotions can be taught are schools. Education programmes are needed at schools so that anger control can be taught (Adana and Aslantas, 2011).

The feeling of anger should be perceived as harm to an individual himself and others. Anger can be converted into a healthier tool by means of good education (Tatlililoglu and Karaca, 2013).

The anger of some individuals is directed to their inner world. These individuals do not show their anger; however, they exhibit their reactions as crossing and sulking. The case can change into suffering or resentment at the end. Individuals with inner anger do not put their anger forth immediately when they get angry. Nevertheless, they think about the type of reactions to people whom they get angry with. They wait for the proper time to display their inner anger (Lulofs and Cahn, 2000). An individual who experiences feelings such as anger, fear and worry in an environment where his/her children are present may have behavioural problems in similar conflict environments. It is stated in the literature that the feeling of anger is intensive during this period (Sahin and Batgun, 2009). When anger levels of parents are high, it leads to the raising up of highly risky children together (Reid et al., 2002).

In general, assessing anger negatively results from the expression style of anger. In order to cope with anger, it is necessary for a person to define anger instead of suppressing it (Morriz, 2002). If parents cannot tolerant

each other, their children become intolerant as well (Ozmen, 2004). It is established that students with constant anger either express their anger more or suppress it; and these students feel lonely. It can be considered that students who exhibit constant anger and cannot control their anger can be set away from friendly atmosphere since they establish inappropriate behaviours (Kaya et al., 2012). Anger and expression of anger is a result of cultural, mental and biological backgrounds (Soykan, 2003).

In recent years, when the studies are examined, it is clearly seen that anger researches have been increasing every passing day. As the results of the studies conducted, it has been witnessed that realistic steps have not been put forward about solution to anger. In both groups, based on many variables, the statistics of anger subscale levels (anger within, anger trait, anger outburst, anger control) have been found meaningful. For the reasons of the differences between both groups, they may stem from social and cultural diversities of the regions where the universities are situated. It is possible to state that social and cultural development may have positive influence on anger level. It is suggested that next generation teachers utilize first level 4 factor Robust ML model. It will help them with their future studies to cope with their anger more professionally, increase the number of cultural and social activities and raise the awareness of their community against anger. This study will help the youths in society to understand anger in, anger out, trait anger and anger under control. Such a study will guide all institutions and organizations in arranging students' and families' oriented education programs.

## METHODS

### Personal information form

In order to determine the ages, genders, education levels, number of siblings, education levels of their fathers, trait anger and anger styles of university students in two different regions, an information form prepared by the researcher is employed. In this study, on 5-7 November 2015, "International Dynamic, Exploratory and Active Learning (IDEAL) Conference" organized by the University of Amasya was presented as a verbal statement.

In Table 1, the distribution of demographic properties of university students is examined. In this study, according to the university variable, there are 288 (52.3%) students attending Pamukkale University, and 263 (47.7%) students attending Batman University. When the gender distributions of the students are examined, there are 335 (60.8%) females and 216 (39.2%) males. When the age distributions of the students are studied, there are 248 (45.0%) students at "16-20" age clearance and 256 (46.5%) students at "21-24" age clearance and 47 (8.5%) students at "25 and over" age clearance. When the distribution of students studying at Pamukkale University is examined, it can be seen that the population consists of 169 (58.7%) female and 119 (41.3%) male students. On the other hand, when the distribution of students studying at Batman University is inspected, it can be seen that the population consists of 166 (63.1%) female and 97 (36.9%) male students. When the age distribution of Pamukkale University students is examined, it is seen that there are 134 (46.5%) students between the ages of "16-

**Table 1.** Frequency and percentage distributions of university students according to demographic properties.

Properties	Categories	f	%
<b>Universities</b>	Pamukkale University	288	52.3
	Batman University	263	47.7
<b>Genders</b>	Female	335	60.8
	Male	216	39.2
	Pamukkale University Female	169	58.7
	Batman University Female	166	63.1
	Pamukkale University Male	119	41.3
	Batman University Male	97	36.9
	16-20	248	45.0
	21-24	256	46.5
<b>Age</b>	25 and more	47	8.5
	Pamukkale University 16-20	134	46.5
	Pamukkale University 21-24	135	46.9
	Pamukkale University 25 and more	19	6.6
	Batman University 16-20	114	43.3
	Batman University 21-24	121	46.0
	Batman University 25 and more	28	10.6
	<b>Education level</b>	Associate Degree	181
Undergraduate Degree		370	67.2
<b>Number of siblings</b>	1	29	5.3
	2	130	23.6
	3	122	22.1
	4	71	12.9
	5	55	10.0
	6 and more	144	26.1
	<b>Father education level</b>	Primary education	327
High School Education		159	28.9
College and University Education		65	11.8
<b>Total</b>		551	100.0

20", and 135 (46.9%) students between the ages of "21-24", and 19 (6.6%) students over 25; while at Batman University there are 114 (43.3%) students between the ages of "16-20", and 121 (46.0%) students between the ages of "21-24" and 28 (10.6%) students "over 25".

When the education levels of the students are investigated, there are 181 (32.8%) students having associate degree, and 370 (67.2%) students have undergraduate degree. When the students are examined based on the number of siblings they have, 29 (5.3%) students have 1 sibling; 130 (23.6%) students, 2 siblings; 122 (22.1%) students, 3 siblings; 71 (12.9%) students, 4 siblings; 55 (10.0%) students, 5 siblings and 144 (26.1%) students, 6 and more siblings. When the distributions of the students based on their fathers' education level are studied, there are 327 (59.3%) students whose fathers are primary school graduates, 159 (28.9%) students whose fathers are high school graduates, and 65 (11.8%) students whose fathers are university graduates. Considering the general population, there are 551 (100.0%) university students in the study.

#### Data collecting tool

The validity and reliability of the tool was carried out by Ozer (1994). The scale consists of 30 items and it has trait anger, anger under control, anger-out, and anger in sub-scales. In the study of validity and reliability, Chronbach Alpha values were as 0.79 for anger trait scale, 0.84 for anger under control scale, 0.78 for anger out scale, and 0.62 for anger in scale. Anger trait subscale can be obtained via total of the first 10 items in the scale; and anger in subscale via items 13, 15, 16, 20, 23, 26, 27 and 31, and anger out subscale via items 12, 17, 19, 22, 24, 29, 32 and 33, and anger control subscale via items 11, 14, 18, 21, 25, 28, 30 and 34, respectively. The high points obtained from trait anger show that anger level is high; the high points obtained from anger under control scale show that anger can be controlled; the high points obtained from anger out scale show that anger can be easily controlled, and the high points obtained from anger in scale show that anger is suppressed (Savasir and Sahin, 1997).

## Study of confirmatory factor analysis (CFA) of the scale of trait anger anger style scale (TAAESS)

### Validity of the study

Confirmatory factor analysis (CFA) is used in confirming 4 factor structures obtained as a result of exploratory factor analysis predefined scale utilized in this study. When the following values are studied, related analysis results are analyzed to know whether the scale can provide multivariate normality assumption or not. According to these values, Relative multivariate Kurtosis=1.108. The fact that this value is bigger than 1.00 shows that normality assumption is not provided. Besides, when skewness and kurtosis values are observed, it can be seen that multivariate normality assumption is not provided since it is meaningful according to  $p < 0.05$ .

### Test of multivariate normality for continuous variables

Skewness			Kurtosis		
Value	Z-Score	P-Value	Value	Z-Score	P-Value
25.817	21.171	0.000	996.519	13.334	0.000

#### Skewness and Kurtosis

Chi-Square	P-Value	25.817
626.011	0.000	

According to these results, had the variable normality assumption been provided, it would have used Maximum Likelihood (ML) parameter estimation method. However, since it did not provide this and our sampling was smaller, and since it was not related to sampling, Robust Maximum Likelihood (Robust ML) parameter estimation method was employed. This model is first Level 4 factor Robust ML method.

### Confirmatory factor analysis (CFA)

To uncover the anger and furry reactions of individuals, whether trait anger anger style scale 4 factor and 34 item structure is confirmed or not was examined via CFA. CFA aims to evaluate how much a factorial model, a form of factor of numerous observable variables (secret variables), shows compliance with real data. The model was determined by employing the data of an empirical study or was defined as a manipulated structure depending on a specific theory (Sumer, 2000). In order to assess the validity of CFA, a number of conformity indexes are employed. Of these, the mostly used ones are: Chi-Square Goodness, (Chi-Square Goodness,  $\chi^2$ ), Comparative Fit Index (Comparative Fit Index, CFI), Non- Normed Fit Index (Non-Normed Fit Index, NNFI), Normed Fit Index (Normed Fit Index, NFI), Goodness of Fit Index (Goodness of Fit Index, GFI) (Cole, 1987; Sumer, 2000).

The fact that the values observed in scale model are between the clearance of  $\chi^2/d < 3$ ;  $0 < RMSEA < 0.05$ ;  $0.97 \leq NNFI \leq 1$ ;  $0.97 \leq CFI \leq 1$ ;  $0.95 \leq GFI \leq 1$  and  $0.95 \leq NFI \leq 1$  shows it is a perfect fit; and the clearance of  $4 < \chi^2/d < 5$ ;  $0.05 < RMSEA \leq 0.08$ ;  $SRMR \leq 0.08$ ;  $0.95 \leq NNFI \leq 0.97$ ;  $0.95 \leq CFI \leq 0.97$ ;  $0.90 \leq GFI \leq 0.95$  and  $0.90 \leq NFI \leq 0.95$  shows it is an acceptable fit (Kline, 2005; Sumer, 2000).

### The validity of the scale

In order to evaluate whether 4 factor and 34 items of the scale are confirmed or not, CFA was applied. In the first applied CFA, the items not having non-significant t values were examined statistically. CFA analysis was repeated after 12<sup>th</sup>, 17<sup>th</sup>, 19<sup>th</sup>, and

31<sup>st</sup> items having non-significant t values were removed from the scale. The obtained path diagram is shown in Figure 1.

The fit indexes were found as  $\chi^2=1162.28$ ,  $sd=377$ ,  $\chi^2/sd= 3.08$ , CFI=0.96, NNFI=0.95 and NFI=0.93, GFI=0.90 RMSEA=0.080, SRMR=0.072. When the coefficients of the relations between variables of the model exhibiting factorial structure of the scale were examined, the fit indexes were at sufficient levels. When fit index values and error values of RMSEA and SRMR were observed, an acceptable fit was reached. When fit statistics calculated via CFA were taken into consideration, it was decided that 4 factor structures defined before were generally in line with data collected. When Figure 1 is examined, it is seen that the scale whose final state is given consists of 30 items and 4 factors. Regression and t values belonging to the items are given in Table 2.

When Table 2 is examined, it is determined that the obtained regression coefficients and t values are significant and that the model is verified. While first factor of m6 is seen to be the most important item with  $R^2=0.47$ , it is concluded that m8 is the least important item with  $R^2=0.09$ . While second factor of m13 is seen to be the most important item with  $R^2=0.42$ , it is concluded that m27 is the least important item with  $R^2=0.023$ . While third factor of m32 is seen to be the most important item with  $R^2=0.19$ , it is concluded that m29 is the least important item with  $R^2=0.038$ . While the fourth factor of m28 is the most important item with  $R^2=0.4$ , it is concluded that m11 is the least important item with  $R^2=0.05$ . Generally, it is concluded that m6 is the most important item of the scale with the value,  $R^2=0.05$ ; however, m27 is the most unimportant item of the scale with  $R^2=0.023$ .

### Reliability study of Scale of Trait Anger Anger Style Scale (TAASS)

For the reliability of the scale, items determined for each factor are shown in Table 3 showing Cronbach alpha inner coefficient consistency. When taking all questions into consideration in calculation, this coefficient is the coefficient number best reflecting the general reliability structure of the test according to other coefficients (Ozdamar, 2004).

According to Table 3, Cronbach alpha internal consistency coefficients are determined that reliability coefficient and high level of reliability are found to be 0.82 for 1<sup>st</sup> Factor; 0.62 for 2<sup>nd</sup> factor; 0.70 for 3<sup>rd</sup> Factor and 0.79 for 4<sup>th</sup> Factor, respectively. These coefficients prove that the scale has acceptable level of internal consistency for all factors. The fact that the items have high level of reliability within themselves is determined by means of reliability coefficients. Tezbasaran (1997: 47) states that a reliability coefficient to be accepted as sufficient in a Likert type scale should be close to 1 as much as possible. According to these results, it can be said that all of the factors of the scale used for this study have high reliability level.

### Data analysis

The data collected in line with the purpose of the study are processed by IBM SPSS-21 program. The frequency and percentage distributions of demographic properties of the university students are inspected. To find out the levels of perception of anger related to Trait Anger Anger Style Scale sub factors, descriptive statistics (mean, standard deviation, minimum and maximum scores) are looked into. With the help of independent sample t-test analysis, the differences between the perception levels of anger obtained from sub-factor of scale used are observed according to university, gender and education states of students. On the other hand, with the help of One-Way Anova analysis, the differences between perception levels of anger obtained from the sub factors of the scale used are looked at according to the ages, number of

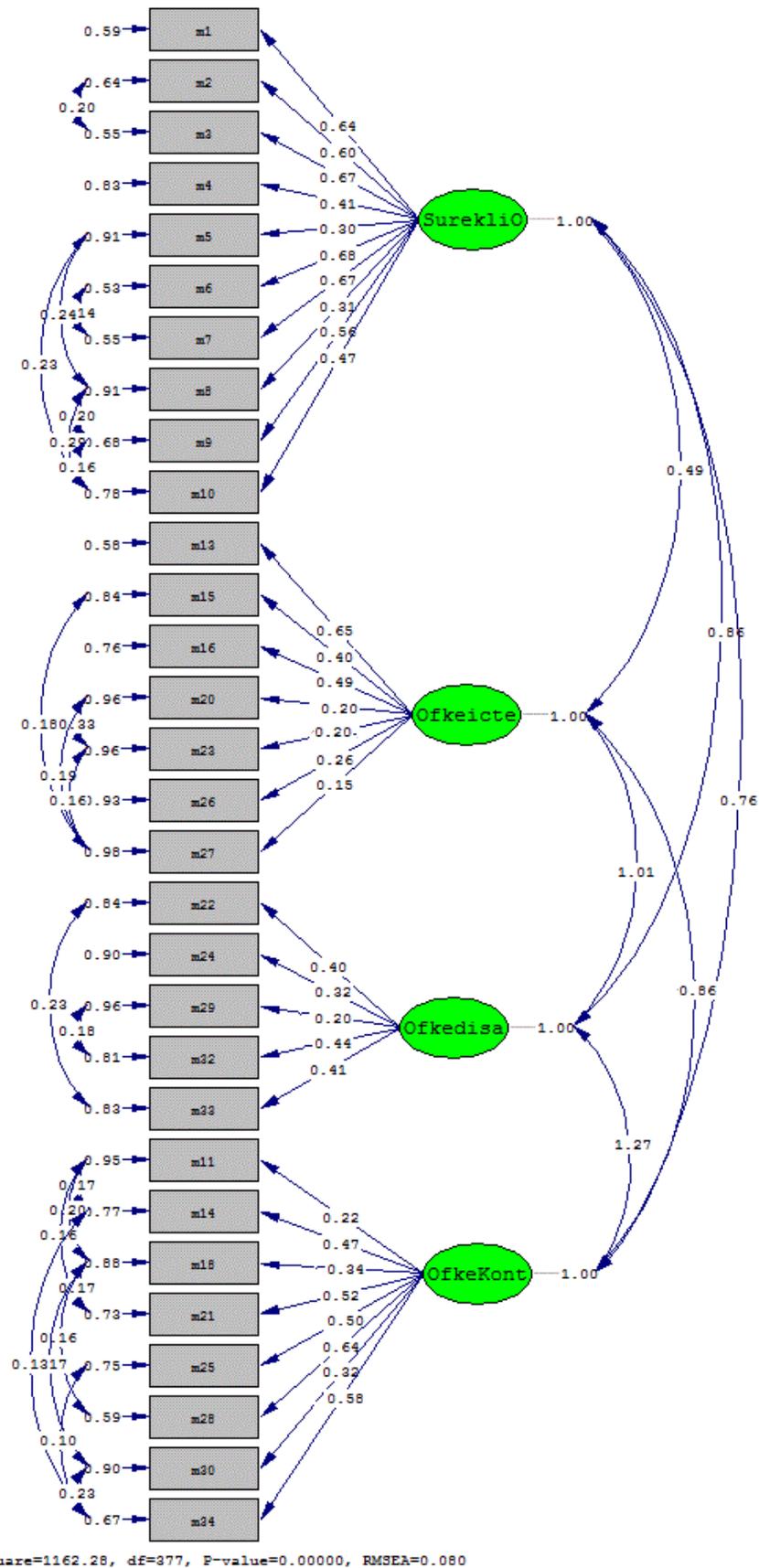


Figure 1. Path diagram based on level 4 factor Robust ML Scale Method.

**Table 2.** Regression and t values for CFA.

First factor			Second factor			Third factor			Fourth factor	
m	R <sup>2</sup>	T	m	R <sup>2</sup>	t	m	R <sup>2</sup>	t	m	R <sup>2</sup>
m1	0.41	11.83	m13	0.42	10.46	m22	0.16	7.10	m11	0.05
m2	0.36	10.85	m15	0.16	6.37	m24	0.10	5.83	m14	0.23
m3	0.45	12.45	m16	0.24	7.86	m29	0.038	3.10	m18	0.12
m4	0.17	6.99	m20	0.04	3.13	m32	0.19	7.47	m21	0.27
m5	0.10	5.08	m23	0.042	3.14	m33	0.17	7.12	m25	0.25
m6	0.47	12.64	m26	0.07	4.09				m28	0.41
m7	0.45	12.40	m27	0.023	2.31				m30	0.10
m8	0.09	5.07							m34	0.33
m9	0.32	10.07								
m10	0.22	8.14								

**Table 3.** Alpha reliability coefficients of factors.

	1 <sup>st</sup> Factor	2 <sup>nd</sup> Factor	3 <sup>rd</sup> Factor	4 <sup>th</sup> Factor
Number of items	10	7	5	8
Cronbach α	0.82	0.62	0.70	0.79

**Table 4.** Descriptive statistics for perceptions of students for sub factors of scale applied.

	N	Minimum	Maximum	$\bar{X}$	S
Trait anger	551	11.00	31.00	20.87	4.50
Anger in	551	8.00	21.00	13.91	3.25
Anger out	551	5.00	16.00	9.78	2.49
Anger control	551	14.00	31.00	21.33	4.08

siblings and education levels of fathers of the students. CFA is carried out employing LISREL program to test whether the described trait anger anger style scale with 4 factor structure is confirmed or not in participants' group determined. In order to test the reliabilities of sub factors of scale, Cronbach Alpha internal consistency analysis is checked.

**FINDINGS**

In Table 4, it is seen that when the perception levels belonging to "Trait Anger" sub-factor of university students are compared with ( $\bar{X}$ =20.87) maximum (31.00) and minimum (11.00) values, it approximately has medium level perception; that is to say, the anger level is at medium level. It is seen that when perception levels belonging to "anger-in" sub-factor are compared with ( $\bar{X}$  =13.91) maximum (21.00) and minimum (8.00) values, it approximately has medium level perception; that is, its levels of transferring anger in are at medium level. When perception levels belonging to "anger-out" sub-factor are

compared with ( $\bar{X}$ =9.78) maximum (16.00) and minimum (14.00) values, the students approximately have medium level perception; that is, the anger is not controlled and its levels of diverting out or other objects are at medium level.

It is seen that when perception levels belonging to "anger-in" sub-factor are compared with ( $\bar{X}$  = 21.33) maximum (31.00) and minimum (11.00) values, it approximately has medium level perception; that is, its levels of anger controllability are at medium level. Based on the students' university, when the differences between the perceptions of sub factors of trait anger anger style scale are examined, under "Trait Anger" sub-factor, there is no significant difference between the anger levels of the students attending Pamukkale University ( $\bar{X}$ =20,92) and Batman University ( $\bar{X}$  = 20.82), according to  $t_{(549)}=0.26, p=0.796>0.05$  (Table 5).

With regard to sub-factor of "Anger-in", there is significant difference between the levels of anger suppression of students attending Pamukkale University

**Table 5.** Independent-sample T-test results of differences between perceptions of applied scale sub-factors of students according to attended university variables.

	University	N	$\bar{X}$	S	t	sd	p
Trait Anger	Pamukkale University	288	20.92	4.51	.26	549	0.796
	Batman University	263	20.82	4.49			
Anger in	Pamukkale University	288	13.59	3.16	2.48	549	0.014*
	Batman University	263	14.27	3.31			
Anger out	Pamukkale University	288	9.75	2.47	0.34	549	0.738
	Batman University	263	9.82	2.52			
Anger control	Pamukkale University	288	20.82	3.97	3.10	549	0.002*
	Batman University	263	21.89	4.13			

\*p&lt;0.05.

**Table 6.** Results of independent sample T-test for difference between perceptions related to sub-factors of scale applied according to genders of students.

Parameter	Gender	N	$\bar{X}$	S	t	sd	p
Trait Anger	Female	335	20.87	4.47	0.03	549	0.973
	Male	216	20.86	4.55			
Anger in	Female	335	14.04	3.23	1.19	549	0.235
	Male	216	13.71	3.28			
Anger out	Female	335	9.78	2.54	0.02	549	0.982
	Male	216	9.79	2.42			
Anger control	Female	335	21.18	3.90	1.09	549	0.277
	Male	216	21.57	4.35			

( $\bar{X}$ =13.59) and the levels of anger suppression of students attending Batman University ( $\bar{X}$ =14.27), according to  $t_{(549)}=2.48$ ,  $p=0.014<0.05$ . This significant difference stems from the fact that the levels of transferring anger in and suppression of the students attending Batman University are higher than those of Pamukkale University. In relation to sub-factor of "Anger-out", there is no significant difference between the levels of not controlling but directing anger out among the students attending Pamukkale University ( $\bar{X}$ =9.75) and Batman University ( $\bar{X}$ =9.82) according to  $t_{(549)}=0.34$ ,  $p=0.738>0.05$ .

In relation to sub-factor of "Anger-control", there is a significant difference between the levels of controlling anger with the students attending Pamukkale University ( $\bar{X}$ =20.82) and Batman University ( $\bar{X}$ =21.89), according to  $t_{(549)}=3.10$ ,  $p=0.002<0.05$ . This significant difference stems from the fact that the students receiving education in Batman University have higher anger control levels than those of Pamukkale University.

In Table 6, the differences between perceptions belonging to sub factors of trait anger anger style scale are examined according to the genders of the students; there is no significant difference between the female students' anger level heights ( $\bar{X}$ =20.87) and the male students' anger level heights ( $\bar{X}$ =20.86) in relation to sub factor of "Trait Anger" according to  $t_{(549)}=0.03$ ,  $p=0.973>0.05$ . In relation to sub factor of "Anger-in", there is no significant difference between the female students who suppress their anger levels ( $\bar{X}$ =14.04) and male students who suppress their anger levels ( $\bar{X}$ =13.71) according to  $t_{(549)}=1.19$ ,  $p=0.235>0.05$ .

In relation to sub factor of "Anger-out", there is no significant difference between the levels of female students' not controlling their anger and expressing it out with ( $\bar{X}$ =9.78) and the levels of male students' not controlling their anger and expressing it out with ( $\bar{X}$ =9.79), according to  $t_{(549)}=0.02$ ,  $p=0.982>0.05$ .

In relation to sub factor of "Anger control", there is no significant difference between the levels of the female

**Table 7.** One way ANOVA results of differences between perceptions related to sub factors of applied scale according to ages of students.

Parameter	Age	N	$\bar{X}$	S	F (2/548)	p
Trait Anger	16-20	248	20.77	4.60	0.114	0.893
	21-24	256	20.96	4.49		
	25 and more	47	20.89	4.04		
Anger-in	16-20	248	13.91	3.21	0.02	0.982
	21-24	256	13.90	3.34		
	25 and more	47	14.00	2.99		
Anger-out	16-20	248	9.66	2.45	0.61	0.544
	21-24	256	9.90	2.57		
	25 and more	47	9.81	2.27		
Anger control	16-20	248	21.43	3.75	0.13	0.879
	21-24	256	21.25	4.29		
	25 and more	47	21.26	4.58		

\*p<0.05.

**Table 8.** Independent-sample T-test results of differences between sub-factors of applied scale according to students' education.

Parameter	Education	N	$\bar{X}$	S	t	sd	p
Trait Anger	Associate degree	181	21.19	4.30	1.18	549	0.237
	Undergraduate degree	370	20.71	4.59			
Anger-in	Associate degree	181	14.31	3.27	2.04	549	0.042*
	Undergraduate degree	370	13.72	3.22			
Anger-out	Associate degree	181	10.23	2.68	2.93	549	0.003*
	Undergraduate degree	370	9.57	2.37			
Anger control	Associate degree	181	21.03	3.91	1.23	549	0.218
	Undergraduate degree	370	21.48	4.16			

\*p<0.05.

students' controlling their anger ( $\bar{X}$ =21.18) and the levels of male students' controlling their anger ( $\bar{X}$ =21.57) according to  $t_{(549)}=1.09$ ,  $p=0.277>0.05$ . When the differences between the perceptions belonging to TAASS sub factors are examined according to the ages of the students, in relation to the "Trait Anger" sub factor, there is no significant difference between the anger levels of the students' ages according to  $F_{(2/548)}=0.11$ ,  $p=0.893>0.05$  (Table 7).

In relation to "Anger-in" sub factor, there is no significant difference in anger suppression levels of the students in terms of age according to  $F_{(2/548)}=0.02$ ,  $p=0.982>0.05$ .

In relation to "Anger-out" sub-factor, there is no

significant difference between not controlling their anger but directing it out in terms of the age of students according to  $F_{(2/548)}=0.61$ ,  $p=0.544>0.05$ .

In relation to "Anger Control" sub-factor, there is no significant difference between keeping their anger under control in terms of their ages according to  $F_{(2/548)}=0.13$ ,  $p=0.879>0.05$ . When differences between perceptions belonging to sub-factors of TAASS according to students' education levels, in relation to "Trait Anger" sub factor, there is no difference between the anger level of those with associate degree ( $\bar{X}$ =21.19) and those with undergraduate degree level ( $\bar{X}$ =21.19), according to  $t_{(549)}=1.18$ ,  $p=0.237>0.05$  (Table 8).

In relation to "Anger-in" sub-factor, there is significant

**Table 9.** One-way ANOVA results of differences between perceptions related to sub-factors of scale applied according to students' siblings number.

Parameter	Siblings number	N	$\bar{X}$	S	F (5/545)	P	Post Hoc (Turkey)
Trait Anger	1 Sibling	29	20.17	4.62	1,95	0.085	
	2 Siblings	130	20.76	4.52			
	3 Siblings	122	21.41	4.56			
	4 Siblings	71	20.96	4.33			
	5 Siblings	55	22.02	4.24			
	6 and more siblings	144	20.17	4.50			
Anger in	1 Sibling	29	14.69	3.86	1,14	0.340	
	2 Siblings	130	13.64	3.30			
	3 Siblings	122	14.08	3.06			
	4 Siblings	71	13.99	3.23			
	5 Siblings	55	14.45	3.41			
	6 and More siblings	144	13.62	3.16			
Anger out	1 Sibling	29	9.45	2.64	3,79	0.002*	3 Siblings> "6 and More siblings"
	2 Siblings	130	9.83	2.52			
	3 Siblings	122	10.43	2.47			
	4 Siblings	71	10.01	2.44			
	5 Siblings	55	9.78	2.52			
	6 and More siblings	144	9.15	2.35			
Anger Control	1 Sibling	29	21.62	4.63	4,03	0.001*	3 Siblings< "6 and More siblings" 4 Siblings< "6 and More siblings"
	2 Siblings	130	21.27	3.95			
	3 Siblings	122	20.75	3.66			
	4 Siblings	71	20.15	3.87			
	5 Siblings	55	21.22	4.14			
	6 and More siblings	144	22.46	4.28			

\*p&lt;0.05.

difference between anger suppression levels of students with associate degree education ( $\bar{X}=14.31$ ) and those with undergraduate degree ( $\bar{X}=13.72$ ), according to  $t_{(549)}=2.04$ ,  $p=0.042<0.05$ . This significant difference stems from the fact that the levels of anger-in or anger suppression in students with associate degree are higher than those with undergraduate degree.

In relation to "Anger-out" sub-factor, there is a significant difference between the levels of not controlling anger but expressing it out of students with associate degree ( $\bar{X}=10.23$ ) and those of undergraduate students ( $\bar{X}=9.57$ ) according to  $t_{(549)}=2.93$ ,  $p=0.003<0.05$ . This significant difference stems from the fact that the levels of not controlling anger but expressing it out with the students receiving associate degree education are higher than those of undergraduate students. In relation to "Anger Control" sub-factor, there is no significant difference between the levels of anger control of students with associate degree ( $\bar{X}=21.03$ ) and undergraduate students ( $\bar{X}=21.48$ ), according to  $t_{(549)}=1.23$ ,  $p=0.218>0.05$ .

With reference to Table 9, when the students' perceptions belonging to sub-factors of TAASS according to the number of the siblings that the students have, under "Trait Anger" sub-factor, there is no significant difference between anger levels of the students in terms of sibling number according to  $F_{(2/545)}=1.95$ ,  $p=0.085>0.05$ .

In relation to "Anger-in" sub-factor, there is no significant difference between anger suppression levels of students in terms of sibling number according to  $F_{(5/545)}=1.14$ ,  $p=0.340>0.05$ . In relation to "Anger out" sub factor, there is significant difference between the levels of not taking their anger under control but directing them out with students based on the number of siblings they have, according to  $F_{(5/545)}=3.79$ ,  $p=0.002<0.05$ . This significant difference stems from the fact that the levels of not taking under control their anger but directing it out with students who have 3 siblings ( $\bar{X}=10.43$ ) are higher than those of having 6 and more siblings ( $\bar{X}=9.15$ ).

In relation to "Anger Control" sub-factor, there is a significant difference between the levels of taking their anger under control in terms of number of siblings,

**Table 10.** One-way ANOVA results of differences between perceptions related to sub-factors of scale applied according to education levels of students' fathers.

Parameter	Father's education	N	$\bar{X}$	S	F(2/548)	p	Post Hoc (Tukey)
Trait Anger	Primary education	327	20.70	4.60	1.75	0.175	
	High school education	159	21.41	4.50			
	College-university education	65	20.38	3.88			
Anger In	Primary education	327	13.60	3.06	4.34	0.013*	1<3
	High school education	159	14.23	3.40			
	College-university education	65	14.72	3.60			
Anger Out	Primary education	327	9.45	2.39	7.89	0.000*	1<2, 1<3
	High school education	159	10.17	2.46			
	College-university education	65	10.52	2.81			
Anger Control	Primary education	327	21.60	4.14	2.24	0.107	
	High school education	159	20.77	3.76			
	College-university education	65	21.38	4.44			

\*p<0.05. Categories: Primary school education = 1; high school education = 2; college-university education = 3.

according to  $F_{(5/545)}=4,03$ ,  $p=,001<,05$ . This significant difference stems from the fact that the levels of taking their anger under control with students who have 3 siblings ( $\bar{X}=20.75$ ) are found to be smaller than those having 4 siblings ( $\bar{X}=20.15$ ), and those having 6 and more siblings ( $\bar{X}=22.46$ ).

In Table 10, in the differences between perceptions belonging to TAASS sub-factors according to the education levels of students' fathers, under "Trait Anger" sub-factor, there is no significant difference between anger levels in terms of fathers' education levels, according to  $F_{(2/548)}=1.75$ ,  $p=0.175>0.05$ .

In "Anger In" sub-factor, there is a significant difference between anger suppression levels of their fathers' education levels according to  $F_{(2/548)}=4.34$ ,  $p=0.013<0.05$ . This significant difference stems from the fact that the levels of anger suppression of the students whose fathers are primary school graduates ( $\bar{X}=13.60$ ) are lower than those of college and university graduates ( $\bar{X}=14.72$ ).

In "Anger Out" sub-factor, there is a significant difference between the levels of not taking their anger under control but directing it out in terms of education levels of students' fathers according to  $F_{(2/548)}=7.89$ ,  $p=0.000<0.05$ . This significant difference stems from the levels of not taking their anger under control but directing it out with students whose fathers are primary school graduates ( $\bar{X}=9,45$ ) are lower than those of whose fathers are high school graduates( $\bar{X}=10.17$ ); and those whose fathers are college and university graduates( $\bar{X}=10.52$ ). In "Anger Control" sub-factor, there is no difference between the levels of being able to control their anger in terms of their fathers' education levels,

according to  $F_{(2/548)}=2.24$ ,  $p=0.107>0.05$ .

## RESULTS AND DISCUSSION

The aim of this study, according to some variables, is to compare the TAASS model for students attending universities in different social and cultural regions. TAASS was applied to university students in South-eastern Anatolian and Aegean Regions, where Batman and Pamukale Universities are located, respectively.

According to the results of the study, when the differences between perceptions belonging to sub-factors of TAASS are examined according to their gender and age variations, there is no significant difference in " Trait Anger, Anger In, Anger Out, Anger Control" sub factors. The results of this study and those of other researchers in the literature are parallel to each-other. Rice et al. (2008) searched whether there were any differentiations in terms of race and gender between school connectedness and anger expression styles. At the end of the study, they could not find any differences in terms of gender of trait anger scores. In their study carried out in 2007, Kesen et al. observed that there was an increase in trait anger and anger out in adolescents' ages. In the present study, it can be seen that anger is insignificant in respect to age between both groups. The reason could be as an individual gets older, s/he increases the awareness to responsibility and also, that the roles families give males and females have the same values in all parts of the society.

According to university variable, when perceptions belonging to TAASS sub-factors are compared, there is no significant difference in trait anger and anger out sub

factors; conversely, there is a significant difference in anger in and anger control. According to university variable, the fact that anger in and anger control factors have significant differences is thought to stem from the social and cultural life quality of Aegean Region, which is more developed compared to South-eastern Anatolian Region, socially and culturally. In 2014, in a study carried out with Physical Education teacher candidates studying in a university, Cengiz et al. found that one of the problems found in school environment is that some students have difficulty expressing their anger. The above study displays parallelism with our study.

When perceptions about sub-factors of TAASS are compared according to education levels of university students' father, there is no significant difference in trait anger and anger control factors; on the contrary, there is a significant difference in anger in and anger out factors. According to Boulter (2004), Gorman-Smith et al. (2004) and Tolan (2001), problems between parents and miscommunication between a child and his/her child-minder have some connections with violent behaviours witnessed with adolescents. In their study conducted with adolescents, Esre and Ustun (2011) found that adolescents expressed their anger out higher than their parents. In our study, the reasons why there is a significant difference in anger in and anger out factors of fathers' education level are because of the education parents give to their children.

According to the number of siblings that the university students have, there is no significant difference in sub factors of trait anger and anger in; on the contrary, there is a significant difference in anger out and anger control factors. Gok (2009) showed that the adolescents oppressed and mistreated by their families could not keep their anger, so they express their anger out. In this study, students who have few siblings can develop jealousy instinct for each other since they cannot share their parents. On the other hand, with students who have more siblings, it is possible to think that they can express out their anger and control it due to the fact that their parents do not show them enough love. Caglayan (2014) pointed out that those who are most violent to sportsmen were trainers in his study, where he evaluated sportsmen exposure to violence and their anger levels. It was stated that trainers should receive education on anger and violence. The studies carried out show that anger expression styles can be controlled in a positive way.

Generally, anger subscale level (trait anger, anger in, anger out and anger control) differences were found to be statistically significant according to various variables in both groups. The reasons for these differences between both groups may stem from social and cultural differences of the regions where both universities are located, and lack of education. It can be said that social and cultural development affects anger level positively. It is suggested that first Level 4 factor Robust ML model developed for future educators to be professionalized against anger should be used in subsequent studies.

## Conflict of interest

The author has not declared any conflict of interest

## REFERENCES

- Adana F, Aslantas H (2011). Ergenlikte ofke ve ofkenin yönetiminde okul hemsirelerinin rolü. Adnan Menderes Üniversitesi Tıp Fakültesi Dergisi.12(1):57-62.
- Boulter L (2004). Family-school connection and school violence prevention. *Negro Educ. Rev.* 55(1):27-40.
- Cengiz, R, Arslan F, Sahin E (2014). Beden Eğitimi Öğretmenlerinin Özgüven ve Boyun Eğici Davranışlarının İncelenmesi. *Türk. J. Educ.* 3(3).
- Cole DA (1987). Utility of confirmatory factor analysis in test validation research. *J. Consult. Clin. Psychol.* 55:584-594.
- Gorman SD, Henry BD, Tolan PD (2004). Exposure to community violence and violence perpetration: The protective effects of family functioning. *J. Clin. Child Adolesc. Psychol.* 33(3):439-449.
- Gok M (2009). Aile içi şiddet ve ofke ifade tarzları arasındaki ilişkinin incelenmesi, Cukurova üniversitesi sosyal bilimler enstitüsü eğitim bilimleri anabilim dalı, Yüksek lisans tezi.
- Kaya N, Kaya H, Atar YN, Turan N, Eskimez Z, Pallos A, Aktas A (2012). Hemsirelik ve ebelik öğrencilerinin ofke ve yalnızlık özellikleri. *Hemsirelikte Eğitim ve Araştırma Dergisi* 9(2):18-26.
- Kesen NF, Deniz ME, Durmusoglu N (2007). Ergenlerde saldırganlık ve ofke düzeyleri arasındaki ilişki, Yetistirme yurtları üzerinde bir araştırma. *Selçuk Üniversitesi Sosyal Bilimler Enstitüsü Dergisi* 17:353-364.
- Kısac I (1999). Üniversite öğrencilerinin sürekli ofke ifade biçimi düzeyleri. *Gazi Üniversitesi Mesleki Eğitim Dergisi* 1(1):63-74.
- Kline RB (2005). *Principles and Practice of Structural Equation Modelling* (2nd Edition ed.). New York: The Guilford Press.
- Kokdemir H (2004). Ofke ve ofke kontrolü. *Pivolka*, 3(12):7-10.
- Lulofs RS, Cahn DD (2000). *Conflict from theory to action*, United States of America. A person Education Company.
- Ozer K (1994). Ofke, kaygı ve depresyon eğilimlerinin bilişsel alt yapısıyla ilgili bir çalışma. *Türk Psikoloji Dergisi* 31:12-25.
- Ozdamar K (2004). *Paket Programlar İle İstatistiksel Veri Analizi I*, Eskisehir, Kaan Kitapevi.
- Ozmen SK (2004). Aile içinde ofke ve saldırganlığın yansımaları. *Ankara Üniversitesi, Eğitim Bilimleri Fakültesi Dergisi*, 37(2):27-39.
- Rice M, Weaver K, Howell C (2008). Relationship of anger, stress, and coping with school connectedness in fourth-grade children, Published Online: 28 Feb.
- Savasir I, Sahin NH (1997). Bilişsel-Davranışçı- terapilerde değerlendirme, sık kullanılan ölçekler. *Ozyurt matbaacılık, Türk Psikologlar Derneği Yayınları* 9:71-78.
- Soykan C (2003). Ofke ve Ofke yönetimi. *Kriz dergisi* 1(2):19-27.
- Stamer TM, Peters RM (2004). Anger expression and blood pressure in adolescents. *J. School Nurs.* 20(6):335-342.
- Sumer N (2000). Yapısal eşitlik modelleri: Temel kavramlar ve örnek uygulamalar. *Türk Psikoloji Yazıları* 3(6):49-74.
- Sahin NH, Batigun AD (2009). Lise ve üniversite öğrencilerinde intihar riskini belirlemeye yönelik bir modelin sınanması. *Türk Psikiyatri Dergisi* 20(1):28-36.
- Tatlıoğlu K, Karaca M (2013). Ofke olgusu hakkında sosyal psikolojik bir değerlendirme. *J. Acad. Soc. Sci. Stud.* 6(6): 1101-1123.
- Tezbasaran A (1997). *Likert Tipi Ölçek Gelistirme Kılavuzu*. (ikinci baskı), Türk Psikologlar Derneği Yayını, Ankara.
- Tolan P (2001). Youth violence and its prevention in the United States. An overview of current knowledge. *Inj. Control Saf. Promot.* 8(1):1-12.
- Wilde J (2006). Ofke sorunu yaşayan çocuklara yönelik uygulamalar. *Cev: A. Ozmen, Ankara Üniversitesi Eğitim Bilimleri Fakültesi Dergisi* 39(1):135-144.

*Full Length Research Paper*

# Investigation of global citizenship levels of pre-service Physical Education teachers

Numan Bahadır Kayışoğlu

Karabuk University, Hasan Dogan School of Physical Education and Sports, Karabuk, Turkey.

Received 21 January, 2016; Accepted 22 February, 2016

The purpose of the present research is to define global citizenship levels of pre-service physical education teachers and investigate whether their global citizenship levels vary by various variables. A total of 485 pre-service teachers, studying at 3<sup>rd</sup> and 4<sup>th</sup> grades of undergraduate programs of physical education teaching at thirteen different universities participated in the present research. The research is a descriptive study in survey model. In order to collect data, Global Citizenship Attitude Scale, developed by Şahin and Çermik was utilized. Obtained data were analysed through descriptive statistics (Mean, standard deviation), t-test, ANOVA test, and finally Tukey test for multiple comparisons. According to the findings obtained in the present research, global citizenship of pre-service physical education teachers is medium level and can be developed; additionally global citizenship level does not vary by gender and YGS (The Transition to Higher Education Examination) scores; while increase in total family income, daily Internet use and foreign language proficiency increased global citizenship level, but not at a statistically significant level. An interesting finding of the present research is that, the university, the number of foreign friends, and having athlete licence variables are effective on global citizenship level.

**Key words:** Physical education, pre-service teacher, global citizenship attitude.

## INTRODUCTION

Due to technological advances, the world has become a borderless world. The concepts of globalisation, global interaction, and global citizenship have attracted continued debates in the modern era. An event occurring in one part of the world affects the other parts of the world as well (Lim, 2008). As this interaction becomes more distinct, these concepts are debated more in every area from education to economy, from politics to sociology and from sport to art.

Although there have been many definitions, global

citizenship refers to realizing the powers and the effects of these powers on human life, understanding cultures and cultural differences, analysing the problems of the world from different perspectives, and producing new ideas for the world (Burrows, 2004). Additionally, global citizenship is a multi-dimensional structure formed of social responsibility, global competency and global civil participation (Ogden, 2011). Carter (2001) explained global citizenship in three dimensions; first is that the citizens are consumers with individual rights and their

E-mail: bahadirkayisoglu@karabuk.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/)

**Table 1.** Responsible global citizen.

	<b>Knowledge and understanding</b>	<b>Skills</b>	<b>Values and attitudes</b>
1	Social justice and equity	Critical and creative thinking	Sense of identify and self-esteem
2	Identity and diversity	Empathy	Commitment to social justice and equity
3	Globalisation and interdependence	Self-awareness and reflection	Respect for people and human rights
4	Sustainable development	Communication	Value diversity
5	Peace and conflict	Cooperation and conflict resolution	Concern for the environment and commitment to sustainable development
6	Human rights	Ability to manage complexity and uncertainty	Commitment to participation and inclusion
7	Power and governance	Informed and reflective action	Belief that people can bring about change

duties and responsibilities are emphasized; second is the role of citizens in their nations based on 19<sup>th</sup> century liberal thinking, and this dimension highlights rights besides the concepts of duties and social responsibilities and universal democratic values; and finally the third is the citizen's role as an activist, who is interested in issues, such as global economic discussions, environmental problems, social justice and poverty.

The advocates of global citizenship, which is wide-spread claim that the conceptual development of global citizenship is prevented by exclusivist developments of modern nation state perception with the concern that it may result in a weakening and separation in the sense of unity and belonging within the project of national citizenship (Purcell, 2003). On the other hand, national citizenship education in the changing world conditions should provide students with necessary skills, talents and attitudes required in their own nation state, besides skills related to getting to know groups of different ethnic, cultural, religious and language structures so that they can endeavour for a more fair world (Banks, 2004). In terms of the development of global citizenship and national citizenship, it is important that traditions of global citizenship education and national

citizenship education, which are separate historically, come together (Davies et al., 2005). A global citizen is a model, who does not underrate the national values; on the contrary respects them, and does not have any problems with adopting universal values (Kan, 2009). Intercultural education raises awareness among students on the life styles of cultures and societies other than theirs, while enables them learn the values of their own culture (Trede et al., 2013).

With the rapid changes in the world, there is a conversion from being a citizen of a country towards being a world citizen. Educational systems should be renewed in this context, and contribute to the process (Kan, 2009). Global citizens should accept all people, protect environment, help the indigent, and pay effort for peace (Miranda, 2010), and the knowledge, skills, values and attitudes, which are important from this perspective are presented in Table 1, as stated by Oxfam (2015).

Today, living together in peace has become an ethical, social and political necessity in the globalizing and interactive world. In this new world order, it is important to raise individuals not as passive observers of events, but as active world citizens who can live in changing and more complex society, and catch up with the rapid

changing knowledge. Education plays an important role in this task shared by whole world (Lim, 2008; Stavenhagen, 2008), and improving the human potential in accessing global citizenship can be attained best through schools (Takkac and Akdemir, 2012). Therefore, the role of teachers is of utmost important in raising individuals as world citizens. Teachers need to avoid stereotyped judgements and acknowledge cultural differences, and make their students do so (Haydon, 2006). In the multicultural world society, teachers should develop their students' cultural, national and global identities in order to help them become thoughtful, concerned and responsive citizens (Banks, 2001). Additionally, as the pioneers of global citizenship education, Holden (2000) and Hicks (2003) draw attention to the difficulties in presenting this movement to conservative teachers. Besides these difficulties, among the objectives of internationally recognized universities, which train teachers, are raising their students as global citizens who can make their students actively participate in national, regional and global events (Thanosawan and Laws, 2013). Physical education is a field that has a long history in education and it is known with its contribution to students' social development in addition to many different learning domains

**Table 2.** Personal information of the participants.

Variables	Sub-categories	n	%
Gender	Male	289	59.6
	Female	196	40.4
	Total	485	100
Athlete License	No	246	50.7
	Yes	239	49.3
Number of Foreign Friends	None	239	49.3
	Only 1	45	9.3
	2-4 friends	104	21.4
	5-9 friends	46	9.5
	10 or more friends	51	10.5

**Table 3.** Number of participants by universities.

University	City	n	%
9 Eylül University	İzmir	40	8.2
AfyonKocatepe University	Afyon	29	6.0
Ađrı İbrahim Çeçen University	Ađrı	36	7.4
Akdeniz University	Antalya	33	6.8
Erzincan University	Erzincan	40	8.2
Gazi University	Ankara	34	7.0
Gaziantep University	Gaziantep	33	6.8
Harran University	Şanlıurfa	27	5.6
Karabük University	Karabük	35	7.2
Mehmet AkifErsoyUniversity	Burdur	40	8.2
Mustafa Kemal University	Hatay	52	10.7
Sakarya University	Sakarya	40	8.2
Selçuk University	Konya	46	9.5
Total		485	100

(Dowling and Kárhús, 2011). Accordingly, development and investigation of global citizenship levels of individuals, who are trained to become teachers of this field, will affect tendency to global citizenship and global citizenship levels of next generation. According to Shultz and Abdi (2008), adapting the attainments of global citizenship to other courses, instead of giving it as a separate course in the curriculum can be more effective. For this reason, global citizenship levels and perceptions of pre-service physical education teachers is very important for the present research. The purpose of the present research is to investigate global citizenship levels of pre-service physical education teachers, and analyse the variation of this level depending on gender, university, YGS (University Entrance Exam) scores, foreign language proficiency, being an athlete, family total income, spent time in the internet daily and the number of foreign friends.

## METHODOLOGY

The present is a descriptive study in survey model. The work group consists of 485 pre-service teachers, whose personal information is presented in Table 2, and who study at undergraduate program of physical education teaching at thirteen different universities presented in Table 3 in 2014-2015 academic year.

In order to define the global citizenship attitudes of pre-service teachers, *Global Citizenship Scale (GCS)*, which consists of 30 items and three dimensions, was developed by Morais and Ogden (2011) and adapted to Turkish by Şahin and Çermik (2014), who also tested validity and reliability ( $\alpha=0.76$ ), was utilized as data collection tool.

The scoring of the 5-point likert type scale is as "totally disagree (1) and totally agree (5)". The items in the "Social Responsibility" dimension of the scale are scored reversely. Cronbach alpha reliability coefficient of the scale was calculated as .83 in the present research. Statistical analyses were conducted on SPSS 22 packaged software. Significance level was taken as 0.05 for statistical calculations. Kolmogorov-Smirnov normality test results showed that collected data were suitable for parametric analysis

**Table 4.** Analysis of global citizenship level in terms of gender variable.

Gender	N	Mean	Std. Deviation	df	t	p
Male	289	98.3633	15.19604	483	1,548	.122
Female	196	96.1990	14.98704			

**Table 5.** Analysis of global citizenship level in terms of university variable.

Source of Variance	Sum of squares	df	Average of Squares	F	P	$\eta^2$
Between groups	8079.295	12	673.275	3.092	0.000	0.07
Within groups	102771.893	472	217.737			
Total	110851.188	484				

**Table 6.** Analysis of global citizenship level in terms of YGS score variable.

Group	N	mean	Std. Dev.	Source of Variance	Sum of squares	df	Average of squares	F	P
180 and less	12	95.58	15.94	Between groups	1811.048	4	452.762	1.993	0.094
181-230	75	93.25	12.45	Within groups	109040.140	480	227.167		
231-280	149	99.07	15.35	Total	110851.188	484			
281-330	189	97.83	14.63						
331 and more	60	98.13	18.21						

methods ( $p > 0.05$ ). Quantitative data were analyzed by using descriptive statistics, namely frequencies and percentages, means (M) and standard deviations (SD). To do analysis, Independent Sample T-Test and one-way analyses of variance (ANOVA) were performed. When statistical difference was found, analysis of the difference was determined by post hoc analysis of Tukey. Statistical analyses were conducted on SPSS 22 packaged software. Significance level was taken as .05 for statistical calculations.

Table 2 presents the personal information of the pre-service physical education teachers who participated in the present research.

Table 3 presents the distribution of pre-service physical education teachers, who participated in the present research, by the universities they study at.

## RESULTS

As can be seen in Table 4, independent samples t test was conducted in order to find out whether gender variable had significant effects on global citizenship levels; and accordingly there is not a significant difference ( $t_{(483)} = 1.548$ ,  $p > 0.05$ ) between male students' average ( $\bar{X} = 98.36$ ,  $SD = 15.19$ ) and female students' average scores ( $\bar{X} = 96.19$ ,  $SD = 14.98$ ). Gender variable does not have a significant effect on global citizenship levels.

As can be seen in Table 5, there are significant differences between participants' global citizenship score averages in terms of the university they study at ( $F_{(12,472)} = 3.092$ ,  $p < .05$ ). The calculated effect size ( $\eta^2 = 0.07$ )

shows that this difference is medium level. According to the Tukey multiple comparison test results, there are significant differences ( $p < .05$ ) between the score averages of Sakarya University ( $\bar{X} = 107.49$ )-AfyonKocatepe University ( $\bar{X} = 93.65$ ) ( $p < 0.05$ ), Sakarya University ( $\bar{X} = 107.49$ )-Ağrı İbrahim Çeçen University ( $\bar{X} = 93.50$ ) ( $p < 0.05$ ), Sakarya University ( $\bar{X} = 107.49$ )-Erzincan University ( $\bar{X} = 95.52$ ) ( $p < 0.05$ ), Sakarya University ( $\bar{X} = 107.49$ )-Harran University ( $\bar{X} = 94.51$ ) ( $p < 0.05$ ), Sakarya University ( $\bar{X} = 107.49$ )-Selçuk University ( $\bar{X} = 93.15$ ) ( $p < 0.05$ ) and Sakarya University ( $\bar{X} = 107.49$ )-Mustafa Kemal University ( $\bar{X} = 96.67$ ) in favour of Sakarya University.

As Table 6 presents, there are no significant differences between global citizenship score averages in terms of YGS score variable ( $F_{(3-480)} = 1.993$ ,  $p > 0.05$ ).

As can be seen in Table 7, there are no significant differences between global citizenship score averages in terms of foreign language proficiency ( $F_{(3-481)} = 2.176$ ,  $p > 0.05$ ).

As is presented in Table 8, according to the independent samples t test conducted to find out whether having an athlete license has a significant effect on global citizenship, there is a significant difference between the score average of participants who do not have a license ( $\bar{X} = 95.70$ ,  $SD = 13.86$ ) and the score average of participants who have a license ( $\bar{X} = 99.32$ ,  $SD = 16.16$ ). Calculated effect size showed that the effect was low ( $t_{(468)} = 2.646$ ,  $p < 0.05$ ,  $r = 0.12$ ).

**Table 7.** Analysis of global citizenship level in terms of foreign language proficiency variable.

Group	N	mean	Std. Dev.	Source of Variance	Sum of squares	df	Average of squares	F	P
Beginner	213	96.29	14.95	Between groups	1484.424	3	494.808	2.176	0.090
Elementary	199	97.29	15	Within groups	109366.763	481	227.374		
Intermediate	56	101.37	14.06	Total	110851.188	484			
Advanced	17	101.88	20.18						

**Table 8.** Analysis of global citizenship level in terms of having athlete license variable.

License	N	Mean.	Std. deviation	df	t	p	r
Yes	246	95.7033	13.86397	468	2.646	0.008	0.12
No	239	99.3264	16.16207				

**Table 9.** Analysis of global citizenship level in terms of total family income variable.

Group	N	mean	Std. Dev.	Source of Variance	Sum of squares	df	Average of squares	F	P
1-1000 TL	115	96.22	15.23	Between groups	1031.842	3	343.947	1.506	0.212
1001-2500 TL	231	96.80	15.09	Within groups	109819.346	481	228.315		
2501-4000 TL	112	99.27	15.28	Total	110851.188	484			
4001 TL and more	27	101.25	13.85						

**Table 10.** Analysis of global citizenship level in terms of internet use variable.

Group	N	mean	Std. Dev.	Source of Variance	Sum of squares	df	Average of squares	F	P
1 hour and less	105	96.93	13.87	Between groups	553.954	4	138.488	0.603	0.661
2-3 hours	226	98.12	15.96	Within groups	110297.234	480	229.786		
4-5 hours	97	95.94	15.03	Total	110851.188	484			
6-9 hours	37	99.70	15.02						
10 hours and more	20	96.55	12.85						

Table 9 shows that there are no significant differences between global citizenship score averages of participants in terms of family income variable ( $F_{(3-481)} = 1.506$ ,  $p > 0.05$ ).

As presented in Table 10 there are no significant differences between global citizenship score averages of participants in terms of Internet use time variable ( $F_{(4-480)} = 0.603$ ,  $p > 0.05$ ).

As can be seen in Table 11, in order to find out whether number of foreign friends affected global citizenship scores, global citizenship score averages of the groups formed according to number of foreign friends were compared with one-way variance analysis for independent samples, and statistically significant differences ( $F_{(4-480)} = 7.178$ ,  $p < 0.05$ ) were found between at least two of the averages of participants who had no foreign friends ( $\bar{X} =$

94.30), participants who had only one foreign friend ( $\bar{X} = 98.95$ ), participants who had 2-4 foreign friends ( $\bar{X} = 98.47$ ), participants who had 5-9 foreign friends ( $\bar{X} = 103.15$ ), and participants who had 10 or more foreign friends ( $\bar{X} = 104$ ). Calculated size effect was ( $\eta^2 = 0.05$ ), which showed the difference was medium level. Tukey multiple comparison test showed that the significant differences were between the participants who had no foreign friends and the participants who had 5-9 friends; and between the participants who had no foreign friends and the participants who had 10 or more friends.

## DISCUSSION AND CONCLUSION

According to the findings obtained in the present

**Table 11.** Analysis of global citizenship level in terms of number of foreign friends variable.

Group	N	mean	Std. Dev.	Source of variance	Sum of squares	df	Average of squares	F	P	$\eta^2$	Significant difference
None	239	94.30	14.35	Between groups	6256.725	4	1564.181	7.178	0.000	0.05	none – 5-9 friends
Only 1 friend	45	98.95	15.43	Within groups	104594.462	480	217.905				
2-4 friends	104	98.47	13.68	Total	110851.188	484					
5-9 friends	46	103.15	15.21								
10 and more friends	51	104	17.51								

research, global citizenship levels of students who study at university programs, which train physical education teachers, is medium level ( $\bar{X}= 97.48$ ). This finding reveals the necessity to increase the courses, extra-curricular activities, international students exchange programs and projects in undergraduate physical education teacher training programs to raise awareness on global citizenship. Engle and Engle (2003) state that abroad studies help individuals to know different societies, respect cultural differences and easily adapt to different cultures, while Behrnd and Porzelt (2012) report in their study conducted on German students that abroad experiences have positive effects on cultural adaptation and improving global citizenship values.

The findings of the present research showed that global citizenship levels of pre-service physical education teachers did not vary by gender, YGS score, family income level, and daily Internet use time at a statistically significant level, while global citizenship levels increased with increase in foreign language proficiency and total family income. Additionally, global citizenship levels of pre-service physical education teachers varied by their universities, the number of foreign friends, and having an athlete licence at a statistically significant level. Accordingly, global citizenship levels of students who study at Sakarya University are higher than students who study at AfyonKocatepe, Ağrı İbrahim Çeçen,

Erzincan University, Harran University, Selçuk and Mustafa Kemal University, and this difference may have resulted from geographical and socio-cultural differences, different base scores used in student selection examinations or other criteria. The difference could be correlated with level of the foreign and Erasmus students. Another significant finding obtained through analyses was that global citizenship levels of pre-service teachers who had more foreign friends were higher than the others. Accordingly, it can be concluded that having more foreign friends and increasing communication with foreigners can contribute to global awareness and global citizenship. Similarly, Gibson et al. (2008) stated that cooperation with people in other parts of the world was important in developing knowledge, skills and attitudes about world citizenship, and experience based education and developing communication technologies should be used to this end.

Another result of the analyses conducted within the present research was that pre-service teachers with athlete licence had higher levels of global citizenship. Taking into consideration that sports improve universal values and sport education supports individual social development (Roche, 2002; Rees and Miracle, 2000; Miller et al., 2001). This finding is more than natural. Sport education, which is multi-cultural in nature, can provide important contributions to developing

global citizenship.

The literature includes some previous studies on the global citizenship levels of pre-service teachers and university students. Karaca (2015) reported that pre-service social sciences teachers had positive global citizenship attitudes, while their attitudes did not vary by gender, geographical region, following politics, and parents educational background variables, while their global citizenship attitudes varied by class grade variable. Another study conducted by Chui and Leung (2014) found that university students' global citizenship levels did not vary by demographic variables, but global citizenship levels were higher among students who took part in non-governmental organizations, international voluntary help organizations, international educational institutions and international exchange programs. Another study conducted on pre-service primary school teachers reported that most of the pre-service teachers wanted to world citizens, but teacher training programs and their field experiences were not enough (Gallavan, 2008). Another study conducted by Ceylan (2014) on pre-service pre-school teachers found that pre-school teacher training program school include more about global citizenship, and similarly Gallavan (2008) stated that pre-service teachers wanted to teach global citizenship to children but teacher training programs and field experiences did not prepare them enough. Robbins et al. (2003), who

conducted a research in order to define pre-service maths, physical education, history, music, religious education, English, information technology, science, art, design and technology, and geography teachers' opinions about global citizenship education and reported that their participants thought that global citizenship education should be included in all courses as well as social education.

We cannot exactly foresee how the world will be in the next decade, however societies' desires to have a say in many areas, such as economy, politics, sport, art and education result in their effort to raise a generation who will be close to global issues, and will not have cultural adaptation problems. As can be seen in literature, there are many studies on raising individuals who can adapt to cultural climate, so for the present research it is considered important to investigate global citizenship levels of pre-service physical education teachers in terms of some variables at thirteen universities, as teachers have the most important role in shaping the next generations. Consequently, it was found that global citizenship level of pre-service physical education teachers was medium, their global citizenship level did not vary by gender and YGS score, while it increased in accordance with total family income, daily Internet use, and foreign language proficiency even not at a statistically significant level. Finally, the university where the participants study, the number of their foreign friends, and whether they have athlete license were variables that had statistically significant effects on their global citizenship levels.

## Suggestions

Considering the findings obtained in the present research, the following suggestions can be provided in order to increase global citizenship levels among pre-service physical education teachers.

1. Practical courses should be included in undergraduate physical education teacher training programs in order to develop global understanding.
2. Student clubs at universities should be encouraged to global activities and partnerships.
3. Participation in global activities should be encouraged through grading and credit systems.
4. Abroad projects should be encouraged to increase international experience.
5. Students should be encouraged to have foreign pen pals through course and field projects.
6. The number of licenced athletes among students should be increased.

## Conflict of Interests

The author has not declared any conflicts of interest.

## REFERENCES

- Banks JA (2004). Teaching for social justice, diversity, and citizenship in a global world. *Educ. Forum* 68(4):296-305. <http://depts.washington.edu/centerme/Fs04banks.pdf>
- Banks JA (2001). Citizenship education and diversity implications for teacher education. *J. Teacher Educ.* 52(1):5-16. <http://jte.sagepub.com/content/52/1/5.full.pdf+html>
- Behrnd V, Porzelt S (2012). Intercultural competence and training outcomes of students with experiences abroad. *Int. J. Intercult. Relat.* 36(2):213-223. <http://www.sciencedirect.com/science/article/pii/S0147176711000563>
- Burrows D (2004). World citizenship. Paper presented at the American Council on Education Regional Conference on new Directions in International Education, Beloit, Wisconsin. <https://www.beloit.edu/oie/assets/Burrows.pdf> (22..11.2015)
- Carter A (2001). The political theory of global citizenship. New York: Routledge.
- Ceylan Ş (2014). Okul Öncesi Öğretmenlerinin Dünya Vatandaşlığı Eğitimi İle İlgili Görüşleri. *Kuramsal Eğitimbilim Dergisi* 7(1). <http://www.keg.aku.edu.tr/arsiv/c7s1/c7s1m5.pdf>
- Chui WH, Leung EW (2014). Youth in a global world: attitudes towards globalization and global citizenship among university students in Hong Kong. *Asia Pacific J. Educ.* 34(1):107-124. <http://www.tandfonline.com/doi/pdf/10.1080/02188791.2013.810143>
- Davies L, Harber C, Yamashita H (2005) Global citizenship education: the needs of teachers and learners (Birmingham, Centre for International Education and Research (CIER), School of Education, University of Birmingham). <http://www.birmingham.ac.uk/documents/college-social-sciences/education/cier/global-citizenship-report.pdf>
- Dowling F, Kárhús S (2011). An analysis of the ideological work of the discourses of 'fair play' and moral education in perpetuating inequitable gender practices in PETE. *Phys. Educ. Sport Pedagogy* 16(2):197-211. <http://www.tandfonline.com/doi/pdf/10.1080/17408989.2010.532781>
- Engle L, Engle J (2003). Study abroad levels: Toward a classification of program types. *Frontiers: The Interdisciplinary J. Stud. Abroad*, 9:9 <https://aucp.fr/wp-content/uploads/2014/04/Study-Abroad-Levels-Toward-a-Classification-of-Program-Types.pdf>
- Gallavan NP (2008). Examining teacher candidates' views on teaching World citizenship. *Social Studies*, 99(6):249-254. <http://www.tandfonline.com/doi/pdf/10.3200/TSSS.99.6.249-254>
- Gibson KL, Rimmington GM, Landwehr-Brown M (2008). Developing global awareness and responsible World citizenship with global learning. *Roeper Rev.* 30(1):1-23. <http://www.tandfonline.com/doi/pdf/10.1080/02783190701836270>
- Haydon G (2006). Respecting for persons and for cultures as a basis for national and global citizenship. *J. Moral Educ.* 35(4):457-471. <http://www.tandfonline.com/doi/pdf/10.1080/03057240601012253>
- Hicks D (2003) Thirty years of global education: a reminder of key principles and precedents, *Educ. Rev.* 55(3):265-275. <http://www.tandfonline.com/doi/pdf/10.1080/0013191032000118929>
- Holden C (2000). Learning for democracy: from World studies to global education, *Theory Pract.* 39(2):74-80. [http://www.tandfonline.com/doi/pdf/10.1207/s15430421tip3902\\_3](http://www.tandfonline.com/doi/pdf/10.1207/s15430421tip3902_3)
- Kan Ç (2009). Değişen değerler ve küresel vatandaşlık ve aş likeğitimi. *Kastamonu Eğitim Dergisi* 17(3):895-904.
- Karaca S, Çoban A (2015). Sosyal Bilgiler Öğretmen Adaylarının Küresel Vatandaşlık Tutum Düzeylerinin Farklı Değişkenler Açısından İncelenmesi. *Akademik Sosyal Araştırmalar Dergisi* 3(17):10-22
- Lim CP (2008). Global citizenship education, school curriculum and games: Learning mathematics, English and science as a global citizen. *Comput. Educ.* 51:1073-1093 <http://www.sciencedirect.com/science/article/pii/S0360131507001327>
- Miranda E (2010). Going Global in Arlington, Virginia, *J. Educ. Sustain. Dev.* 4:219-222. <http://jsd.sagepub.com/content/4/2/219.full.pdf+html>
- Morais BD, Ogden CA (2011). Initial Development and Validation of the Global Citizenship Scale, *J. Stud. Int. Educ.* 15(5):445-

- 466.<http://jsi.sagepub.com/content/15/5/445.full.pdf+html>
- Miller T, Lawrence GA, McKay J, Rowe D (2001). Globalization and sport: Playing the world. Sage.
- Oxfam (2015). [http://www.oxfam.org.uk/~media/Files/Education/Global%20Citizenship/Global\\_Citizenship\\_Schools\\_WEB.ashx?la=en](http://www.oxfam.org.uk/~media/Files/Education/Global%20Citizenship/Global_Citizenship_Schools_WEB.ashx?la=en) (22.11.2015).
- Purcell M (2003). Citizenship and the right to the global city: Reimagining the capitalist World order. *Int. J. Urban Regional Res.* 27(3):564-590.<http://faculty.washington.edu/mpurcell/ijurr.pdf>
- Robbins M, Francis L, Elliott E (2003). Attitudes toward education for global citizenship among trainee teachers. *Res. Educ.* 69(1):93-98.<http://www.ingentaconnect.com/content/manup/rie/2003/00000069/00000001/art00008>
- Roche M (2002). Megaevents and modernity: Olympics and expos in the growth of global culture. Routledge.
- Rees CR, Miracle AW (2000). Education and sports. *Handbook Sports Stud.* pp. 277-290.
- Shultz L, Abdi AA (2008). Educating for Human Rights and Global Citizenship. Albany: State University of New York Press pp. 50-51.<https://www.sunypress.edu/pdf/61591.pdf>
- Stavenhagen R (2008). Building intercultural citizenship through education: A human rights approach. *Eur. J. Educ.* 43(2):161-179.<http://onlinelibrary.wiley.com/doi/10.1111/j.1465-3435.2008.00345.x/epdf>
- Şahin İF, Çermik F (2014). Küresel Vatandaşlık Ölçeğinin Türkçeye Uyarlanması: Güvenirlilik ve Geçerlilik Çalışması Turkish adaptation of Global Citizenship Scale: Reliability and Validity. *Doğu Coğrafya Dergisi*, 19(31):207-218.  
<http://e-dergi.atauni.edu.tr/ataunidcd/article/view/5000013895/5000014104>
- Takkac M, Akdemir AS (2012). Training Future Members of the World with An Understanding of Global Citizenship, *Proc. Soc. Behav. Sci.* 47:881.  
<http://www.sciencedirect.com/science/article/pii/S1877042812024871>
- Thanosawan P, Laws K (2013). Global citizenship: differing perceptions within two Thai higher education institutions. *J. Higher Educ. Policy Manage.* 35(3):293-304.<http://www.tandfonline.com/doi/pdf/10.1080/1360080X.2013.786861>
- Trede F, Bowles W, Bridges D (2013). Developing intercultural competence and global citizenship through international experiences: academics' Perceptions. *Intercultural Educ.* 24(5):442-455.<http://www.tandfonline.com/doi/pdf/10.1080/14675986.2013.825578>

*Full Length Research Paper*

# Competency level of geography students of the faculty of arts and science

Nadire Karademir

Department of Geography, Faculty of Science and Literature, Kahramanmaraş Sutcu Imam University, Kahramanmaraş, Turkey.

Received 30 November, 2015; Accepted 17 February, 2016

The present study aimed to determine the competency levels of geography students in their fields of study and reveal the relationship between their levels and some variables. Totally, 650 senior geography students studying in the faculties of arts and science in 10 different universities in 2013-2014 school term participated in the research. The results of the study suggested that sufficient level of knowledge in this field constituted statistically significant difference according to variables such as academic achievement, participation in social activities and field study, following scientific publications and activity in conferences, living with family in the same city and field of study in secondary school, while no significant differences were seen according to gender, choice of program, thought of teaching, anxiety, the school graduated from and the program followed in high schools. While increasing level of participation in field study influences positively level of competency, those not following any scientific publication in their field of study were reported to have lower levels of competency as compared to those who followed relevant publications.

**Key words:** Geography, education, candidate teacher competencies.

## INTRODUCTION

Borders of science are expanding day by day, technology changes rapidly and 21st century, which is the age of knowledge, more are expected from individuals, consequently. Education sector needs to be in reconciliation with technology and must form competitive individuals in order to adapt to these rapidly changing conditions. In this respect, the role of teacher in education gets more and more important, which is the fundamental factor of education system since the quality

of education is in directly proportionate to qualities of teachers and their qualification in this system and functions accordingly.

To be a teacher is to take responsibility of educating a young generation on behalf of the community as teaching demands many good daily activities in the field of education (Sumbul, 2006). Teacher's understanding of generalization and inference in his/her own field, comprehension of differences from other fields,

E-mail: [nadire46@hotmail.com](mailto:nadire46@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/)

knowledge of these discrepancies between scientific thinking and criticizing or commenting about an art may lead to distinction in teaching and learning process (Ball and Cohen, 1999). Educational reforms conducted in the 1990s and 2000s suggested that in almost all of the countries, teachers passing through different types of education and teaching systems should have certain standards (Ozturk and Eroglu, 2013), which has become a hot topic in which various national and international researches are conducted and reports are prepared within the framework of educating teachers of the century, which is regarded as a future-based task.

Competency is defined as the core set of outcomes to be possessed (Sisman, 2000), ability needed, knowledge, skills and attitudes in order to overcome a task successfully (Alkan and Hacıoglu, 1997; Sahin, 2004). Competency can be explained as the level of qualification in any field.

The competencies expected from teachers in our country as in the rest of the world are one of the most controversial and studied topics. General competencies include knowledge, skills and attitudes in all teachers while professional qualifications are knowledge, skills and attitudes related to the relevant fields of study in order to implement duties of teaching effectively and efficiently (MEB, 2008). Teaching competency is an important factor that directly influences quality of education. Knowledge of teaching necessitates liberal arts and pedagogical knowledge and skills (Cakan, 2004). An individual who becomes a teacher as a result of reception of education in these fields is thought to have acquired competency in pioneering education of next generations (Kilic and Acat, 2007). In XI<sup>th</sup> national education council meeting, it was decided that 5/8<sup>th</sup> of teacher education curricula should be allocated for content knowledge (62, 5%); 2/8<sup>th</sup> for professional knowledge of teaching (25%) and 1/8<sup>th</sup> for liberal arts courses (12, 5%) (MEB 2006), which puts emphasis on the place of content knowledge. Content knowledge is regarded as a core component of teaching knowledge in all phases of education. All teachers, specifically, geography teachers are expected to give education defined by macro policies of the state. Therefore, geography teachers are strongly advised to have certain competencies and in case of lack of such competencies, they should be able to acquire them.

Content knowledge is the knowledge of teachers learned about the subject (Mishra and Koehler, 2006). A teacher whose content knowledge is sufficient is able to create necessary interest on the students, improve his/her own teaching method and strategies, and make the course more enjoyable. Teacher is responsible for several tasks such as selection of activities worth spending time, teaching in an explicative way, asking prolific questions, evaluating the students. Implementing these activities requires sufficient content knowledge on

the subject to be taught (Ball and McDiarmid, 1989). Shulman (1986) stated that the most distinguishing shortcoming to educate qualified teachers is the lack of content knowledge. Individuals are supposed to learn best about field in order to realize teaching activities. Being good in one's field is not a condition to be an influential teacher on its own but content knowledge is one of the most important elements.

The practice of teacher training at the faculty of arts and science first began at New York University and after criticisms against schools of education, it was decided that problems could be solved by giving the schools of arts and science the right to train teachers. In training teachers of primary and secondary schools, students are to get strong background in their fields at the schools of arts and science and teachers must know the topic to be taught, which would be possible only through the schools of arts and science (Carnegie Forum, 1986; Holmes Group, 1986; NCTAF, 1996).

The schools of arts and science increase students' level of knowledge in liberal arts and help students to improve their skills in questioning, analysis, critical thinking and decision and allow them to acquire content knowledge as well as teaching methods of teaching effectively (Petrie, 1986).

For Turkey to reserve its place in globally competitive arena and become competitive, "Geography Teacher Competencies" was published which consisted of 122 performance indicators with three principal areas of competency as well as teacher competencies in other fields in parallel with geography curriculum. "Competencies in Geography" were determined by Ministry of National Education (MEB) (2010) as follows:

1. Content knowledge
2. Knowledge of geography education
3. Possession of value and attitude of geography

Competency in content knowledge includes the use of geography methodology, doing position analysis, making applications related to climate, seizing geological formations, analyzing existence of water, evaluating existence of soil, comprehension of biogeography elements and demographic characteristics, analyzing inhabitation characteristics, assessment of economic system and processes and tourism phenomenon, and conducting culturally spatial analysis.

Geography curriculum (CDOP) was revised in 2005. Geography curriculum covers approaches depending on the developments in other countries such as student based learning, learning by experience, constructivist teaching, multiple intelligence theory based learning, active learning, research based teaching, problem-solving based learning and use of information and communication technology in geography (CDOP, 2005). Kent (2004)

argued that training of geography teachers is an academically controversial topic while no one pays enough attention to it. Kent states that the future of geography would be complicated unless there are “energetic, enthusiastic, inspiring and influential geography teachers”. In this respect, one should have very strong content knowledge to be a good geography teacher. Knowledge in geography teaching based on information consists of sub-competencies such as teaching knowledge, curriculum knowledge, organization knowledge and approach to geography of people to be taught geography. Candidate geography teacher receives background knowledge during his bachelor’s degree education (Karabag, 2007).

Advisable and useful geography education is possible only by means of well-trained geography teachers. Training people for teaching knowledge and skills and knowing what kind of competencies they have are essential since the most important dimension in functionality of geography is geography teachers (Karabag, 2002).

Most students that choose the schools of arts and science are candidate teachers of geography and therefore their level of competency in content knowledge is to reach a reasonable extent. Geography is not static but continuously changing and developing so it is necessary for geography teachers to get training in order to keep pace with such improvements. Contemporary and functional geography education is supplied only by well-trained teachers. What kind of knowledge, value and attitude to be taught in geography is crucial in which competencies are to be possessed or what kind of people to train as geographical consciousness appears in core content knowledge and what type of relations to have. Geographical consciousness can be acquired only through well-trained geography teachers (Karabag, 2007).

### **Aim and importance of the study**

Most of the studies on education have concentrated on the students of the faculties of education. Although, most students studying at the faculties of arts and science prefer teaching as a profession, their reception of formation related to attitude, opinion and competency concerning teaching is very limited (Acat et al., 2005; Ozturk et al., 2005; Gurbuz and Kisoglu, 2007; Karagol et al., 2011; Tuna, 2013; Akar, 2014; Sezginet al., 2014). The present study was conducted to reveal competency in content knowledge of the senior geography students studying at the faculties of arts and science and who plan to work as teachers of geography after graduation. This study is expected to fill the gap in this field and contribute to the research on this subject and to teacher education programs at higher education institutions through

assessment of the role of major area course.

### **METHODOLOGY**

Survey method was used in this study, a research approach generally used to describe an existing situation as it is, compare the relations between the variables and collect data at a given time (Karasar, 2008).

#### **Participants**

Totally, 650 senior geography students at the faculties of arts and science in 10 different universities studying in 2013-2014 school year voluntarily participated in the research. The faculties of letters of Ataturk University, Ege University, Istanbul University and the faculties of arts and science of other universities (Kahramanmaraş Sutcu Imam University, Kilis 7 Aralık University, Afyon Kocatepe University, Harran University, Canakkale Onsekiz Mart University, Ondokuz Mayıs University and Balıkesir University) were enrolled in the study. The fact that the study is limited to senior students is as a result of the fact that they are the last year students because the field competencies of these candidates to pedagogical training in the last year are to be examined according to the objectives of the study before they become teachers.

#### **Data collection tools**

##### ***Personal questionnaire***

The personal questionnaire contain gender, the reason for the choice of the department, thought of teaching, anxiety level, alma mater, program at high school, grade point average, participation in social activities and field study, follow-up of scientific publications, participation in conferences, the place of residence inhabited with family and field variables at secondary school.

##### ***Special field competency scale***

Taking geography curriculum put into act in 2005 and geography field competency criteria of MEB as fundamental criteria, “Pre-service Teacher’s Knowledge Competency in Geography” scale developed by Karademir (2013) was used. 5 point likert type scale was used and each item was scored as 5 for “strongly agree”, 4 for “agree”, 3 for “somewhat agree”, 2 for “disagree” and 1 for “strongly disagree”. The data were analyzed depending on their properties and SPSS program was used for the analysis.

#### **Data analysis**

Analyzing the data collected in the study, independent sample test (t-test) was used for binary comparisons in which independent variables are based on dependent variables while one-way variance analysis (ANOVA) was conducted for group comparisons. In analysis of variables that are not to meet parametric test assumptions for binary comparisons, Mann Whitney U test and for group comparisons, Kruskal Wallis test were used.

In the case of difference between groups, to find the source of this difference, LSD and Mann Whitney U test were used. Cronbach Alpha reliability coefficient of the data obtained for field knowledge was found to be 0.949. Statistical significance level was assumed as  $p < 0.05$ .

**Table 1.** Distribution of students and their scores in content competence in the participating universities.

Name of the University	n	%	Mean	SD
Kahramanmaras Sutculmam University	89	13.7	141.70	19.16
Kilis7 Aralik University	39	6.0	143.28	13.64
Afyon Kocatepe University	85	13.1	145.70	22.93
Harran University	60	9.2	148.76	18.77
Ataturk University	119	18.3	153.27	20.36
Ege University	38	5.8	148.42	24.56
Istanbul University	38	5.8	142.94	24.16
Canakkale Onsekiz Mart University	35	5.4	150.80	15.26
Ondokuz Mayıs University	63	9.7	148.25	23.97
Balikesir University	84	12.9	137.53	21.14
Total	650	100.0	146.14	21.29

**Table 2.** Results of analysis (t-test) of the participants according to program.

Program	n	Mean	SD	t	p	
Content Knowledge	Daytime education	404	146.09	21.77	-0.078	0.938
	Evening education	246	146.22	20.52		

**Table 3.** Results of analysis (t-test) of the participants according to gender.

Gender	n	Mean	SD	t	p	
Content Knowledge	Female	261	144.51	20.73	-1.598	.111
	Male	389	147.23	21.62		

## RESULTS

The findings related to the data collected from the participants are given the tables.

In Table 1, totally, 650 geography students from the schools of arts and science of which 89 are from Kahramanmaras Sutcu Imam University (Mean = 141.70), 39 from Kilis 7 Aralik University (Mean = 143.28), 85 from Afyon Kocatepe University (Mean = 145.70), 60 from Harran University (Mean = 148.76), 119 from Ataturk University (Mean = 14153.27), 38 from Ege University (Mean = 148.42), 38 from Istanbul University (Mean = 142.94), 35 from Canakkale Onsekiz Mart University (Mean = 150.80), 63 from Ondokuz Mayıs University (Mean = 148.25), 84 from Balikesir University (Mean = 137.53), participated in the study.

According to Table 2, no statistically significant difference was found in content knowledge average scores according to program variable of the participants ( $p > 0.05$ ). Students in both daytime education and evening education have very similar scores. According to

Table 3, no statistically significant difference was found in content knowledge average scores according to gender of the participants ( $p > 0.05$ ).

According to Table 4, the findings show that most are graduates of general high school while the least are graduates of Anatolian High School. No statistically significant difference was found in content knowledge average scores according to type of alma mater of the participants ( $p > 0.05$ ). Table 5 shows that statistically significant difference was found in content knowledge average scores according to program at high school ( $X^2 = 11.285$ ;  $p < 0.05$ ). Those who are graduates of social sciences program are reported to have most content knowledge as compared to others.

Table 6 suggests that statistically significant difference was found in content knowledge average scores according to place of residence ( $F(2,647) = 3.080$ ;  $p < 0.05$ ). The test showed that the source of this difference is the average scores between the inhabitants in the district (Mean = 148.86), in the center of the county (Mean = 144.78) and village (Mean = 144.26).

**Table 4.** Results of analysis (ANOVA) of the participants according to secondary alma mater.

Alma mater		n	Mean	SD	F	p
Content Knowledge	Anatolian teacher high school	15	145.20	13.12	0.704	0.550
	Anatolian High School	66	142.63	21.16		
	General High School	526	146.63	21.84		
	Others	43	145.81	16.41		
	Total	650	146.14	21.29		

**Table 5.** Results of analysis (Kruskal Wallis) of the participants according to program at high school.

Program		n	Mean	SD	X <sup>2</sup>	p	Diff. U test
Content Knowledge	1. Social Sciences	580	146.87	21.03	11.285	.014*	1>3
	2. Turkish-Mathematics	50	142.56	18.14			
	3. Others	20	134.05	30.93			
	Total	650	146.14	21.29			

\*p<0.05.

**Table 6.** Results of analysis (ANOVA) of the participants according to their place of residence.

Place of residence		n	Mean	SD	F	p	Diff. LSD
Content Knowledge	1. Village	157	144.26	22.69	3.080	0.047*	2>1.3
	2. District	236	148.86	19.37			
	3. County	257	144.78	21.91			
	Total	650	146.14	21.29			

\*p<0.05.

**Table 7.** Results of analysis (ANOVA) of the participants according to participation in conferences.

Status of participation		n	Mean	SD	F	p	Diff. LSD
Content Knowledge	a) Never	84	138.38	20.95	7.429	0.000*	a<b,c,d b<c,d
	b) 1-3 times	280	144.63	20.26			
	c) 4-6 times	169	149.50	22.37			
	d) More than 7 times	117	150.48	20.62			
	Total	650	146.14	21.29			

\*p<0.05

According to Table 7, statistically significant difference was found in content knowledge average scores according to participation in conferences (F(3.646)=7.429; p<0.05). The difference is (Mean= 138.38) for those who stated “never”; (Mean=144.63) for those who stated 1-3 times (Mean=149,50), 4-6 for those who stated times and

(Mean=150,48) more than 7 times. It can be concluded that increasing number of participation in such activities as conferences related to their professional competency would contribute to their content knowledge.

Table 8 shows that statistically significant difference was found in content knowledge average scores

**Table 8.** Results of analysis (ANOVA) of the participants according to their following academic publications.

Status of Following Scientific publications		n	Mean	SD	F	p	Diff. LSD
Content Knowledge	1. Not following	155	138.92	22.66	9.228	0.000*	1<2.4
	2. Only Academic Journal	392	148.93	19.99			
	3. Only Magazines	48	143.10	24.59			
	4. Others	55	149.25	18.46			
	Total	650	146.14	21.29			

\*p&lt;0.05.

**Table 9.** Results of analysis (ANOVA) of the participants according to participation in field study.

Participation in field study		n	Mean	SD	F	p	Difference LSD
Content Knowledge	a) Never	65	139.72	18.40	4.990	0.002*	a<c,d b<c
	b) 1-3 times	289	144.34	20.51			
	c) 4-5 times	186	149.72	22.55			
	d) more than 6 times	110	148.61	21.55			
	Total	650	146.14	21.29			

\*p&lt;0.05.

**Table 10.** Results of analysis (ANOVA) of the participants according to anxiety level.

Anxious		n	Mean	SD	F	p
Content Knowledge	Yes	454	146.28	20.31	2.304	0.101
	No	96	142.51	26.26		
	Partial	100	148.98	20.02		
	Total	650	146.14	21.29		

according to following scientific publications ( $F(3.646)=9.228$ ;  $p<0.05$ ). In a study to find which groups difference exists, it was found that those who are not following any scientific publication have less average score of competency than those who follow academic journals and others.

Table 9 suggests that statistically significant difference was found in content knowledge average scores according to their participation in field study ( $F(3.646)=4.990$ ;  $p<0.05$ ). In the LSD test conducted to find the source of this difference, it was found that significant difference was in favor of those who had the opportunity to participate more in field studies.

Table 10 shows that those who had the highest score in content knowledge were the ones that experience partially the anxiety of finding a job considering average scores in anxiety of finding a job variable (Mean=148.98) but no statistically significant difference was found

between average scores in content knowledge according to anxiety level ( $F(2.647)=2.304$ ;  $p>0.05$ ).

According to Table 11, no statistically significant difference was found between average scores in content knowledge according to their plan to teach ( $p>0.05$ ). 534 participants stated their willingness to teach while only 116 students asserted their plan to conduct academic studies or work in private sector. Table 12 suggests that no statistically significant difference was found between average scores in content knowledge according to the reason for the choice of specific program ( $F(5.644)=1.166$ ;  $p>0.05$ ).

Table 13 shows that statistically significant difference was found between average scores in content knowledge according to the status of participation in social activities ( $F(2.647)=10.467$ ;  $p<0.05$ ). In the LSD test to find the source of difference, significant increase in competency in content was found in favor of those who participated

**Table 11.** Results of analysis (t-test) of the participants according to their intention to teach.

Plan to teach		n	Mean	SD	t	p
Content Knowledge	Yes	534	146.39	20.72	0.634	0.527
	No	116	145.00	23.82		

**Table 12.** Results of analysis (ANOVA) of the participants according to the reason for selecting the geography program.

Reason for that choice		n	Mean	SD	F	p
Content Knowledge	My parents want it	61	144.68	20.20	1.166	0.325
	To be a teacher	278	145.36	22.31		
	To be socially beneficial	53	142.73	19.04		
	OSS score history	185	147.20	18.89		
	Respected job	30	152.80	26.71		
	I like it	43	148.25	23.92		
	Total	650	146.14	21.29		

OSS= University admission score.

**Table 13.** Results of analysis (ANOVA) of the participants according to the status of participation in social activities.

Status of participation		n	Mean	SD	F	p	Difference LSD
Content Knowledge	1. Never	33	132.27	25.20	10.467	.000*	1<2,3 2<3
	2. Sometimes	418	145.48	21.12			
	3. Often	199	149.82	19.94			
	Total	650	146.14	21.29			

\*p<0.05

more in social activities.

Table 14 suggests that statistically significant difference was found between average scores in content knowledge according to GPA ( $X^2 = 14.424$ ;  $p < 0.05$ ). To find the source of this difference, U test was conducted and the difference was between those whose GPA was below 2.00 (Mean = 140.97) and between 2.00 – 2.50 (Mean = 145.25) and those with 3.01-3.50 (Mean = 147.40) GPA and 3.51-4.00 (Mean = 164.75).

According to Table 15, total score of professional competencies of the participants is “3.74”, which is equal to “agree” in the scale. This may be shown as very good in the geography students who plan to teach geography in the future with higher score of competency in content knowledge.

## DISCUSSION

The data of the present study suggest that no statistically

significant difference exists in content knowledge average scores according to gender of the geography students at the faculty of arts and science (Table 3). Coskun et al. (2009, 2010) found in their studies similar results. This may be due to the same curriculum followed in all faculties of arts and science oblivious of gender difference. It can also be expressed that emotional qualifications for gender do not have so much functions as to have an impact on the field competency.

In the study, the same curriculum conducted and teachers teaching the courses in both daytime and evening education may account for the lack of statistically significant difference between average scores in content knowledge according to curriculum. Coskun et al. (2010) found significant difference in favor of Turkish teacher candidates following evening education while Kahramanoglu and Ay (2013) stated significant difference in favor of classroom teacher candidates receiving daytime education.

The findings in the present study suggest that most

**Table 14.** Results of analysis (Kruskal Wallis) of the participants according to academic grade point average.

Academic GPA	n	Mean	SD	X <sup>2</sup>	p	Difference U test	
Content knowledge	a) Below 2	37	140.97	20.60	14.424	0.006*	
	b) Between 2-2.5	139	145.25	20.47			a<d,e
	c) Between 2.51-3.00	291	145.95	19.80			b<e
	d) Between 3.01-3.50	175	147.40	24.25			c<e
	e) Between 3.51-4.00	8	164.75	10.93			d<e
Total	650	146.14	21.29				

\*p&lt;0.05

**Table 15.** Scaled average scores of competency level of the participants in content knowledge.

Scale	Frequency	Score	Total
Absolutely disagree	515	1	515
Disagree	1740	2	3480
Somewhat agree	7065	3	21195
Agree	10343	4	41372
Absolutely agree	5686	5	28430
Total	25349		94992
Score in content knowledge		146.14	
Average score in content knowledge		3.74 (Agree)	

Content knowledge (CK) score = (total score/total subjects); Average score in content knowledge = (total score/total frequency).

geography students are graduates from general high school while only a small number is from Anatolian teacher high school according to their alma mater (Table 4). Taking into consideration alma mater of the students, common curriculum and equal education provided may account for the lack of statistically significant difference between average scores in content knowledge regardless of the alma mater of geography students at the faculties of arts and science. Researches showed that alma mater did not make any difference (Coskun et al., 2009, 2010; Eraslan and Cakici, 2011; Karademir, 2013). It can be concluded that generally, graduates from general high schools prefer to choose geography departments, and science high school and Anatolian high school graduates select the programs which require higher scores in university placement examination and that successful students graduating from general high schools prefer to choose programs run by the schools of arts and science for which medium level of score in the exam is required.

Statistically significant difference was found between average scores in content knowledge according to program at high school (Table 5). This may be due to the fact that geography course is not compulsory in science program at high school, duration of instruction of

geography in Turkish-Mathematics program is not sufficient and that geography is required and the hours of instruction are more than required in social sciences program. In the present study, it was found that the student profile reflects this reality and graduates from social sciences program are more than those from Turkish-Mathematics program and students from science program do not choose this department. Ozgen and Bindak (2009) reached similar results in the research. Considering the instruction of geography as a social science course at high schools, this difference is thought to be an expected result of the study.

Average scores in content knowledge vary whether the place of residence is village, district or county (Table 6). That the level of education and study opportunities in county are good enough while living with geographic environment in the village may result to similarity between average scores in content knowledge in terms of county and village. Sophisticated education conditions in county ensure theoretically geographic information while in village such information is acquired by living nature. This may be the reason why content competency level of students living in both settlements shows similarity. Cin (2008) argued that geographic information of children is

closely related with their direct interaction with geographic environment they live and students in rural areas like geography more, accordingly. In addition, Ozgen and Bindak (2009) pointed out that children with rural life background have more interest and attitudes toward geography.

Statistical differences between average scores in content knowledge vary from those who never participate in conferences, those participating in these conferences 1-3 times, 4-6 times and more than 7 times (Table 7). The more the number of participation of geography students in conferences related to their field of study, the more their content knowledge increases. Participation in conferences contributes to geography students' professional experience and helps them dominate their field.

The results of the study show that those who are not following any publication have lower scores of competency than those following academic journals and other publications (Table 8). Elmas (2006) and Turker (2008) in their studies reached similar results: those reading books and journals are more competent in content knowledge.

It is highly difficult for one to learn a discipline in closed settings, which gets at least 50% of its "theme" from natural environment. Therefore, geography courses should be supported by trips, observations and specifically field studies (Ozgen, 2011) because the laboratory of geographic researches is nature itself (Garipagaoglu, 2001). In the present study, professional competency difference was found to be statistically significant between average scores in content knowledge according to participation in field studies during their education (Table 9). As compared to those who never had experience in field study or participated 1-3 times in the study, those who experienced the field study 4-5 times or more than 6 had higher professional competency. Korkmaz (2006), Cagliyan and Ozan (2004) in their researches found similar results. The increase in participation in field study suggested a positive impact on competency level.

In Turkey, 33 departments of geography and geography education exist, 17 of which have evening education. In addition, there are other 15 that plan to admit students after having enough lecturers. In the coming years, 40 departments of geography are expected. Educated unemployed youth and unemployment become more and more common among the graduates of geography and geography education in Turkey (Kaya, 2014). Lack of title of geographer as a profession, what the graduates of geography do after school, what qualifications and missions they should have are not clarified before the laws, which is effective on unemployment. The number of geography teachers appointed remains too low as compared to that of graduates (Ilhan et al., 2013). The

limited number of employment opportunities for geography graduates (Unaldi ve Alaz, 2008) make the students have very important employment problems (Gokce, 2009; Ilhan et al., 2013; Sandal and Karademir, 2013; Kilinc and Ates, 2014). Just as university students are anxious about job opportunities after school, so the geography students have anxiety over finding a job and profession in the future (Karakuyu, 2008; Kilinc, 2013; Kilinc and Ates, 2014). Besides, the exams like public personnel selection examination, academic personnel and postgraduate education entrance exam, foreign language examination after graduation lead to an increase in such anxiety (Kaya et al., 2014). In this study, no statistically significant difference was found between average scores in content knowledge according to anxiety level of finding a job (Table 10), but considering average scores, those who experience partial anxiety have the highest average score of competency in content knowledge. Yilmaz and Cokluk (2010) stated that research anxiety level of graduates from the faculty of arts and science was not high. This may be related to the fact that the right of teaching has not been given periodically for the graduates of the schools of arts and science and after 2014, this right was reserved for those who met certain criteria.

Most participants in this study stated preference for teaching, only a small number wanted to do academic work or find a job in private sector (Table 11). Since most prefer to teach, it is clear that their objective is to become teachers and this is why they prefer the faculty of arts and science.

No statistically significant difference was found between average scores in content knowledge according to the reason for the choice of the program (Table 12) but the fact that students stated they selected this department to become a teacher right before the university entrance exam suggests they study in this department with the aim of teaching. Gurbuz and Kisoglu (2007) found similar results.

Statistically significant difference between average scores in content knowledge according to participation in social activities is important in that it shows an increase in field competencies (Table 13). Participation not only in field courses but also other social activities may make students change their social opinions and look at geography from a wider perspective.

Statistically significant difference was found between average scores in content knowledge according to GPA (Table 14) and students' level of competency was in parallel with their GPA. Saracaloglu et al. (2009) and Kahramanoglu and Ay (2013) found similar results while Coskun et al. (2010) reported no statistically significant difference between their competency perception according to teacher candidates' academic achievement. Higher GPA suggests higher motivation for geography

students to learn and master their field of study. Therefore, the higher their GPA is, the more competent they acquire regarding teaching profession. Quality of education received during higher education and individual efforts may also be effective on the competency.

Competency in content knowledge helps teacher to be confident and enjoy the class answering the questions of the students (Kucukahmet, 2008; Davis, 2003). To be a competent teacher is to be competent in content knowledge (Mendro, 1998). In terms of professional levels of the participants, total score in content knowledge obtained is equal to 3.74, which means "yes, I participate" in the competency scale. In this case, geography students at the schools of arts and science seem "competent" in content knowledge (Table 15). Competency of students in content knowledge is important in that they command the course.

## Conclusion

Content knowledge is the basic for all teachers. In the present study, the level of participants' content knowledge was found "competent". In this context, educational curriculum prepared to train geography teacher candidates to pedagogical training at the faculties of arts and science achieved its objective. In addition, gender, the reason for the choice of geography discipline, plan to teach, anxiety and the high school alma mater as well as the type of program at high school did not have any significant difference in content knowledge of geography students while academic GPA, participation in social activities, field studies and conferences, follow-up scientific publications, place of residence with family, programs at high school led to significant difference.

All geography students are taught common curriculum and provided equal level of education regardless of gender differences, daytime or evening education, and type of their alma mater. Therefore, gender, the reason for the choice of geography discipline, plan to teach, anxiety and the high school alma mater as well as the type of program at high school do not affect their content knowledge. However, their participation in conferences related to their field of study, field studies and in all social activities, reading books and journals, higher GPA led to an increase in the level of their content knowledge. A variety of education cycles and opportunities of education in county, living together with geography in village help students from these areas to have higher level of content knowledge. It was found that geography students prefer to teach in this department most after school.

## Recommendations

Geography students should be encouraged to participate

from time to time more in conferences, field studies, and social activities and follow related scientific publications during their bachelor's degree period so that the level "competent" in content knowledge gets advanced. In addition, they are advised to be updated by the professional advances, catch up with the time and have a geographic perspective.

Since it is possible for students at the faculties of arts and science to become teachers, activities and opportunities must be created during the process. The studies in the coming years must focus on teaching geography and be conducted on different variables and greater groups. For instance, attitudes of geography students towards teaching may be researched and competencies of academics in the departments of geography at the schools of arts and science are to be examined.

## Conflict of Interests

The author has not declared any conflicts of interest.

## REFERENCES

- Acat B, Balbag MZ, Demir B, Gorgulu A (2005). Perceptions of The Students Attending The Faculty of Letters and Science and Faculty of Education and The Programme Without Thesis As to The Teaching Profession, Dokuz Eylul University, Buca Faculty Educ. J. 17:27-35.
- Akar EO (2014). Why Do Arts And Sciences Faculty- Department Of Biology Graduates Want To Become Teachers?, Kastamonu Educ. J. 22(1):259-272.
- Alkan C, Hacioglu F (1997). Ogretmenlik Uygulamalari. Ankara: AlkimYayinevi.
- Ball DL, Cohen DK (1999). Developing Practice, Developing Practitioners: Toward A Practice- Based Theory of Professional Education. In G. Sykes& L. Darling-Hammond (Eds.), Teaching As The Learning Profession: Handbook Of Policy And Practice. San Francisco: Jossey-Bass pp. 3-32.
- Ball DL, Mcdiarmid GW (1989). The Subject Matter Preparation of Teachers. 31 Pp, National Center For Research on Teacher Learning. [http://Files.Eric.Ed.Gov/Fulltext/Ed310084.Pdf\\_December, 2014](http://Files.Eric.Ed.Gov/Fulltext/Ed310084.Pdf_December, 2014).
- Cagliyan A, Ozan BM (2004). Coğrafya Öğretiminde Gezi Gözlem Yönteminin Öğrenmede Etkililiğinin Değerlendirilmesi. XII. Eğitim Bilimleri Kongresi (15-18 October 2003), Gazi Üniv. C: Iv, 2344-2360.
- Cakan C (2004). Comparison of Elementary And Secondary School Teachersin Terms of Their Assessment Practices And Perceptions Toward Their Qualification Levels, Ankara University J. Faculty Educ. Sci. 37(2):99-114.
- Carnegie Forum (1986). A Nation Prepared: Teachers For The 21st Century. Washington Dc: The Forum.
- CDOP(2005). Coğrafya Dersi Öğretim Programı, Milli Eğitim Bakanlığı, Ankara.
- Cin M (2008). Residential Differencesin Prospective Classroom Teachers' Attitudes Towards Geography Subject, Kastamonu Educ. J. 16(1):185-190.
- Coskun E, Gelen I, Ozturk EP (2009).The Proficiency Perceptions of Pre-Service Turkish Language Teachers About Educational Planning, Application And Evaluation, Mustafa Kemal University, J. TheInstitute Soc. Sci. 6(12):140-163.
- Coskun E, Ozer B, Tiryaki NE (2010). An Evaluation of Competency Perceptions of Prospective Turkish Teachers, Dokuz EylulUniversity, Buca Faculty Educ. J. 27:123-136.

- Davis CE 2003. Prospective Teachers' Subject Matter Knowledge of Similarity. Phd Thesis, North Carolina State University, USA.
- Elmas B (2006). The Main Problems of Geography Education in Secondary Education (Kartal District Sample), Master Thesis, Marmara University Institute of Educational Sciences, Istanbul.
- Eraslan L, Cakici D (2011). Pedagogical Formation Program Students Attitudes Towards Teaching Profession, *Kastamonu Educ. J.* 19(2):427-438
- Garipagaoglu N (2001). Die Rolle Der Expeditionellen Methode Im Geographie – Unterricht, *Marmara Geographical Rev.* 3(2):13-30
- Gokce N (2009). The Problems of Geography Education And Some Suggestions, *Educational Sciences: Theory Pract.* 9(2):721-768.
- Gurbuz H, Kisoglu M (2007). Attitudes of The Science And Art Faculty Students And Education Faculty Students Attend The Nonthesis Graduated Education Program Toward Teaching Profession (Atatürk University Sample), *J. Erzincan Educ. Faculty* 9(2):71-83.
- Holmes Group (1986). *Tomorrow's Teachers: A Report of The Holmes Group.* East Lansing, Mi: HolmesGroup.
- Ilhan A, Gulersey AE, Gumus N (2013). Department of Geography And Geography Teacher Graduates Faced Employment Problem to After Graduation, *Turkish Studies- International Periodical For The Languages, Literature And History of Turkish or Turkic* 8(9):1585-1602
- Kahramanoglu R, Ay Y (2013). Examination of the primary teacher candidates' special field competence perceptions as to different variables, *Int. J. Turk. Literature Culture Educ.* 2(2):285-301.
- Karabag S (2002). Professional qualifications of geography teachers". Turkish geography association, geography council, Book of Proceedings, Gazi Publications, Ankara.
- Karabag S (2007). Professional responsibilities of geography teachers, in Ed. S. Karabag & S. Sahin. *Geography Education in Theory and Practice* Gazi Publications, Ankara pp. 271-287.
- Karademir N (2013). Competences level of prospective geography teachers for their field, *Eastern Geographical Rev.* 29:79-95
- Karagol Z, Baki A, Yildiz C (2011). Fen Edebiyat Fakültesi Öğrencilerine Verilen Formasyon Eğitiminin Akademik Çevredeki Yansımaları, 2nd International Conference on new trends in education and their implications 27-29 April, 2011 Antalya-Turkey
- Karakuyu M (2008). To be a teacher in geography education and stay as a teacher In: Ed. R. Özey & A. Demirci, *Method and approaches in teaching geography*, Aktif Press. Istanbul. pp. 341-363.
- Karasar N (2008). *Bilimsel Araştırma Yöntemleri: Kavramlar, İlkeler, Teknikler.* Ankara: Nobel Yayınevi.
- Kaya MF, Degerliyurt M, Aydogmus MY, Aksu R, Turkmen E (2014). The sources of stress for candidate teachers of geography, *Turkish studies- international periodical for the languages, literature and history of Turkish or Turkic* 9(1):235-257
- Kaya N (2014). Geography Teacher Training and Employment in Turkey (1982-2012), *Kastamonu Educ. J.* 22(2):783-806
- Kent A (2004). Developments in the initial teacher education of geography teachers, geographical education, expanding horizons, In *A Shirking Worlds*, (Eds. Kent E; Rawling E; Robinson A), Glasgow, Scotland.
- Kilic A, Acat MB (2007). Essentiality and job-utility of the courses offered in elementary teacher education programs, *J. Soc. Sci.* 17: 22–23.
- Kilinc Y (2013). Training teachers in higher education and geography, in 21. Changing approaches in 21<sup>st</sup> Century and geography education in higher education (Ed. R. Ozey FT, N Bilgen). Pegem Academy Press, Ankara.
- Kilinc Y, Ates M (2014). Geography graduate students' views on their present position after graduation, *marmara geographical Rev.* 29:434-449
- Korkmaz N (2006). Effect of fieldtrip method on success in teaching the subjects of volcano topography (Unpublished Master Thesis), Gazi University, Institute of Education Sciences, Ankara.
- Kucukahmet L (2008). Principles of effective teaching. *J. Turkey Private Schools Assoc.* 3:28-35.
- MEB (Milli Eğitim Bakanlığı) (2006). *Öğretmenlik Mesleği Genel Yeterlikleri, Öğretmen Yetistirme Ve Eğitimi Genel Müdürlüğü*, Ankara: Milli Eğitim Basımevi.
- MEB (Milli Eğitim Bakanlığı) (2008). *Öğretmenlik Mesleği Genel Ve Özel Alan Yeterlikleri*, Ankara: Milli Eğitim Basımevi.
- MEB (Milli Eğitim Bakanlığı) (2010). *Cografya Özel Alan Yeterlikleri. Öğretmen Yetistirme Ve Eğitimi Genel Müdürlüğü Öğretmen Yeterlikleri Ve Okul Temelli Meslek Gelisimi. Öğretmen Yetistirme Ve Eğitimi Genel Müdürlüğü*. Ankara
- Mendro RL (1998). Student achievement and school and teacher accountability, *J. Pers. Eval. Educ.* 12:257-267.
- Mishra P, Koehler MJ (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record* 108(6):1017-1054.
- National Commission on Teaching and America's Future (NCTAF) (1996). *What matters most: teaching for america's future.* New York: National Commission On Teaching And America's Future.
- Ozgen N (2011). A different approach to physical geography teaching method: trip – observation supported education, *Marmara Geographical Rev.* 23:373-388
- Ozgen N, Bindak R (2009). The examination in terms of certain variables of attitude towards geography of high school students: The sample of siirt, Gazi University, Gazi J. Educ. Faculty 29(2):421-440
- Ozturk B, Dogan O, Koc G (2005). Comparing the perceptions of the students of faculty of education and arts and sciences concerning the teaching profession, *J. Turk. Educ. Sci.* 3(1):1-22.
- Ozturk M, Eroglu E (2013). Geography teacher competencies and an evaluation of practices, *Marmara Geographical Rev.* 27:630-659
- Petrie HG (1986). The liberal arts and sciences in teacher education curriculum. In: A. Wonsiewicz & MJ Carbone (Eds.), *Proceedings of the conference on excellence in teacher education through the liberal arts.* Allentown, Pa: Muhlenberg College. pp.39-40.
- Sahin AE (2004). Determination of teacher competencies, *Bilim Ve Aklin Aydinliginda Egitim Dergisi* 58:79-84
- Sandal EK, Karademir N (2013). Geography students profile, expectations and assessment of problems in sultucumam University Faculty of Arts and Sciences, *Ksu J. Soc. Sci.* 10 (2):129-154.
- Saracaloglu AS, Kumral O, Kanmaz A (2009). Anxieties, academic motivation levels and competencies at teaching profession of students at secondary education fields teaching nonthesis master program, *Yuzuncu Yil University, J. Educ.* 6(2):38-54
- Sezgin F, Kosar S, Er E, Sahin F (2014). Examining The Views of First Year University Students in Faculty of Arts and science About Field Education And Teaching Profession, *Hacettepe University J. Educ.* 29(4):217-229
- Shulman LS (1986). Those Who Understand; Knowledge Growth in Teach. *Educ. Res.* 15(2):4-14.
- Sisman M (2000). *Öğretmenliğe Giriş.* (2. Baskı). Ankara: Pegem A Yayıncılık.
- Sumbul AM (2006). *Bir Meslek Olarak Öğretmenlik. Eğitim Bilimine Giriş. Birinci Baskı* (Ed. Özcan Demirel-Zeki Kaya), Ankara: Pegem Yayıncılık.
- Tuna F (2013). Geography And Geography Education Students' Evaluations of Their Departments And Occupational Preparations, *Marmara Geographical Rev.* 27:610-629, Istanbul
- Turker A (2008). The qualification of geography teachers and geography teacher candidates on soil and vegetation cover and affectional factors, (Unpublished Master Thesis), Gazi University, Institute of Education Sciences, Ankara.
- Unaldi U, Alaz A (2008). The examination on professional anxiety levels of geography teacher candidates from the perspective of some variables, *Selçuk University J. Ahmet Kelesoglu Educ. Faculty* 26:1-13.
- Yilmaz K, Cokluk O (2010). Research anxiety levels of faculty of arts and science graduates, *Abant İzzet Baysal University J. Educ. Faculty* 10(1):1-9.

# 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**

A stack of approximately 15 books of various colors (white, yellow, blue, red) is positioned on the right side of the page, partially overlapping the list of journals.