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Dear WJEIS Readers,

WJEIS appears on your screen now as Volume 4, Number 2. In this issue it publishes 10 articles.

Colleagues that are in editorial board worked hard to determine the articles of this issue. There are also some articles that were presented in “5th International Conference on New Trends in Education and Their Implications - ICONTE, 24-26 April, 2014” with the contribution of 22 countries. Articles are evaluated by the referees that are either in editorial board or outside the board.

Although WJEIS is a new journal, it has been welcomed with interest. A lot of journals from various universities are in the evaluation process. We would like to thank cordially our colleagues who work hard in editorial board to evaluate the articles, writers who contribute to our journal and all readers.

1st May, 2014

Best regards

Prof. Dr. Zeki Kaya
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THE INFORMATION AND COMMUNICATION TECHNOLOGIES AND PRESCHOOL CHILDREN

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Abstract
The fast development of information and communication technologies (ICT) caused significant changes in almost all areas of human life especially in education. The generations, which are born after the new information and communication technologies accepted ICT as something normal. These generations some call them “net generations” are learning on different way as elder generations using advantages offered by the ICT. In that sense it is interesting to see which ICT knowledge and skills have the preschool children. Because IPAK institute is participating in LLP project NEST covering early learning we decided to investigate the level of ICT knowledge and skills when preschool children are starting to go to elementary school. We did this research in Slovenia, Croatia and Bosnia and Herzegovina. The results of investigation show that the level of ICT knowledge and skills of preschool children are high and use of ICT could improve educational process in elementary schools

Key Words: Information and communication technologies, early learning, preschool children.

INTRODUCTION
The fast development of ICT especially of Internet significantly changes almost all human activities, especially the way how we learn. Dan Tapscott (1999) in his well known book is talking about “net generation, which is learning different then previous generation. It looks like that as T. Kuhn (1996) pointed in his seminal book The Structure of Scientific Revolution, generation born after technology accept it as something quite normal and natural, however elder generation have problems in this process. The young generation is becoming more visual (Naisbitt 2006) and the classical literacy is not so important as it was in the past.

Because of this “paradigm shift” we decided to investigate the level of ICT knowledge and skills, which have the children entering to school. The information and communication tools became quite accessible to the children at preschool level. They have computers tablets, smart phone access to the internet. They start to use quite young. Several of them cannot read but are using their visual abilities to browse on internet searching and finding what they want. Sometimes they need minor support of elder as to key in some keywords and that
is all. At the same time there is a lot of different content presented in the form of game which children can use easily.

The aim of this work was to determine the level of use of ICT at preschool children. The specific objectives were as follows:

• To investigate the accessibility of ICT devices and tools to the preschool children
• To determine how much preschool children are using the ICT devices and tools.
• To determine how much preschool children are using ICT for education.
• To investigate how preschools children are using Internet
• To determine the level knowing and use of educational games at preschool children.
• To investigate the importance of early learning and ICT based educational games for preschool children.

THE METHODOLOGY OF INVESTIGATION

The data necessary for investigation have been collected using questionnaire and interviews. The investigation has been realized as follows:

• The sample of 14 children N=14 at Velika Nedelja, Slovenia
• The sample of 40 preschool children at Zagreb, Croatia
• The sample of 22 preschool children at Tuzla, Bosnia and Herzegovina

The children were in age from 5 to 7 years.

The questions used in this investigation were as follows:

1) Do you use the computer?
2) Can you switch off the computer?
3) Can you switch on the computer?
4) Can you use Internet?
5) Do you play computer games?
6) Is it easier to you to write on computer?
7) Where is the letter G (on keyboard)?
8) Do you know to type numbers using keyboard?
9) Do you learn watching educational cartoon?
10) Do you learn playing games?
11) Do you know some didactical game?
12) Do you browse on World Wide Web?
13) Do you know what YouTube is?
14) Do you know what Google is?
15) Does the compute help you to learn faster?
16) Do you write faster on computer or on paper?
17) Where do you prepare to write: on computer or on paper?
18) Which device you prefer to use: cellular phone, computer or tablet?
19) In school you will prefer to use: cellular phone, computer or tablet?
20) Your parents are using every day: cellular phone, computer or tablet?

As it can be see the questions are prepared so that important topics are covered namely: basic skills for using ICT, education and ICT, writing and ICT and preferences of ICT devices.

RESULTS

We have presented the results in several tables because the answers to questions could not be presented on uniform way.

The results connected with the knowledge and skills how to use computer and learning with modern technology are presented in the table1.
Table 1: ICT Skills of Preschool Children

<table>
<thead>
<tr>
<th>Question</th>
<th>Slovenia</th>
<th>Croatia</th>
<th>Bosnia and Herzegovina</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you use the computer?</td>
<td>14</td>
<td>39</td>
<td>22</td>
</tr>
<tr>
<td>Can you switch off the computer?</td>
<td>12</td>
<td>36</td>
<td>20</td>
</tr>
<tr>
<td>Can you use Internet?</td>
<td>12</td>
<td>36</td>
<td>19</td>
</tr>
<tr>
<td>Do you play computer games?</td>
<td>14</td>
<td>39</td>
<td>18</td>
</tr>
<tr>
<td>Is it easier to write on computer?</td>
<td>14</td>
<td>36</td>
<td>14</td>
</tr>
<tr>
<td>Do you know to type numbers using keyboard?</td>
<td>14</td>
<td>38</td>
<td>22</td>
</tr>
<tr>
<td>Do you learn watching educational cartoon?</td>
<td>7</td>
<td>37</td>
<td>8</td>
</tr>
<tr>
<td>Do you learn playing games?</td>
<td>5</td>
<td>36</td>
<td>8</td>
</tr>
<tr>
<td>Do you know some didactical game?</td>
<td>13</td>
<td>36</td>
<td>12</td>
</tr>
<tr>
<td>Do you browse on world Wide Web?</td>
<td>11</td>
<td>30</td>
<td>19</td>
</tr>
<tr>
<td>Do you know what is Youtube?</td>
<td>12</td>
<td>26</td>
<td>8</td>
</tr>
<tr>
<td>Do you know what is Google?</td>
<td>9</td>
<td>26</td>
<td>9</td>
</tr>
<tr>
<td>Does the computer help you to learn faster?</td>
<td>8</td>
<td>35</td>
<td>9</td>
</tr>
</tbody>
</table>

As it can be seen from data in table 1, almost all children have access to the computer and have basic skills necessary to use them. Much less (in Slovenia and Bosnia and Herzegovina) are using computer technology to learn. The same is with Internet.

In table 2 is presented the answer in which children have to define the position of letter G on keyboard. The results are very different. It looks like that question was not understood well or they had problem to define what is left, middle and the right.

Table 2: Recognition of Letter on Keyboard

<table>
<thead>
<tr>
<th>Question: Where is the letter G on keyboard?</th>
<th>Left</th>
<th>Middle</th>
<th>Right</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slovenia</td>
<td>13</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Croatia</td>
<td>1</td>
<td>35</td>
<td>3</td>
</tr>
<tr>
<td>Bosnia and Herzegovina</td>
<td>5</td>
<td>10</td>
<td>7</td>
</tr>
</tbody>
</table>

In table 3 are answers on questions connected with the writing. More children write faster on computer and prefer to use it for writing. Although there is still significant number of them which use and like paper.
In Table 4 are presented the answers on questions connected with the use children prefer to use. It is interesting that tablets are most popular device. Somehow that is proof that we are going to visual society in which writing and reading will be not so important as earlier.

<table>
<thead>
<tr>
<th>Country</th>
<th>Slovenia</th>
<th>Croatia</th>
<th>Bosnia and Herzegovina</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you write faster on computer or paper</td>
<td>8</td>
<td>18</td>
<td>15</td>
</tr>
<tr>
<td>Do you prefer to write on computer or paper</td>
<td>10</td>
<td>18</td>
<td>14</td>
</tr>
</tbody>
</table>

Table 4: The preferred ICT device

<table>
<thead>
<tr>
<th>Country</th>
<th>Slovenia</th>
<th>Croatia</th>
<th>Bosnia and Herzegovina</th>
</tr>
</thead>
<tbody>
<tr>
<td>Which device you prefer to use: cellular phone, computer or tablet?</td>
<td>1</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>In school you will prefer to use: cellular phone, computer or tablet?</td>
<td>14</td>
<td>17</td>
<td>7</td>
</tr>
<tr>
<td>Your parents are using every day: cellular phone, computer or tablet?</td>
<td>14</td>
<td>26</td>
<td>22</td>
</tr>
</tbody>
</table>

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CONCLUSION

From analysis of data we can conclude that:

• Young generation become more ICT literate and less functional literate requiring writing and searching.
• Most of preschool children have computers, cellular phones and tablets and have necessary skills to use them.
• Although they have experience with internet they are not using all functions.
• The potential of ICT for education is not used as much as it could be.
• There is a big opportunity to improve educational process using ICT on proper way.

There are differences between countries however it has to be investigated on much larger sample and in different environment.

WJEIS’s Note: This article was presented at 5th International Conference on New Trends in Education and Their Implications - ICONTE, 24-26 April, 2014, Antalya-Turkey and was selected for publication for Volume 4 Number 2 of WJEIS 2014 by WJEIS Scientific Committee.

REFERENCES


EFFECTIVENESS OF CLASSROOM LIGHTING COLORS TOWARD STUDENTS’ ATTENTION AND MEDITATION EXTRACTED FROM BRAINWAVES

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Abstract
Education of students is associated with classroom environment in which consist of such as settlement order, air-conditioning, furniture, size of classroom and lighting color. The latter effectiveness on attention and meditation of students may not be measured through a survey simultaneously. Nowadays, attention and meditation levels of a students can be extracted from their brainwaves using brainwave detectors.

In this study, attention and meditation levels are extracted from the observed brainwaves of randomly selected two students when changing classroom lighting colors in the Department of Electrical and Energy Classroom of Uşak University.

The result shows that effectiveness of different classroom lighting colors are measured analyzed and evaluated toward students’ attention and meditation levels simultaneously.

Key Words: Education, Classroom, Attention, Meditation, Brainwaves.

INTRODUCTION

In an educational environment there are a lot of factors which effect students. In particular, there are factors that affect motivation levels and their performance. These are such as settlement order, air-conditioning, furniture, size of classroom and lighting color.

The type of lighting source is a factor in students’ performance. Sources that lighting emit x-rays, radiation, and radio waves is used in classrooms like fluorescent. These emissions reduce productivity, hyperactivity and so on (Sojoudi & Jaafar, 2012).

Lighting color is another factor in students’ performance. Colors impress upon employees in industry as psychologically. In many cases carefully choice of colors have increased production five to ten percent and can reverse depressing and monotonous atmosphere and promoting positive feelings about the school and lessons (Papadatos, 1973) and unsatisfactory lighting have negative impacts on student performance (Yang, Becerik-Gerber, & Mino, 2013).

A study shows that every color has a wavelength that affects brain differently. Colors can impress your character and state of mind at the moment. For example, red can trigger more aggressiveness or engagement and positive emotions in different states of mind (Tokcan, 2009).
The lighting color effectiveness on attention and meditation of students may not be measured through a survey simultaneously. In this study, we worked on a method that can give us chance to measure the lighting color effectiveness on attention and meditation of randomly selected two students. Two brainwave detectors used for take raw data that has attention and meditation signal information of students under the influence of white, red and green colors lighting.

**METHODS**

In this study, attention and meditation levels are extracted from the observed brainwaves of randomly selected two students when changing classroom lighting colors in a classroom of the Department of Electrical and Energy at Uşak University. Students place brainwave detectors which name is Neurosky Mindwave Headset as shown in Figure 1 onto their heads. This detector sends brainwave raw data in the eight channel via wireless signal to the computers. The raw data has many information about level of delta, theta, lowAlpha, highAlpha, lowBeta, highBeta, lowGamma, highGamma, attention and meditation (Swanson, et al., 2009).

![Neurosky Mindwave Headset](image-url)

**Figure 1: Neurosky Mindwave Headset (NeuroSky Electronic Press Kit, MindWave, 2014).**

In the figure 2, columns show number of subjects and rows show the raw brainwaves in the classroom lightning colors which are white, red and green. Sample rate of the brainwave sensor were chosen 512 sps (sample per second) and for each classroom lightning colors held in 15 minutes.
Figure 2: Raw Data of the Brainwaves of the Subjects

Attention and meditation levels of a student extracted from their raw data of the each brainwaves taken under the influence of white, red and green colors lighting and then the effectiveness of this classroom lighting colors are measured, analyzed, and evaluated toward students' attention and meditation levels simultaneously.

**FINDINGS**

The figure 3 shows the available attention level data which are extracted from the raw brainwaves of both subjects in the classroom lighting colors.

Figure 3: Attention Level of Both Subjects
The figure 4 shows the available meditation level data which are extracted from the raw brainwaves of both subjects in the classroom lightning colors.

![Figure 4: Meditation Level of Both Subjects](image)

In the figure 5, the attention levels of both subjects was calculated as running averages in the classroom lightning colors. The window sizes of the running averages were chosen 250.

![Figure 5: The Running Averages of Attention Level of Both Subjects](image)

In the figure 6, the meditation levels of both subjects was calculated as running averages in the classroom lightning colors. The window sizes of the running averages were chosen 250.
Figure 6: The Running Averages of Meditation Level of Both Subjects

In the figure 7, mean values in point by point were calculated of the sample counts of the running averages of attention and meditation levels of both subjects.

Figure 7: Averages of Attention and Meditation Levels of Both Subjects

The Figure 8 shows mean values of the attention levels of the both subjects through the lightning colors. This result shows that attention level of both subjects is higher in red lightning color of the classroom in compare with white and green colors.

Figure 8: Mean Attention Levels Through Lightning Colors
The Figure 9 shows mean values of the meditation levels of the both subjects through the lightning colors. This result shows that meditation level of both subjects is higher in green lightning color of the classroom in compare with white and red colors.

![Figure 9: Mean Meditation Levels Through Lightning Colors](image)

**DISCUSSION AND CONCLUSION**

This study shows that changing of attention and meditation levels are also depends on student personal characteristic. Because in figure 5 shows that attention level is higher in red lightning color for one subject, on the contrary the level is higher in white lightning color for the other subject. We can see like this situations for meditation levels when check the figure 6. For one subject meditation level higher in the red lightning color, but for the other subject meditation level higher in the green lightning color.

Each classroom lightning color effects student’s attention and meditation levels separately. In our study, green lightning color push up the meditation level of students, and red lightning color push up the attention level of students in total.

Optional lightning colors may be used instead of monotype lightning color in the educational buildings. Educators can select which lightning color is suitable for their learning activity.

**WJEIS’s Note:** This article was presented at 5th International Conference on New Trends in Education and Their Implications - ICONTE, 24-26 April, 2014, Antalya-Turkey and was selected for publication for Volume 4 Number 2 of WJEIS 2014 by WJEIS Scientific Committee.

**REFERENCES**


USE OF MOBILE TABLETS IN THE LEARNING ENVIRONMENT: 
PERSPECTIVE OF THE COMPUTER TEACHER CANDIDATES

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Abstract
With the evaluation and adaptability of next generation network environments on mobile devices, teaching and learning could be ubiquitous, location independent and personalized for mobile users. The rapid growth of such users will push educational institutions to rely on mobile technology in classroom activities. Mobile tablets are becoming popular in classrooms around the globe that many teachers see them as being a common accessory – as common as a pen or a pencil. Main purpose of the study is to investigate the opinions of computer teacher candidates to use of mobile tablets in the classroom. This study design as a qualitative research. Focus group interviews are used as data collection method. Data gathered as a result of the research is analyzed with descriptive analyses.

Key Words: Use mobile tablets in learning, Mobile technology, Mobile tablets in the learning environment.

INTRODUCTION
The next generation wireless network environments increasingly become integrated to support anywhere, anytime connectivity for various applications like multimedia, full-motion video and high data rates with appropriate quality of service (QoS). With the evaluation of next generation network environment, mobile learning through such environments proposes contemporary ways to support learning process over emerging mobile technology, such as mobile tablets, smartphones, personal digital assistants (PDAs), and much more. Thus, mobile learning allows students/teachers to access information and learning materials from anywhere and at anytime. Consequently, they have chance to control the time they want to learn and from which location they want to learn.

In addition, mobile technologies have introduced a new generation of educational tools that afford creative use and instant access to online resources in the learning environment. These issues will push educational institutions to rely on mobile technology in classroom activities. Mobile tablets are quickly becoming a popular and powerful educational tool for classrooms. One of the main benefits of mobile tablets is that they enable learning ubiquitous and location independent with a possible improvement in education efficiency and standards. The researches of numerous experiments with mobile tablets in learning environments have provided valuable data on the benefits of implementing such technology (Nagel, 2013); (Mehdipour and
The usage of mobile tablets in the learning environment can yield many benefits for students in terms of improving their motivation, collaboration, creativity and developing IT skills. The overall learning experience can be improved through audio/video mediums; hence the use of mobile tablets in such environment helps them to learn in an interactive way. Moreover, mobile tablets are rich in sources of audio/visual tools, such as charts, graphs and images. With these visual elements, learning experience becomes more engaging and fun for the students that ultimately promote them to learn and develop (Rossing, Miller, Cecil and Stamper, 2012).

On the other hand, teachers can also benefit from the technology such as in classroom management and organization, student evaluation, visual quality of teaching materials and finding a unique teaching approach with the use of mobile tablets in classrooms. As learning is no longer just a linear process but one in which all information is connected seamlessly and visually with mobile tablets, they enhance the way of processing and presenting information. In addition, they provide inexpensive opportunities like continuous and situated learning support, potentially a more rewarding learning experience, and improving students’ participation.

However, there are limited researches which are conducted on the acceptance of mobile tablets amongst teachers and are unsure of how to use them effectively. This is in fact a challenging issue why should technological innovations are accepted or rejected by its users.

**PURPOSE**

Main objective of this study is to analyse opinions of the 4th grade undergraduate students, whose studying Computer and Instructional Technology Teacher Education (CITE) program about the usage of Mobile tablets in the learning environment. Moreover, in this study, their opinions about the effect of using mobile tablets in learning environment (classroom) by teacher candidates on computer education are tried to analyse.

In order to achieve above mentioned general objective, below mentioned research questions are tried to resolve:

a. According to the opinions of the 4th grade undergraduate students, whose studying Computer and Instructional Technology Teacher Education (CITE) program, what are the advantages of using mobile tablets in the classroom?

b. According to the opinions of the 4th grade undergraduate students, whose studying Computer and Instructional Technology Teacher Education (CITE) program, what are the disadvantages of using mobile tablets in the classroom?

c. What are general opinions of the 4th grade undergraduate students, whose studying Computer and Instructional Technology Teacher Education (CITE) program, about using mobile tablets in the classroom?

**METHODOLOGY**

The study was prepared as a qualitative research. Data in the study has been acquired by the method of focus group interview. In focus group interviews, 4th grade students whose studying Computer and Instructional Technology Teacher Education (CITE) program at Eastern Mediterranean University during the academic year of 2012-2013. 14 Male, 5 Female students out of 19 have been participated in the study. Interviews with students were made in 4 different groups. Interviews were recorded with tape recorder and afterwards they were analysed by transferring to computer environment. Each opinion and thought acquired by working group was analysed by researchers. Findings obtained as a result of this study were analysed through descriptive analysis method.
FINDINGS

The obtained findings through the study are presented in the parallel of research questions.

a. The advantages of using mobile tablets in computer teaching class, according to the opinion of 4th grade students of Computer and Instructional Technology Teacher Education (CITE) program.

As a result of the interviews conducted, it is identified that they believe use of mobile tablets by students for computer teaching in the learning environment provides many advantages. During the interviews, it is observed that students highlight the enrichment of course in material point of view and the ease of doing joint activities. The topic related opinions of some students are given below:

"... Providing learning materials to students in the classroom will be easier. Each of us (students) will also be able to actively study to the related course materials outside of the course hours..."

"... Finding many materials on the Internet is easy; hence, it is possible to use these materials actively in the classroom in addition to the materials which are prepared by us. ...

"... Students can reach the course materials from anywhere and anytime...

"... As the mobile tablets can be carried easily, the communications of the students on the Internet will be easier... doing common activities together will become much easier ...

As it can be understood from the above statements, it is determined that, the teacher candidates think that teaching environment will be enriched and also the Internet will make a positive impact on this situation. And also, according to students’ feedbacks, it is observed that; when the flexibility provided to the students due the nature of mobile tablets is considered, they think the communication and joint studies/works will become easier in virtual environments. It can be said that, study findings support the work done by Daşdemir İ., Cengiz E., Uzoğlu M. and Bozdoğan A.E., (2012) and Pamuk, S., Çakır, R. Yılmaz H.B., Ergun M. and Ayas C. (2013).

b. The disadvantages of using mobile tablets in computer teaching class, according to the opinion of 4th grade students of Computer and Instructional Technology Teacher Education (CITE) program.

As a result of the interviews conducted, it is determined that; the teacher candidates think using mobile tablets in a learning environment will have some disadvantages in computer teaching. During interviews, it is identified that, the students think that the mobile tablets may cause especially dissolution of students’ attention during the class, occurrence of health problems and may affect their communication process. The topic related opinions of some students are given below:

"...Continuous use of mobile tablets in the classroom will prevent the course listening of students...

"... A student who is surfing the Internet with mobile tablet can get away from the subject which is explained in the class by visiting different web sites...

"...Continuous use of tablets may cause a number of problems especially in the eyes and hands of students...

"...The continuous communication of students that will be established with the use of mobile tablets will also affect the regular communication between them...

"...The students’ communication between themselves or faculty members (instructors) may be adversely affected...

From the statements above, it is understood that the teacher candidates think that using especially mobile tablets may cause dissolution of students’ attention in the classroom, occurrence of health problems in the eyes and hands of students, and adverse effect to their social communications (between themselves or their teachers). The cause of these negative thoughts can be that teacher candidates have not yet been started to use mobile tablets in learning environments at an adequate rate. Thus, using such applications by teacher candidates’ throughout their study will accelerate to find solutions to possible negatives during their professions. It can be said that, the study findings support the work done by Daşdemir et. al. (2012).
c. The general opinions of 4th grade students of Computer and Instructional Technology Teacher Education (CITE) program to use of mobile tablets in computer teaching/learning.

In the interviews conducted with students, it is identified that the general opinion of students on using mobile tablets in teaching is positive. It is determined that, with the use of mobile tablets, the students believe that there will be an increment in variety of teaching-learning methods and techniques, there will be improvements especially in the presented materials to students and also, an environment where today's students have easier access to their needs of qualifications will occur. The opinions of some students are given below:

"...I believe that, there will be courses that offer more flexible and broader course contents with the use of mobile tablets..."

"...both students and teachers will lead to process courses in different ways... In order to process courses with mobile tablets, the teachers will need to use different techniques..."

"...with this way, the expected numeric qualifications of today’s students can be reached more quickly ... all students can use internet and mobile technologies more effectively..."

"...the opportunity to reach a variety of materials will be given especially to the students... Students can follow all course materials from anywhere that they want...

"...if we would like to educate students for the world of tomorrow, we need to educate individuals who are extremely being dominant on today’s technologies and who can the technology effectively. Thus, the use of mobile tablet in the learning environments is very important.... I believe that, the internet and mobile technologies would have beneficial effects in learning process, especially in computer teaching...."

As it can be seen from the above opinions, the students have positive opinions on using mobile technologies (tablets) in the learning process. During interviews, it is observed that students think some problems may arise in the development of material which is especially compatible with mobile technologies. Regarding with this issue, one of the students stated the following expression:

"... The materials that are used in lectures will become more compatible with mobile technologies. This will force especially the material production. But; after a period of time, it can represent many materials to students...."

As it can be understood from the above expressions, it is observed that students think some problems may occur especially in the development of material. It is thought that the designated subject by students is extremely appropriate. It is thought that, material development (especially compatible with mobile technologies) is one of the extremely sensitive steps which is needed to focus on and to be planned at the first place for effectiveness of the learning environments.

CONCLUSION

In recent years, it is seen that interest towards mobile tablets are increasing both in our country and all around the world. In this sense, it is inevitable to experience the penetration of this kind of Technologies into the learning/teaching environment. In particular, in terms of frequent usage of mobile tablets in the environment of learning/teaching, it is believed that receiving opinion of teachers who are one of important actors of learning environment and candidate teachers who are expected to use this Technologies effectively is extremely important.

In this study, opinions of 4th grade students, whose studying Computer and Instructional Technology Teacher Education (CITE) program, about using mobile tablets in the learning environment have been analysed. Opinions of the students about usage of mobile tablets within learning environment have been assessed as an advantage, disadvantage and general opinions. As a result of the study, it was determined that students consider the advantages of using mobile tablets within learning environment as enriching lesson in terms of material and facilitating execution of common lessons. According to the students, disadvantages to be created by using mobile tablets within learning environment are distracting students in the course of lesson due to the usage of mobile tablets and causing health problems and affecting communication processes. As a result of the study, it was determined that general opinions of students related to usage of mobile tables are generally
positive. It was detected that according to the students’ belief, varieties of learning-teaching method and techniques will increase by means of mobile tablets, material submitted to the students will especially improve and an environment will be established in which the sufficiency required by present necessities of students will be easily achieved.

This study was planned as a qualitative research. It is believed that similar studies and testing bigger participant groups experimentally will set light to determine possible problems in this kind of new applications in advance and constitute more efficient applications by resolving problems.

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**REFERENCES**


AN INVESTIGATION OF THE SPACE-TIME RELATIONS SKILL AT ELEMENTARY EDUCATION

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Abstract
The aim of this study is to investigate elementary school students’ space and time relations skill. The data for this descriptive study were collected in the spring semester of 2013-14 academic years. The sample was consisted of 557 students attending the same primary and middle school in Nigde, Turkey. In order to determine students’ use of space-time relations skills, a worksheet with two tasks was utilized. Students were asked to picture a hill covered with some trees (comprehension of three-dimensional space), and a transparent pitcher used to water a pot plant (comprehension of reference frame). Document analysis was used to classify student pictures into comprehension and incomprehension. According to the results, although the number of students who could comprehend both tasks was very low, the number of students who could comprehend either three-dimensional space or reference frame increased as the grade arose.

Key Words: Space-time relations, space concept, elementary education, Turkey.

INTRODUCTION
Students’ developmental characteristics especially those in cognition give information to teachers on providing an effective teaching and learning environment.

Cognitive development is the advancement in thinking and comprehension systems. Piaget divides cognitive development into sensory-motor (0-2 years), preoperational (2-7 years), concrete operations (7-12 years), and abstract operations (12 years and more) stages. The features of concrete operations are important for science education since the students are in this stage at grade 4 and 5 where science is first taught.
Cognitive development is also important for acquisition of science process skills, which are the abilities, and thinking processes used when investigating the nature and natural phenomena and producing scientific information. In this way, a child who is in concrete operations can establish cause and effect relations and make classification. Similarly, a child who is in abstract operations can make inference, hypothesize, and determine variables. In other words, the individual can reach the solution in a systematic way (Hazır & Türkmen, 2008).

Space and time relations are one of basic (simpler) skills. While numerical relationships are activities that require counting and arithmetic; the concept of space is related to how close or far the objects together in space, and form a basis of understanding of space.

Space-time relations skill forms a basis for understanding other basic process skills. Space-time relations skill, which is related to how children comprehend their physical world and how children mention the world, has directed the context of this study to itself.

Using space and time relations, which is to mention about the place and three-dimensional shape of objects, helps us to define our physical environment.

Comprehension of space-time relations:
“is a process to comprehend the relations between place and time of objects, facts, and events, and to determine them appropriately by using place and time adverbs, and to comprehend them in this kind of verbal and written statements.” (Çilenti, as cited in Erbaş, Şimşek, & Çınar, 2005).

From a Piagetian viewpoint, these two processes appear in children. Science experiences are important in developing these processes. When these processes are improved, they help to understand other processes. When learning space related processes, students start to explain objects according to plane and three-dimensional shapes. Hardness and smoothness are helpful for comparative and definitive purposes (Turgut, Baker, Cunningham, & Piburn, 1997, p. 10.4).

Comprehending space and time relations is a requisite because with the skills developed with this process, to be able to explain physical world becomes possible. The questions that are related to this process include the following questions: In which shape, there are two symmetrical line or axis? How can you transform a two-dimensional shape into a three-dimensional one? How many edges a square have? How can you define the shape of a solid object by looking at its’ shade? How many seed can you find in this fruit? What is the approximate height for all baby plants? (Turgut, et al., 1997, p. 10.4).

The aim of this study was determined as “the investigation of the use of space and time relations skills of primary school students’ according to their grade levels”.

Cognitive Development
Piaget and his colleagues studied cognitive development of child from birth to adolescense and deetermined that some concepts and perceptions are acquired starteing from birth.

Cognition is the mental activities that include learning and understanding about the world and covers perception, memory, reasoning, thinking, comprehension processes (Yavuzer, as cited in Çukur & Delice, 2011). Cognitive development according to Piaget is emerging in four consecutive periods:

1. Sensorimotor Stage (0-2 years old): Infant interact with the outside world through sensory and motor activities by interacting, and has various reflexes (the most important ones are to absorb and capture). When the baby is eight to 2 months, the understanding of object persistence begin to develop. Between 12 and 18 months, the baby shows effectively making the research and experimentation; between 18 to 24 months, the baby shows signs of simple thinking are observed (Yavuzer, as cited in Çukur & Delice, 2011). Imitation, memory, and using thinking is just beginning.
2. Preoperational stage (2-7 years old): At this stage, children are capable of language and symbolic thought. Completely self-centered mindset is dominant. Children believe that their opinion is the only one; are not able to understand about other perspectives. Logical thinking process has not yet developed. Therefore, children are under the influence of images of objects. Yet cognitive structures have not reached to comprehend conservation.

Conservation is the principle that quantity, weight and volume of an object will not change when its shape and position have changed (Erden and Akman, as cited in Çukur & Delice, 2011).

At this stage, a large portion of children perceive generally without considering the details and integrate unrelated objects and concepts (Yavuzer, as cited in Çukur & Delice, 2011).

Children can not consider the part with its whole at the same time and can not make mental comparison yet. They can classify matters with their unique and prominent features. And they can not comprehend abstract concepts towards the end of the period, self-centered thinking Gradually decreases and begin to leave its place to logical thinking. Therefore, this step is the preparation phase for concrete operations (Yavuzer, as cited in Çukur & Delice, 2011).

3. Concrete operational stage) (7-12 years old): At this period, logical thinking and number, time, space, size, volume, distance concepts begin to establish; conservation is comprehended; the abilities of grouping, such as classification and of sorting, and of organizing and developing a system nurture (Yavuzer, as cited in Çukur & Delice, 2011).

Thus, the first and last childhood periods show great differences in terms of mind and language development. For example, for a five-year-old child, a ball is for play and she thinks about the ball only in a functional sense. toward eight year, child defines the ball with its shape, size, material and color (Yavuzer, as cited in Çukur & Delice, 2011).

Accordingly, pre-school child perceives a complex shape especially as a whole. She does not pay attention to details. After six years, she pays attention to details. In later periods, child turns into a complementary perception In this case, child can start to perceive whole, parts, and relations of parts with each other and relationship of parts with whole at the same time (Mangır & Çağatay, as cited in Çukur & Delice, 2011).

Development of Space Concept

Since Piaget has tried to answer “what is knowledge?” with the question of “how knowledge is obtained?” (Akarsu, 1984), and the concept of time is similar to spatial concept and coincides with general principles (Akarsu, 1984), only development of space relations will be explained in this section.

Development according to Piaget is not an accumulation of acquisitions. Development is a gradual formation of behaviours: Instinct is used by newborn, schemas cause regular and formal actions, and these concrete and active actions over time leads to abstract actions in other words operational thinking (Akarsu, 1984).

Four main periods in the development of mind are named as sensorimotor (0-2 years), preoperational (2-6 years), concrete operations (6-12 years), and formal operations (12 + years). Senses, perception and intuition dominate the first two periods whereas the child, who interacts with situational stimuli, shows the ability to think by gaining a relative autonomy and independence in the last two periods. In other words, the child, who can think operational, can reveal her behaviours mentally without the requirement of concrete, sensory, emotional actions (Akarsu, 1984).

According to Piaget, to have knowledge of an object, if it means to reconstruct that object, this knowledge must have both formal (figurative) and operational (operative) aspects. Formal aspect is related to touching or seeing, perceive with the senses. Operational aspect is related to actions or processes taken on the object in order to recreate the object so as to allow for the necessary transformations. Here, whatever the mental level
is, there is a distinction between perception and intelligence. The same distinction is reflected on the issue of
space as perceptual and mental space (Akarsu, 1984).

The concept of spatial perception as opposed to the concept of space always preserves its relative nature and
because it lacks reverse - convertibility feature that not found in perceptual structures cannot be purified from
certain systematic distortions. Mental space includes the steps of sensorimotor space and reanimated space in
a way to coincide with pre and post operational thinking (Akarsu, 1984).

Understanding of sensorimotor space seen in the first two years of the child is one of the most important
mental acquisitions of that period. In addition to the perception of space, this concept of space that
experienced practically, organised, and balanced at the action or behaviour level has not reached the stage of
revitalisation yet. Representational space concept begins approximately at two years and enters a competent
manner as late as at twelve years of age when concrete operational phase where operational thinking takes a
part. Re-enactment is not to remember the spatial action but is a symbolic and internalized action. In other
words, visualisation is to create and reproduce. As it seen, to pass from sensorimotor space to operational
space is a long, slow-moving and becoming abstract from action to operation (Akarsu, 1984).

The first of these is metric (or Euclidian) space relations, which are basically based on the notion of distance,
and in which the equivalence figures are related to mathematical equality. In contrast, straight line forms the
basis of projective space relations in the second type. Perspective view or the conversions (probability)
provides the similarity of shapes. Topologic space in the third type is based on qualitative relationships
(phenomenology, disconnection, circumscription, etc.) that exist entirely within a particular form (Akarsu, 1984).
When it comes to topological space, the initial perceptions and the real, concrete actions of child on objects, ie,
to play with items and objects, form a springboard used in revitalization of the intuitive space in a structured,
systematic and regular way. These topological perceptions include the relations of proximity, discontinuity,
sequence-order (or spatial adjacency), circumscription, and continuity (Holloway, as cited in Akarsu, 1984).
Codification of this type of perceptions and revitalizations determine the size of intuitive perception until the
age of seven. However, after this period a new system is being entered with the possibility to turn into
internalized and reversible processes. This system includes disassembly (partition), pick up the pieces (partitive
addition), linear or cyclical alignment, reciprocity of neighbourhood areas, symmetrical relationships, and all
members or relations (Akarsu, 1984).

In addition to the topological characteristics of the space, place of the objects or elements of objects in
projective objects should be determined in the context of relationships with others and in a certain
perspective. Development of projective space concept, too, can be summarized in the three general stages just
as topological space concept: Perceptual activities that initially completely sensorimotor with revitalizations
despite the distortions caused by variability of perspective and distance with acquisitions of invariance of shape
and size ultimately achieve competency in coordination of perspectives and reversibility of viewpoint (Akarsu,
1984).

Already existing topological operations enriches by the addition of perspective transactions and install new
meanings. For example, the introduction of perspective causes linear sequencing to turn into the concept of
arrangement comprised of segments (straight like projections). A similar conversion can also be observed
in the transition from the reciprocity of neighbour areas to reciprocity of neighbour perspectives (Akarsu,
1984).

Euclidean space stems from a topological space and develops in parallel to projective space. Projective space is
limited with the integration of different perspectives belong to an object. In Euclid place, the places of objects
or the coordinates of relations between objects must be determined in a general frame of reference, which
need the positions of surface area and distance, or according to a constant Cartesian (X-Y) reference system
(Akarsu, 1984).

Conservation means surface area or distance do not change even if the viewpoint or relationships with other
shapes changes, and quantity dimension is retained against perceptual distortions (Akarsu, 1984).
Conservation, which is one of the skills in the stage of concrete operations, is an indication of the operational thinking at the same time. Acquisition of conservation that related to surface areas and length is possible only when the perspectives are symmetric or reciprocity can be seen (Akarsu, 1984).

For these reasons, projective and Euclidean spaces show a parallel conceptual development. Relationships belonging to Euclidean spaces that intuitively started to be internalized and coordinated in pre-operational stage reaches only in real terms to a metric and quantifiable (i.e. measurable) space concept in the stage of concrete where first conservations (surface, distance, etc.) emerge (Akarsu, 1984).

To summarize, three important additives in connection with the development of spatial concepts brought by Piaget (Flavell, as cited in Akarsu, 1984) are: (1) as can be seen in achieving other concepts, child's actions by interacting with the environment, turned into first kinaesthetic movements, and later internalized actions and eventually procedural actions. There is action on the basis of the concepts. (2) contrary to common belief, spatial concepts do not only occur at the level of perception, though space is seen as data already exists in life concept is gained by mental evolution. (3) Piaget's main hypothesis about space can be summarized as: concept of space in child in contrast to historical development follows a logical development. First topological relations, than correspondingly relationships that projective and regarding Euclidean space emerge (Akarsu, 1984).

METHODOLOGY

Research Design
The research is a descriptive study and survey model was used in this study.

Population and Sample
Children, who are five to 13 years-old and are attending to a primary and middle school from grade one to six, in Niğde city constitute the population of this study. There are 20 primary schools and 14 middle schools in the city. Due to recent schooling reform only four schools from each category have students at all grade levels. The accessible population therefore was limited to only one of these four schools. This school was also preferred for having the biggest student population. When selecting the sample, the criteria was to get at least half of the branches. This sampling method was broken only for the sixth grade when the students were taking an elective course out of their classroom (There are some elective courses offered to the sixth graders. And as the teachers told us many students do not attend these courses).

This study was conducted in 23 Nisan Havacılar Primary and Middle School on the spring semester of 2013-14 academic year. Table 1 shows the population and sample of the study.

Table 1: The distribution of the students according to grade levels

<table>
<thead>
<tr>
<th>Grades</th>
<th>Branches</th>
<th>Branches in Sample</th>
<th>Number of students in sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 1</td>
<td>A, B, C, D, E</td>
<td>A, C, D</td>
<td>102</td>
</tr>
<tr>
<td>Grade 2</td>
<td>A, B, C, D, E, F, G, H</td>
<td>A, D, E, F</td>
<td>113</td>
</tr>
<tr>
<td>Grade 3</td>
<td>A, B, C, D</td>
<td>C, D</td>
<td>63</td>
</tr>
<tr>
<td>Grade 4</td>
<td>A, B, C, D</td>
<td>A, B</td>
<td>75</td>
</tr>
<tr>
<td>Grade 5</td>
<td>A, B, C, D, E, F, G</td>
<td>B, C, D</td>
<td>91</td>
</tr>
<tr>
<td>Grade 6</td>
<td>A, B, C, D, E, F, G, H</td>
<td>A, B, C, D, E, F, G</td>
<td>113</td>
</tr>
</tbody>
</table>
Instrument
In order to determine students’ use of space-time relations skills, a worksheet, where there were two tasks, was utilized. Students were asked to picture a hill covered with some trees (comprehension of three dimensional space), and a transparent pitcher used to water a pot plant (comprehension of reference frame). The tasks were selected from the activities suggested by Kaptan (1999, p. 78-88). There were 19 activities related to children’s developmental characteristics: Four activities are on ordering; four activities are on classification; three activities are on conservation of length, volume and mass; one activity is on comprehension of two dimensional space; one activity is on three dimensional space, one activity is on comprehension of reference frame; one activity is on comprehension of the location of three-dimensional objects, one activity is on repetition of unit element; one activity is on equivalence of two forces; one activity is on balancing gravity; and one activity is on floating rule.

From these activities, two activities related to comprehension of three-dimensional space and reference frame were selected because Erbaş, Şimşek, & Çınar (2005) thought that they measure space-time relations.

After getting the permissions of school authorities (administrators and teachers) the data were gathered from the students when they were at the class. When collecting the data from a class, the class or course teachers were also present.

Pilot Study
The worksheet was piloted in the fall semester of 2011-12 academic years. The pilot sample was consisted of 88 students from second grade to fourth grade attending the afternoon session in one of the four schools explained earlier.

Students were asked to picture a hill covered with some trees (comprehension of three dimensional space), and a transparent pitcher used to water a pot plant (comprehension of reference frame).

Document analysis was used to classify student pictures into comprehension (Picture 1) and incomprehension (Picture 2). If the task was not understood or not classified easily the picture was categorized as ambiguous (Picture 3).

Table 2: The distribution of the students according to grade levels during pilot phase

<table>
<thead>
<tr>
<th>Grade</th>
<th>Number of students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Second grade</td>
<td>31</td>
</tr>
<tr>
<td>Third grade</td>
<td>29</td>
</tr>
<tr>
<td>Fourth grade</td>
<td>28</td>
</tr>
</tbody>
</table>

Data Analysis
Document analysis was used to classify student pictures into comprehension (Picture 1) and incomprehension (Picture 2). If the task was not understood or not classified easily the picture was categorized as ambiguous (Picture 3).
Picture 1. One Student’s Drawing of Reference Frame Task Classified in Comprehension Category

Picture 2: One Student’s Drawing of Three-Dimensional Space Task Classified in Incomprehension Category
During data analysis, first the researchers were classified the pictures according to their perceptions. Then all of them were started to rate the pictures together. Consensus was sought for task categories. By this way, evidence for the validity of the data analysis was supported.

**FINDINGS**

**Students’ Performances on Three Dimensional Space Task**

The result of the first space-time relations task is given in this section. When students’ drawings of trees on the hills were analysed as in Table 3, it was found that while some of the students (19 %) correctly drew the trees on a hill (and were classified in comprehension category), most of the students (68 %) could not draw correctly and were grouped in incomprehension class. There were also some ambiguous drawings (13 %).

<table>
<thead>
<tr>
<th>Grade</th>
<th>Comprehension</th>
<th>Incomprehension</th>
<th>Ambiguous</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td>10 (10)</td>
<td>76 (74)</td>
<td>16 (16)</td>
<td>102</td>
</tr>
<tr>
<td>Second</td>
<td>12 (11)</td>
<td>100 (88)</td>
<td>1 (1)</td>
<td>113</td>
</tr>
<tr>
<td>Third</td>
<td>13 (21)</td>
<td>49 (78)</td>
<td>1 (1)</td>
<td>63</td>
</tr>
<tr>
<td>Fourth</td>
<td>10 (13)</td>
<td>53 (71)</td>
<td>12 (16)</td>
<td>75</td>
</tr>
<tr>
<td>Fifth</td>
<td>22 (24)</td>
<td>43 (47)</td>
<td>26 (29)</td>
<td>91</td>
</tr>
<tr>
<td>Sixth</td>
<td>39 (34)</td>
<td>55 (49)</td>
<td>19 (17)</td>
<td>113</td>
</tr>
<tr>
<td>Total</td>
<td>106 (19)</td>
<td>376 (68)</td>
<td>75 (13)</td>
<td>557</td>
</tr>
</tbody>
</table>
Table 4 shows the number and percentages of the students who understood the task. According to this table, students’ comprehension level raised as the grade level increased: if we consider school level, students in primary school had lower comprehension (from 11 % to 21 %) than those in secondary school (from 34 % to 41 %). On the contrary, students’ incomprehension level decreased as the grade level increased. In terms of school level, incomprehension was higher in primary school (from 79 % to 89 %) than that in secondary school (from 59 % to 66 %).

Table 4: Students’ comprehension of three-dimensional space

<table>
<thead>
<tr>
<th>Grade</th>
<th>Comprehension</th>
<th>Incomprehension</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td>10 (12)</td>
<td>76 (88)</td>
<td>86</td>
</tr>
<tr>
<td>Second</td>
<td>12 (11)</td>
<td>100 (89)</td>
<td>112</td>
</tr>
<tr>
<td>Third</td>
<td>13 (21)</td>
<td>49 (79)</td>
<td>62</td>
</tr>
<tr>
<td>Fourth</td>
<td>10 (16)</td>
<td>53 (84)</td>
<td>63</td>
</tr>
<tr>
<td>Fifth</td>
<td>22 (34)</td>
<td>43 (66)</td>
<td>65</td>
</tr>
<tr>
<td>Sixth</td>
<td>39 (41)</td>
<td>55 (59)</td>
<td>94</td>
</tr>
<tr>
<td>Total</td>
<td>106 (22)</td>
<td>376 (77)</td>
<td>482</td>
</tr>
</tbody>
</table>

Students’ Performances on Reference Frame Task

The result of the second space-time relations task is given in this section. When students’ drawings of water in a pitcher (reference frame) were analysed as in Table 5, it was found that while some of the students (33 %) correctly drew the position of water in a pitcher (and were classified in comprehension group), some (12 %) did not have a comprehension (incomprehension) but more than half of the students (55 %) could not draw accordingly to this task.

When compared to the first task, we can say that students could not understand and draw according to this task (ambiguous rate was 13 % in the first task and 55 % in this task).

Table 5: Students’ performances on reference frame task

<table>
<thead>
<tr>
<th>Grade</th>
<th>Comprehension</th>
<th>Incomprehension</th>
<th>Ambiguous</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td>7 (7)</td>
<td>2 (2)</td>
<td>93 (91)</td>
<td>102</td>
</tr>
<tr>
<td>Second</td>
<td>41 (36)</td>
<td>10 (9)</td>
<td>62 (55)</td>
<td>113</td>
</tr>
<tr>
<td>Third</td>
<td>14 (22)</td>
<td>12 (19)</td>
<td>37 (59)</td>
<td>63</td>
</tr>
<tr>
<td>Fourth</td>
<td>8 (11)</td>
<td>11 (15)</td>
<td>56 (74)</td>
<td>75</td>
</tr>
<tr>
<td>Fifth</td>
<td>44 (48)</td>
<td>23 (25)</td>
<td>24 (27)</td>
<td>91</td>
</tr>
<tr>
<td>Sixth</td>
<td>71 (63)</td>
<td>11 (10)</td>
<td>31 (27)</td>
<td>113</td>
</tr>
<tr>
<td>Total</td>
<td>185 (33)</td>
<td>69 (12)</td>
<td>303 (55)</td>
<td>557</td>
</tr>
</tbody>
</table>

Table 6 shows the number and percentages of the students who understood the task. According to this table, students’ comprehension decreases from first grade (78 %) to fourth grade (42 %) but then it raised from fifth (66 %) grade to sixth grade (87 %).

On the other hand, if we consider this situation at school level, students in primary school had lower comprehension (from 42 % to 80 %) than those in secondary school (from 66 % to 87 %).

Students’ incomprehension level decreased as the grade level lowered. In terms of school level, incomprehension was higher in primary school (from 20 % to 58 %) than that in secondary school (from 13 % to 34 %).
Table 6: Students’ comprehension of reference frame

<table>
<thead>
<tr>
<th>Grade</th>
<th>Comprehension</th>
<th>Incomprehension</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td>7 (78)</td>
<td>2 (22)</td>
<td>9</td>
</tr>
<tr>
<td>Second</td>
<td>41 (80)</td>
<td>10 (20)</td>
<td>51</td>
</tr>
<tr>
<td>Third</td>
<td>14 (54)</td>
<td>12 (46)</td>
<td>26</td>
</tr>
<tr>
<td>Fourth</td>
<td>8 (42)</td>
<td>11 (58)</td>
<td>19</td>
</tr>
<tr>
<td>Fifth</td>
<td>44 (66)</td>
<td>23 (34)</td>
<td>67</td>
</tr>
<tr>
<td>Sixth</td>
<td>71 (87)</td>
<td>11 (13)</td>
<td>82</td>
</tr>
<tr>
<td>Total</td>
<td>185 (73)</td>
<td>69 (27)</td>
<td>254</td>
</tr>
</tbody>
</table>

Students’ Performances on Both Tasks
The result of students’ performances on both tasks is given in this section. When students’ drawings of both tasks were analysed as in Table 7, it was found that at middle school level the percentages of the students who are successful in both tasks are considerably high (31 % at fifth grade and 43 % at sixth grade) when compared to primary school level (0 % at first grade, 18 % at second grade, 23 % at third grade, and 7 % at fourth grade).

Table 7: Students’ performances on both tasks

<table>
<thead>
<tr>
<th>Grade</th>
<th>Comprehension</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td>0 (0)</td>
<td>8</td>
</tr>
<tr>
<td>Second</td>
<td>9 (18)</td>
<td>50</td>
</tr>
<tr>
<td>Third</td>
<td>6 (23)</td>
<td>26</td>
</tr>
<tr>
<td>Fourth</td>
<td>1 (7)</td>
<td>14</td>
</tr>
<tr>
<td>Fifth</td>
<td>15 (31)</td>
<td>49</td>
</tr>
<tr>
<td>Sixth</td>
<td>30 (43)</td>
<td>69</td>
</tr>
<tr>
<td>Total</td>
<td>61 (28)</td>
<td>216</td>
</tr>
</tbody>
</table>

DISCUSSION AND RESULT
Primary and secondary school students’ performances of space-time relations were investigated in this study. Students were found to be more successful at the second task (comprehension of reference frame) when compared to the first task (comprehension of three-dimensional space).

Although the frequency of ambiguous answers were high in the reference frame task (27-91 %) compared to three-dimensional space task (1-29 %), the students, who could understand the instructions, did draw more correct pictures on reference frame (42-87 %).

Though the frequency of ambiguous answers (1-29 %) was lower in three-dimensional space task, the students, who could follow the instructions, were incorrect in their drawings (47-88 %).

The difference between the frequencies of ambiguous answers on each task can be a result of perceived difficulty. Students might find the reference frame task more difficult than three-dimensional space task and drew pictures inconsistent with the instructions.

When students’ grade (and their age) level is considered, comprehension of three-dimensional space and reference frame tasks increases with grade. This may be a result of cognitive development that allows these students to acquire space concepts.

Students’ performances on both tasks show an improvement with grade too. Especially in middle school grades, students were more successful (31-43 %) in comparison to primary school level (0-23 %).
When students’ performances on both tasks were considered, the second and third graders are more successful than their counterparts at primary school. This could be a result of the curriculum given in these levels. Although there are no science courses at these grades, the school curriculum might have related objectives that are facilitating students’ comprehension of space concepts. As we know there specific objectives in primary mathematics (solid objects). To describe space is one of the objectives of geometry learning area (MEB, 2009b).

Moreover life sciences courses for grade one to three also assist self-management skills of student (one of these skills is correct perception of time and space). Life sciences program also aims the ability of identifying basic concepts of science (change and conservation are among these skills). Time is a concept in Past, Today, and Tomorrow theme in life sciences course (MEB, 2009b).

Children when experiencing the nature through their curiosity can acquire many concepts and learn their cognitive skills (Taştepe & Temel, 2013). From this point, acquisition of space concepts develops in direct proportion to cognitive development.

As in early childhood education (Taştepe & Temel, 2013), elementary education should provide children with acquisition of concepts by offering natural, informal and structured learning experiences.

Educational programs should have some standards appropriate to child’s learning and readiness. And the content should be developed in line with these standards so that child’s cognition is supported (Taştepe & Temel, 2013).

The objectives of an educational course program should be in congruent within itself (internal congruency) and with the other course programs (external congruency). Thus students’ readiness on space concepts at for example at second or third grade where there is no science course can be supported at the later grades.

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**REFERENCES**


SOME ASPECTS OF ORGANIZATION OF E-LEARNING COURSES

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Abstract
It is very important for modern universities to combine of electronic and distance learning with the traditional methods of teaching. Effective electronic teaching relies on well organized learning courses. From this point of view, the innovative possibility implemented in CMS Moodle, i.e. connecting of learning activities in the electronic course with certain conditions of completion is very promising. Issues of using of this innovation of CMS Moodle in electronic learning courses are discussed in this article. Implementation of this innovation gives possibility to enhance quality of adapting of electronic courses for each student, practically without involvement from teacher’s side. On the basis of the model which is built by using new functional possibility was developed E-learning course “Fundamentals of Operating Systems”.

Key Words: E-learning course model, learning activities, activity completion condition, restrict access.

INTRODUCTION

E-learning course is a structured material in relation to some theme. It is designed for accomplishing some predefined teaching tasks. A lot of universities across the world are successfully using course management system CMS Moodle (Zhvania, 2012) for organizing of electronic courses and other teaching activities in the web space.

In qualitative electronic courses it is necessary to take into account requirements of the university teaching process management as well as technical and functional demands from CMS Moodle. Qualitative teaching courses must meet the following requirements:

- **Access** - easy navigation in teaching components and their use from any remote point;
- **Adaptiveness** - adaptation of learning courses (weekly, thematic, social format) with university teaching process and student’s individual demands;
- **Effectiveness** - placing different teaching materials in the uniform system, recourse access simplicity and diversity, placing of teaching materials on high performance servers in order to reduce delivery time and expenses;
• **Duration of use** - e-learning course content is based on the newest information about the sphere. Generally, the information is given in different formats. In e-learning course should be possible to place teaching recourses of different formats without creation and use of additional and expensive program modules. At the same time, in case of content modification, correspondence to new technologies must be provided in easy way.

• **Independence from a platform** - the use of teaching material should not depend on the platform it was created on or the one the material is accessed from. A Student should be able to access an e-learning course or its learning resources from any operating system (Windows, Linux, Android, IOS, Unix, etc.) and computer hardware (PC, tablet, Smartphone, etc.)

• **Multiple use** - the teaching material should be usable in different environments (software) and contexts.

**ELEMENTS OF COMMON MODEL OF E-LEARNING COURSE**

In case of e-learning which as usually is carried out in a distance form, traditional methodological and technological structure has different form. In the e-learning course theme/module is the main organizational and informational component. Each theme/module of the e-learning course’s conceptual model, constructed by us, consists of the following elements (activities, recourses):

• **Lecture materials** - different (text, graphic, multimedia) resources can be used as a lecture material. These resources can be connected to each other consistently, hierarchically and in other nonlinear form. CMS Moodle allows an easy creation of hyperlinks to web sites, presentations, video lectures, different materials and content;

• **Laboratory/practical works** - teaching recourses (text, screencast and other multimedia material) necessary for execution of appropriate practical work of theme of lecture;

• **Assignments** - gives possibility to course creator to give students home works (laboratory, course work, etc.) of different types and set time period for making them. The instructor assesses the assignment, it should be entered manually in the CMS Moodle evaluation section.

• **Pretest** - gives possibility to define knowledge level of student at the moment of pretest carrying out in order to estimate knowledge progress of student in the future.

• **Lecture (theoretical) material knowledge control** - gives possibility to define student’s readiness for permission to other activities of current week;

• **Self-checking quiz** - gives possibility to student to estimate/diagnose obtained knowledge and improve it by taking into account quiz results.

• **Tests** - Generally, university learning process management envisages weekly, intermediate and final estimation of the students’ knowledge. In electronic courses, academic progress estimation is carried out by means of testing.

• **Glossary, Wiki, chat, forum** - means of interaction among students and lecturers, well organizing of these activities is possible by using of CMS Moodle. It is also possible to stage video conferences and web-seminars and integrate them in the e-learning courses.

In the early versions of CMS Moodle, access mode for specific recourses or activities was defined by course developer according to the identical rules, for example, by indicating the access period, using of passwords, etc. Such rules required permanent involvement of the teacher in learning process.

Beginning from the Moodle 2.4 version, it is possible to link e-learning course activities to some completion condition (Kapanadze , Zhvania & Todua, 2013). For this purpose, in course parameters section is added new possibility - restrict access. In early versions of Moodle, it was allowed limiting access to an activity by its opening/closing date, password, address for permission in the network and by delay between attempts. Panel for addition of new limitations is shown on figure 1.
Figure 1: Panel for Addition of New Limitations

Access to the activities of the learning course can be obtained by the following parameters:

**Access from/to** - Access from/to dates determine when students can access the activity via a link on the course page. The difference between access from/to dates and availability settings for the activity is that outside the set dates, access from/to prevents access completely, while availability allows students to view the activity description.

**Grade condition** - This setting determines any grade conditions which must be met in order to access the activity. Multiple grade conditions may be set if desired. If so, the activity will only allow access when ALL grade conditions are met.

**User field** - You can restrict access based on any field from the users profile.

**Activity completion condition** - This setting determines any activity completion conditions which must be met in order to access the activity. Note that completion tracking must first be set before an activity completion condition can be set. Multiple activity completion conditions may be set if desired. If so, access to the activity will only be permitted when ALL activity completion conditions are met.

Using new possibilities of restricted access to the activity, CMS Moodle learning course does not contain separate, independent components; its elements are interconnected and the learning course is adapted with the activity results of each student.

Connecting activities by some completion condition in electronic courses minimizes course author’s involvement necessity in teaching process. For this it is necessary that course developer developed such model of the course in which course activities and interrelation algorithm will be defined in advance.

**MODEL OF E-LEARNING COURSE “FUNDAMENTALS OF OPERATING SYSTEMS”**

“Fundamentals of Operating Systems” e-learning course was developed by means of the above described elements and new possibilities of Moodle. According to the subject syllabus, the course content is divided into 21 weeks, 15 weeks out of which are assigned for learning, 2 weeks are assigned for intermediate tests, and the remaining weeks - for final and additional exams. Estimation of Student’s learning activities is carried out in each learning week. In our learning course model, student activity during each week is estimated by 2 points. You can see the content of “Fundamentals of Operating Systems” e-learning course and the planned different activities at the address: [http://testing.gtu.ge/course/view.php?id=73](http://testing.gtu.ge/course/view.php?id=73).
Conceptual model of E-learning course “Fundamentals of Operating Systems” for each learning week is shown on the figure 2:

![Diagram](image)

**Figure 2**: Conceptual model of e-learning course “Fundamentals of Operating Systems” for each learning week
As you can see in the model, first of all, a student takes the pretest to check the initial level of knowledge. The pretest is obligatory for the assessment of progress. Transition to the next activity (lecture material) of the learning course does not depend on the pretest grade. The student’s level of knowledge is checked after familiarization and learning the lecture materials. The knowledge is assessed by means of a quiz. If a student’s grade is more than 50% of the maximum appraisal, the student gains permission to the next learning activities, particularly to the laboratory (practical) works. In case of desire student can read the additional material. Student has three attempts for passing this quiz. In case of the negative result the student can not accomplish the current week activities and the week appraisal will be zero.

On the grounds of the specifics of a learning course, files (screening) of laboratory (practical) works are created in CamStudio. Additional material makes it possible for the students to improve their knowledge of the lecture and practical issues.

In the developed model, a test or an assignment is used for estimation of the student in a given week. Before the test, student will have to check his/her knowledge by using the self-checking quiz. It should be noted that this quiz envisages feedback. After completion of the quiz, student can see mistakes (if any), the right answers and proceeding from the results of quiz, the professor’s recommendations prepared in advance. The student can make two attempts at the self-checking quiz. In order that the student could take the weekly estimation test or receive/perform the assignment, he/she has to pass the self-checking quiz at least once. It should be also noted that permission to the weekly estimation test does not depend on the result of the self-checking quiz. If student’s grade in test (assignment) is less than 50% of maximum estimation, it means that student could not overcome the minimal competence limit and his/her estimation in current week will be equal to zero.

According to the course syllabus, there are considered two midterm estimations and final exam, in case of necessity - additional exam. In the e-learning course we developed, each component is estimated by electronic testing. It should be noted that this type of e-courses have two purposes: On the one hand, such e-courses are not targeted to replace existing lectures, practical works and laboratories, they are peculiar filling for them. E-courses help students to master the lecture materials. Also, they consist of such themes that the lecturer failed to discuss during lectures and laboratory works because of the lack of time. On the other hand, students that cannot attend the university classes are given an opportunity to learn at any time from any place of the world. They can learn lecture materials, perform necessary activities and receive weekly estimations. The student takes the midterm and final exams in the university examination center which is equipped by special technical means (cameras, computers, etc.). Access to the midterm and final exam tests is possible only from the computers’ IP address of the center.

E-learning course organized by the above-mentioned innovative means, makes more effective teaching process. Such course does not contain separate, independent components, its elements are interconnected and it is adapted to the activity results of each student, which minimizes the course teacher’s involvement in the instruction and makes it more effective.

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**REFERENCES**


http://testing.gtu.ge/course/view.php?id=73.
THE RELATIONSHIP BETWEEN IRANIAN EFL LEARNERS’ COMPUTER BASED MATERIALS’ (CBMs) PREFERENCES IN SELF STUDY CONTEXT AND THEIR SUCCESS

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Abstract
Computer-based learning can be effective in improving language learners’ perceptions and autonomous learning and, its impact on pedagogy has almost been felt. Therefore, this study applies questionnaire and four skills tests to investigate EFL students’ preferences in using social, cognitive, meta-cognitive strategies while working with computer-based materials (CBMs) in self-study context and the effects of their knowledge of these strategies on their performance.

The results of study reveal that students use more cognitive and less social strategies while working with computer, and there is moderate correlation between cognitive strategies and students’ success in test. In other words students who prefer more cognitive strategies were more successful in test. The findings of this research will provide EFL teachers with insightful information on learners’ learning needs as an input to syllabus and materials planning, lesson planning and classroom instruction practice. The study demonstrates the importance of a good understanding of learner perceptions in EFL programs at foreign languages schools and institutes’ level.

Key Words: Learning strategies, Computer based materials, Autonomous learning, Success.

INTRODUCTION

The use of computers in education opens a new area of knowledge and offers a tool that has the potential to change some of the existing educational needs. As computer use continues to increase in society, students must also prepare for the use of computers outside of the classroom to improve their education. This involves all levels of education, including elementary schools, high schools as well as universities (Mc Cannon & Crews, 2000).

According to Assan (2003) in 1982, the Turkish Government introduced a series of funding initiatives to promote the use of information technology in schools. After this date positive attitudes toward technology then computers and computing skills were recognized by researchers as a necessary component for effective use of computer technology in the classroom. Today, foreign language instructors and some of the most innovative teachers, and educational institutions worldwide are encouraging their foreign-language faculty to increase the use of technology in the classroom; therefore, with the growth of computer technology, a substantial percentage of students in foreign language has ignored traditional “book-based” programs and, prefer an instructional technology component in their foreign language learning programs and favor to enhance more cognitive, meta-cognitive and social strategies use in foreign language learning.

With the birth of new technology, the past few decades have witnessed a shift in focus from teaching to learning, from the teacher to the learner. Michael Bush one of the advocates of technology use (1997:16) asserted, “Ready or not [. . .], technology will play an ever-increasing role for our students. It, therefore encourages foreign language teaching professionals to better understand technology and its potential for foreign language learning” and he also added that today we need to increase learner centered education.

Individualized learning requires first and foremost, respect for and accommodation of individual backgrounds and learning styles. In concrete terms, it gives the learner control in material selection/sequencing and the pace of progress (Zhang, 1998). The computer is the perfect candidate for individualized instruction because, unlike humans, it has infinite resources of patience and can teach on a one-to-one basis at a pace dictated by
the individual's capabilities (Schulz, 1993). In reality, this kind of differentiated instruction is beyond the teacher's reach, especially in a large, multi-level conventional classroom. However, with the aid of the computer, this aim is more readily realized.

In addition, the computer’s “flexibility of time” (Ahmad et al., 1985) and “location independence” (Yang, 1998 cited in Zhang, 1998) allows students to become active participants in the learning process and to decide when to study and how long to spend according to their individualized needs. For example, through the Internet, students can attend the virtual classroom or visit on-line resources from anywhere at any time. More importantly, the computer has the potential to enhance students’ interest in and attention for language learning and this might help to motivating students to follow independent individualized study (Warschauer & Meskill, 2000; Ahmad et al., 1985; Larsen, 1983). While it might be difficult to familiarize students with the computer and the Internet, the opportunities for enhancing learner autonomy through the use of online resources such as dictionaries, maps, music and movie guides, chat rooms and language learning websites, are enormous (Meskill, 2000).

With the aim of finding students’ intentions towards the use of meta-cognitive and cognitive and social strategies when work on computer, this study represents the empirical studies to present the results of questionnaire that completed by EFL students and aims to find out the strategies used by the intermediate EFL students at Goldis institute in Iran. The purpose at this stage is to identify what are students’ attitudes about different strategies and their intention towards autonomous learning when use language on computer.

**The Computer Based Materials and FL Skills Development**

However computer lack the knowledge to understand the enormous range of utterances possible in any human language and also had difficulty in handling ambiguous instructions, but as Zhang (1998) claims this technology has more effect on FL skills development.

Nowadays, Internet offers an authentic learning environment, in which language learners can orally and visually interact with another human being in the target language in much the same way as occurs in face-to-face interaction, for example, with Web-based tools such as e-mail, Internet Chat, Web chat and materials, students can enhance their cognitive, meta-cognitive and strategy use. In most cases technology provides comprehensible input, also it helps students to enter into the kinds of authentic social discourse situations and discourse communities that they would later encounter outside the classroom (Kern & Warschauer, 2000).

It must be added that the important effect of computer is on learner autonomy, Benson (2001), Dickinson (1996), Little (1991), Palfreyman and Smith (2003), Scharle and Szabo, (2000) centered their attention on the notion of taking responsibility of one’s own learning in working with computer. As with learner autonomy, extensive research has been carried out in the field of learner strategies.

O'Malley and Chamot (1990) and Oxford (1990) define meta-cognitive strategies that used to oversee, regulate or self-direct language learning and help learners think about their learning process, plan their learning, monitor the learning task, and evaluate how well they have learnt. Wenden (1999: 436) and refers to the cognition as “information learners acquire about their learning” while meta-cognitive refers to “general skills through which learners manage, direct, regulate, and guide their learning”. Cognitive strategies cover “interaction with the materials to be learned, manipulating the material mentally or physically, or applying a specific technique to a learning task” (O’Malley and Chamot, 1990: 138).

Social strategies are those activities learners engage in which afford them opportunities to be exposed to and practice their knowledge. Although these strategies provide exposure to the target language, they contribute indirectly to learning since they do not lead directly to the obtaining, storing, retrieving, and using of language (Rubin and Wenden 1987:23-27).

As I referred before computer enhances strategy use, consequently learner strategies use develops his/her autonomy in learning. By definition, language learning strategy use involves some degree of consciousness, awareness, and intentionality (Cohen, 2003; Wenden, 1987 cited in Zhang in 1998). “Since the conscious or
The semi-conscious and intentional use of strategies involves a degree of control over learning, research on the behavior of autonomous learners draws upon insights from research on learning strategies” (Zhang, 1998:450). He added that in order to control their own learning, they need to understand their own learning processes, need to be able to make informed choices about their learning paths, and need to be proactive in managing and direct their own learning. All of these aspects of control require that learners use language learning strategies effectively. This direct link between autonomy and learning strategies has been proved by Wenden (1991) who argues that it is necessary to introduce strategy training into plans to develop learner autonomy (cited in Zhang, 1998). She describes the autonomous learner as the “one who has acquired the strategies and knowledge to take some (if not yet all) responsibility for her language learning and is willing and self-confident enough to do so” (Wenden, 1991: 163).

In order to find out students’ learning preferences in self-study context, this study examines students’ options of applying computer in foreign language learning and the effect of their knowledge of strategies on their learning. The below part, refer to three strategies use and discuss the results of table, the last part will conclude article with some recommendation for teachers.

This study represents the empirical studies to present the results of questionnaire that completed by 45 EFL Goldis Star institute Foreign language learners and aims to find out students’ strategies preferences in foreign language learning. In the second step, in order to find out the relationship between successful learning and strategies preferences, Pearson product moment Correlation Coefficient applied on the students’ strategies preferences and their total scores on four skills test. The purpose at this stage is to identify what are students’ attitudes about different strategies and their intention towards autonomous learning when use language on computer and to find answer to following questions.

1. To what extent do the students use computer-based materials to learn English outside the classroom?
2. What meta-cognitive strategies do learners apply when using computer-based materials?
3. What cognitive strategies for listening and reading comprehension do the learners apply when using computer-based materials?
4. What social strategies do the learners apply when using computer-based materials?
5. What strategies are used more by successful group?

RESEARCH METHOD

Participants
A total of 45 intermediate EFL students at Goldis star foreign languages institute took part in the survey in 2014. Of the 45 participants, the great majority were female (30) and 15 of them were male. They were asked to comment on the three strategies include cognitive, meta-cognitive and social strategies in Speaking and Listening, and reading with computer. In the second step, in order to find out the relationship between successful learning and strategies preferences comprehensible tests including speaking, reading, short listening and grammar tests were done on students.

Instrument
This study based on questionnaire that designed by Jarvis in 2007. Data analysis for questionnaire was performed using the SPSS package of statistical program. The instrument used in this study consisted of an English quantitative self-report questionnaire that examined forty-five learners’ beliefs and preferences. The participants were asked to read a statement and choice one of the given items that were (1) I never do this, (2) Rarely I do this, (3) Sometimes I do this, (4) Often I do this, or (5) Always I do this. Based on questionnaire data Cronbach's alpha coefficients was 0.814 (N of items=31).

Procedure
Learner autonomy, learner strategies and the relationship between the two is a vast subject and it would not be possible to investigate everything within this one study; it was necessary to narrow down the area by identifying aspects which were of particular relevance to the use of a variety of CBMs.
As can be questionnaire was divided into three main parts. The first part deals with students beliefs about the use of meta-cognitive strategy when use the computer and in the second part learners express their use of cognitive strategy and in third part students express their background to the use of social strategy when they work with computer. Therefore the objectives of these parts are to investigate what learning strategies the students applied while using CBMs.

In the next step, reading, grammar and listening tests were prepared with qualified teachers and applied in the classroom, after that speaking test related to class book (Person to person 2) used by teacher in classroom. All of these tests were done during 3 weeks. In order to find out the correlation coefficient between successful students preferences in language learning strategies and their scores, the mean of students scores in tests were employed in SPSS package. With classification of the strategies which applied in a computer-mediated environment and by adding to those strategies the phrase “on the internet” or “keeping English e-mails” in a folder for future reference, study aims to also investigate whether computers enhance independent learning at home.

RESULTS

Language learning strategies are good indicators of how learners approach tasks or problems encountered during the process of language learning. In other words, language learning strategies, while unobservable or unconsciously used in some cases, give language teachers valuable clues about how their students assess the situation, plan, select appropriate skills so as to understand, learn, or remember new input presented in the language classroom. Below tables represent the background of students towards the use of strategies in different skills on computer.

Learning Strategies

The first table of study deals with students self monitoring, planning and thinking in their learning, this table classified as meta-cognitive strategies and based on 9 questions.

Table 1: Meta-cognitive strategies

<table>
<thead>
<tr>
<th>Meta-cognitive strategies</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning strategies</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. I plan how I am going to learn English on the computer</td>
<td>27.5</td>
<td>50</td>
<td>12.5</td>
<td>7.5</td>
<td>2.5</td>
<td>2.075</td>
<td>.972</td>
</tr>
<tr>
<td>2. I plan how much time I am going to spend learning English on the computer</td>
<td>42.5</td>
<td>27.5</td>
<td>20</td>
<td>7.5</td>
<td>2.5</td>
<td>2.000</td>
<td>1.09</td>
</tr>
<tr>
<td>3. I set my learning goals before studying English on the computer</td>
<td>27.5</td>
<td>25.0</td>
<td>32.5</td>
<td>12.5</td>
<td>2.5</td>
<td>2.380</td>
<td>1.11</td>
</tr>
<tr>
<td>4. I try to find out how to better learn English from the computer</td>
<td>12.5</td>
<td>15</td>
<td>42.5</td>
<td>25</td>
<td>5</td>
<td>2.950</td>
<td>1.06</td>
</tr>
<tr>
<td>5. I try to find reading or listening material on the Internet that is at or near my level</td>
<td>2.5</td>
<td>22.5</td>
<td>22.5</td>
<td>37.5</td>
<td>15</td>
<td>3.100</td>
<td>1.15</td>
</tr>
<tr>
<td>6. I learn from sites specifically designed for English learners with different exercises</td>
<td>12.5</td>
<td>17.5</td>
<td>30</td>
<td>27.5</td>
<td>12.5</td>
<td>2.900</td>
<td>1.22</td>
</tr>
<tr>
<td>7. When I finish learning on the computer I check if my work is correct/ how well I had done</td>
<td>17.5</td>
<td>22.5</td>
<td>12.5</td>
<td>35</td>
<td>12.5</td>
<td>3.025</td>
<td>1.35</td>
</tr>
<tr>
<td>8. When I find a good Internet site for studying English I save the address</td>
<td>2.5</td>
<td>15</td>
<td>22.5</td>
<td>42.5</td>
<td>17.5</td>
<td>3.500</td>
<td>1.11</td>
</tr>
<tr>
<td>9. I keep some of the English emails in my folder for future language reference</td>
<td>15</td>
<td>35</td>
<td>15</td>
<td>25</td>
<td>10</td>
<td>2.800</td>
<td>1.27</td>
</tr>
</tbody>
</table>

In the age of technology, computer is essential device which facilitates students’ learning, to get high advantages of computer technology; today students must plan and goals on how to use properly of it in order to be autonomous in their learning. The first table of the study that considers students learning strategies,
represents students rarely use meta-cognitive strategies. In response to first item of table majority of students (77.5%) claimed they never or rarely plan on how to learn English on the computer, and in second item of table, that looks for students self planning in using computer, greater part of the students (70%) chose “never” or “rarely” columns of the questionnaires, and the frequency of third item represents 52.5% of students didn’t set learning goals before studying English on the computer and only 15% of them had such goals for their learning. In response to forth item which looks for students learning strategies in finding out how to better learn English from the computer 42.5% of students claimed neutral response and 30% of them stated they often or always had such aims.

searching on the Web for listening or reading materials at or near the students’ level enhance English learning, here we see that 52.5 % of students reported “they try to find reading or listening material on the Internet that is at or near their level” as well as 42.5% of them claimed often or always they tried to find different exercises from dedicated websites and 22.5% did so sometimes. And in answer to seventh item of table that deals with self evaluating in autonomous learning, nearly half of the learners (42.5%) claimed “often” or “always” they checked their works is correct or well down when they finish learning on the computer, only 12.5 % of the learners reported sometimes do this and nearly half of the students reported didn’t do this.

Although as said by the questionnaire data, planning learning was the least used strategy, but the majority of the learners (60 %) reported that they save the good Internet site address for studying English and only 22.5% of students claimed they rarely do this.

In sum, overall the data represent that almost half of the participants demonstrated some degree of meta-cognitive awareness and in some areas the data from the questionnaire reveal positive attitudes among those students who make use of computer feedback, but generally, it seemed that students are unconscious learner about planning in learning when using computer relatively under used meta-cognitive strategy. I think the responses indicates that students have intention to find out how to learn English better on a computer, but they their level of study make planning more problematic, because these kinds learning is different from working in a traditional paper-based environment, where a student is likely to have only one or two books in which he or she works through paper based printed text in a fairly linear way.

### Cognitive Strategies

This part deals with using cognitive strategies to learn English. In these parts students reports their intention towards the use of strategies for listening, watching and reading.

#### Listening on the computer

Table 2 considers students use of cognitive strategies when listen to the computer as well as they express their desire towards listening on the computers.

<table>
<thead>
<tr>
<th>Cognitive strategies (Listening)</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. When listening on the computer I listen for important key words that carry meaning</td>
<td>10</td>
<td>12.5</td>
<td>30</td>
<td>32.5</td>
<td>15</td>
<td>3.30</td>
<td>1.18</td>
</tr>
<tr>
<td>2. I listen to the same things more than once to understand more</td>
<td>7.5</td>
<td>10</td>
<td>40</td>
<td>27.5</td>
<td>15</td>
<td>3.33</td>
<td>1.10</td>
</tr>
</tbody>
</table>

In these part students express their preference towards the use of cognitive strategies during the listening on computer. As the data reveals, most of the students liked to engage in listening activities, 47.5% of students responded during the listening activities “always or often gave importance to key words that carry meaning, and 30 % claimed that some time they did this affair, only 23.5 % rejected it and in response to second item of table, 42.5% of the students reported “always or often they listened to the same thing more than once to
understand more and 40% claimed they some times do this, and only 17.5% of students stated they didn’t like to do such activities.

In sum data represents that most of the student preferred the ways in which they dealt with vocabulary to understand the meaning of key words. I think they knew that computer based approach with cognitive strategies help them to get the full meaning of contexts also help them to know which suited them according to their own learning styles.

**Watching on the Computer**

Table 3 reflects on students use of cognitive strategies when watch on the computer as well as they express their desire towards watching on the computers.

Table 3: Cognitive Strategies (Watching on the Computer)

<table>
<thead>
<tr>
<th>Cognitive strategies (Watching on the computer)</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. when watching programs on the computer I pay attention to pictures to understand better</td>
<td>10</td>
<td>22.5</td>
<td>27.5</td>
<td>30</td>
<td>10</td>
<td>3.075</td>
<td>1.16</td>
</tr>
<tr>
<td>2. when watching TV programs or films on the computers I read English subtitles to understand more</td>
<td>10</td>
<td>10</td>
<td>27.5</td>
<td>37.5</td>
<td>15</td>
<td>3.23</td>
<td>1.15</td>
</tr>
<tr>
<td>3. When watching TV programs or films on the computers I use subtitles in my language to understand more</td>
<td>0</td>
<td>20</td>
<td>40</td>
<td>17.5</td>
<td>22.5</td>
<td>2.55</td>
<td>1.01</td>
</tr>
<tr>
<td>4. I watch TV programs or films on computer twice: once with subtitles and once without</td>
<td>35</td>
<td>12.5</td>
<td>27.5</td>
<td>25</td>
<td>0</td>
<td>2.42</td>
<td>1.22</td>
</tr>
</tbody>
</table>

Above table that deals with students’ preferences towards use of computer to watch movies or TV programs represents, students liked to use computer to watch movies or TV programs. In response to the first item 40 % of students chose “often” and “always” columns and claimed “when watching programs on the computer they pay attention to pictures to understand better” and 27.5% of students believed sometimes they do this and 33.5% claimed they didn’t like such activities. Second and third items of table that considers students tendency towards use of subtitles when they watch TV programs or films, 52.5% of students claimed “when watching TV programs or films on the computers, they read English subtitles to understand more” and 27.5% claimed sometimes they do this, and in response to the third item 40% of students claimed when watching TV programs or films on the computers “they like read English subtitles to understand more” and 27.5 % reported sometimes they preferred such an activity, and in response to forth item, the frequency represents that 47.5% of students didn’t prefer to watch more than once TV programs or films on computer( one with subtitle and once only watching), and 27.5% claimed sometimes they like to do this, maybe such preference in forth item depends on the films that they watch.

To make summery of results, students prefer to watch different programs on computers maybe, they believe with watching English programs on computer they can both listen and catch words and at the same time they can imitate it, or with watching movies with their subtitles in English they can completely catch and memorize its meaning. But as results indicates they didn’t prefer to watch the movie twice maybe they wanted to stress that in first time that they watch movies they try to focus on listening to understand as much as possible. As well as this observation in this part of the study supports our chosen definition of autonomy as learners accepting responsibility for their own learning. Moreover, autonomy in this study appears to be embracing both the content and the process of learning; the participants made independent choices regarding both materials and the way they were used.
Reading on the computer

Table 4 reflects on students’ use of cognitive strategies when read on the computer as well as they express their desire towards reading on the computers.

Table 4: Reading on the Computer

<table>
<thead>
<tr>
<th>Cognitive strategies (Reading on the computer)</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Before reading the text on the Internet I first look at the title or pictures to guess what the text can be about</td>
<td>20</td>
<td>15</td>
<td>32.5</td>
<td>27.5</td>
<td>5</td>
<td>2.83</td>
<td>1.19</td>
</tr>
<tr>
<td>2. When reading on the Internet I skip parts I don’t understand</td>
<td>20</td>
<td>30</td>
<td>30</td>
<td>17.5</td>
<td>2.5</td>
<td>2.52</td>
<td>1.08</td>
</tr>
<tr>
<td>3. When reading on the Internet I read the same things more than once to understand more</td>
<td>5</td>
<td>25</td>
<td>27.5</td>
<td>27.5</td>
<td>15</td>
<td>2.72</td>
<td>1.26</td>
</tr>
<tr>
<td>4. When reading on the Internet I look for meaning from the text without using a dictionary</td>
<td>17.5</td>
<td>10</td>
<td>22.5</td>
<td>40</td>
<td>10</td>
<td>3.15</td>
<td>1.27</td>
</tr>
<tr>
<td>5. I write down new words or phrases I see on the Internet</td>
<td>10</td>
<td>27.5</td>
<td>27.5</td>
<td>17.5</td>
<td>17.5</td>
<td>2.85</td>
<td>1.19</td>
</tr>
<tr>
<td>6. I go back regularly to refresh my memory of words I learnt earlier from the Internet</td>
<td>22.5</td>
<td>27.5</td>
<td>30</td>
<td>12.5</td>
<td>7.5</td>
<td>2.75</td>
<td>1.40</td>
</tr>
</tbody>
</table>

Above table deals with use of cognitive strategies when reading on computer, in answer to the first item of the questionnaire students gave neutral response, 35% of students chose “rarely” and “never” columns and 32.5% reported sometimes and 37.5% claimed often or always “Before reading the text on the Internet they often or always first look at the title or pictures to guess what the text can be about looking at the title and pictures” and in response to the second item of table, most of the students (50%) claimed “When reading on the Internet I skip parts I don’t understand”, and 30% claimed sometimes they did this and in response to the third item of questionnaire 42.5% of students claimed “When reading on the Internet I read the same things more than once to understand more” while 30% rejected this view.

Inferring meaning from context without using a dictionary is one of the strategies which deal with cognitive learning. In response to this item majority of students claimed “When reading on the Internet they look for meaning from the text without using a dictionary” only 27.5% claimed they never or rarely do this and in Forth and the fifth items of table that deals with students thought towards the use of new word that they learn from the internet, data reveals students didn’t show inclination towards new learned words and 37.5%of them claimed they rarely or never “write down new words or phrases they see on the Internet” and 27.5% of students claimed they sometimes do this and 35% of them reported often or always they write new learned words, and in answer to the last item of table 50% of students claimed they “never” or “rarely” go back regularly to refresh their memory of words that they learned earlier from the Internet and 30% claimed sometimes they refresh their memory of words. To make summarize, the analysis of results reveals that students didn’t like to read on the computer and activate their cognitive strategies, to get high results of their learning.
Social Strategies which learners apply when using computer

Table 5 reflects on students’ use of social strategies when work on computer.

Table 5: Social strategies

<table>
<thead>
<tr>
<th>Social strategies</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I practice English using computers with other students</td>
<td>17.5</td>
<td>52.5</td>
<td>25</td>
<td>2.5</td>
<td>2.5</td>
<td>2.20</td>
<td>.85</td>
</tr>
<tr>
<td>2. I talk to other students to find out about learning English using computers</td>
<td>20</td>
<td>45</td>
<td>30</td>
<td>5</td>
<td>0</td>
<td>2.20</td>
<td>.82</td>
</tr>
<tr>
<td>3. When I don’t know the answer while doing an exercise on the computer I ask someone else for help</td>
<td>5</td>
<td>32.5</td>
<td>35</td>
<td>27.5</td>
<td>0</td>
<td>2.85</td>
<td>.89</td>
</tr>
<tr>
<td>4. when I finish the exercise on the computer I ask others to check it for me</td>
<td>30</td>
<td>40</td>
<td>22.5</td>
<td>7.5</td>
<td>0</td>
<td>2.07</td>
<td>.917</td>
</tr>
<tr>
<td>5. I write e-mail to other speakers of English to practice my language</td>
<td>25</td>
<td>30</td>
<td>27.5</td>
<td>10</td>
<td>7.5</td>
<td>2.45</td>
<td>1.20</td>
</tr>
<tr>
<td>6. I start conversations in English on live chats to practice my language</td>
<td>15</td>
<td>20</td>
<td>30</td>
<td>25</td>
<td>10</td>
<td>2.80</td>
<td>1.22</td>
</tr>
<tr>
<td>7. when I talk to someone on live chat I ask him/her about the meaning when I don’t understand</td>
<td>25</td>
<td>22.5</td>
<td>32.5</td>
<td>10</td>
<td>10</td>
<td>2.57</td>
<td>1.26</td>
</tr>
<tr>
<td>8. on the live chat I ask English speakers to correct me when I make mistakes</td>
<td>30</td>
<td>22.5</td>
<td>27.5</td>
<td>15</td>
<td>5</td>
<td>2.43</td>
<td>1.22</td>
</tr>
</tbody>
</table>

Table 5 deals with students view about social strategies use while using computer. Rubin and Wenden (1987) define Social strategies as those activities learners engage in which afford them opportunities to be exposed to and practice their knowledge. Although these strategies provide exposure to the target language, they contribute indirectly to learning since they do not lead directly to the obtaining, storing, retrieving, and using of language.

The results of this part found considerably less evidence of the use of social strategies compared to cognitive strategies. 70% of the students claimed “never” or “rarely” practiced English using computers with other students and 65% reported, they never talk to other students to find out about learning English using computers and 70% reported, they never or rarely asked others for feedback. Less than half the students reported that when they don’t know the answer while doing an exercise on the computer they “never” or “rarely” asked someone else for help. In response to the fifth item of table, 55% of students claimed, they rarely write e-mail to other speakers of English to practice their language and 27.5% reported sometimes they wrote an email to practice their English.

More social strategies that near to the half of the students claimed, was conversations in English on live chats to practice their English and learn new vocabulary. In response to the seventh item of the table 47% of students claimed they didn’t like negotiating meaning while chatting and 52.5% of them reported that when they talk to some one on live chat they never or rarely ask him/her about the meaning when they don’t understand, while 32.5% sometimes did so, and 20% did often or always.
The Relationship between Iranian EFL Students' Computer Based Materials Preferences in Self Study Context and Success

With the purpose of finding correlation between students’ success in tests and their strategies preferences, correlation coefficient was done on results. The results show that there is moderate correlation between the use of cognitive strategies \((r=0.43)\) and success of students in tests. But the correlation between other strategies was inconsiderate or in some cases it was negative.

<table>
<thead>
<tr>
<th>Successful learners’ scores</th>
<th>MET</th>
<th>COG</th>
<th>SOC</th>
<th>Successful learners’ scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>-.089</td>
<td>.438*</td>
<td>.153*</td>
<td>1</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.456</td>
<td>.018</td>
<td>.022</td>
<td></td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.05 level (2-tailed).

To make summarize, in this part of study students didn’t show intention towards the use of social strategies in working on computer, the sub strategies which were acceptable for them, including conversations in English on live chats to practice their English and learn new vocabulary, therefore students intended to use less social strategies and didn’t like to activate their social strategies, in order to get high results of autonomous learning.

**DISCUSSION**

The analysis of first table that deals with students self monitoring, planning and thinking in their learning (meta-cognitive strategies) showed that students showed intention to direct their learning but relatively students were unconscious about planning and they claimed they rarely took charge of the development of their own program. That is to say that the learner claimed they didn’t decide what commitment to make to language learning on computer or they rarely set himself reasonable goals, but were able to decide on an appropriate internet sites that are near to their level, select appropriate resources of listening and reading materials, and monitor progress, or evaluate their achievement in the light of previously determined goals and expectations, Although according to the questionnaire data planning learning was the least used strategy, the majority of the respondents reported that they identified their weaknesses and organized their learning accordingly.

In other table that deals with cognitive strategies, strategies that are operations used in learning or problem solving that require direct analysis, transformation, or synthesis of learning materials, students claimed they liked to listened or watched audio-video content in English, therefore it appeared they use a range of cognitive strategies that deals Clarification / Verification, Guessing / Inductive Inferencing, Deductive Reasoning, Practice and Memorization and it seems they were less user of strategies about reading textual content on computer. In table that considered students’ attitudes towards the use of computer to listening activities most of the students preferred often and always columns, responses suggested that the most frequently used strategies were listening, maybe their favorite way to practice listening was by listening to music while looking at lyrics of the songs on the computer. On other part of the table, majority of students preferred to watch movie and TV programs on the computer with subtitles, and maybe these data suggest that while watching and listening on the Web students consciously apply a range of strategies in order to learn more effectively, maybe they knew that with watching or listening on the computer and with repetition or resourcing, translation, grouping, note taking, deduction, recombination or given importance to the key word they can enhance the use of cognitive strategies and autonomous learning.

The analysis of last table indicates that students were less user of social strategies when use computers, they only preferred to have live chat with strangers in order to improve their listening and grammar, maybe they believed that use of internet helps, especially while chatting with those people who have higher level of English than them, because they use some words that students don’t understand, and they use some forms and
sentences that are new to students. But in other items of the use of social strategy students claimed they rarely or sometimes use social strategies.

It is clear from the study that the students who lack knowledge about computer cannot make use of its potential and are therefore not in a position to apply relevant strategies. In contrast, students who already have a repertoire of certain skills and strategies make effective use of computer and thus develop their autonomy. It is recommended that classroom-based input be given into using computer so that all students are in a position to make use of this technology. As Freiermuth and Jarrell (2006) have shown such activity amongst non-native speakers reduces anxiety, improves output and adds to learner control. These findings have been supported in a number of other studies including Kitade (2000), Payne and Whitney (2002) that claimed, the language learner capable of using a wide variety of language learning strategies appropriately with computer can improve his language skills in a better way, for example they can improve organization of learning time, self-monitoring, and self-evaluation or with using social strategies when use computer they can improve their pronunciation, or asking a classmate to work together on a particular language problem. They can with developing skills in such areas as meta-cognitive, cognitive, and social strategies can build up learner independence and autonomy whereby he can take control of his own learning (Hishmanoglu, 2000).

CONCLUSION AND RECOMMENDATIONS

Language learning strategies were those actions, behaviors, tactics, or techniques which facilitate the learning of the target language by the language learner. Since many factors like age, gender, motivation, life-experience, learning style, anxiety, etc. affect target language learning; it is not reasonable to support the idea that all language learners use the same good language learning strategies or should be trained in using and developing the same strategies to become successful learner (Hishmanoglu, 2000).

In present study, we see that nearly half of the language learners use language learning strategies in the learning process and I see that they regarded the computer as a very useful tool for independent learning, and I consider that the students seemed to be satisfied that they could pursue their learning at their own pace and in their own way. They valued computer, because they thought computers give them opportunity to learn and have fun at the same time. Only in some cases like use the computer when listening or watching but in case of social strategies they claimed rarely used the computer, these negative reposes as I referred before can be analyzed with their age, gender, motivation, life-experience, learning style, lack of knowledge and feeling anxious when speaking with other native speakers.

As the use of computer technology for developing the use of strategies in learning other languages is different from working in a traditional paper-based environment, where a student is likely to have only one or two books in which he or she works through paper based printed text in a fairly linear way, teachers roles to encouraging students to be more active in use of computer is very crucial, as Oxford (1990:1) states, language learning strategies “... are especially important for language learning because they are tools for active, self-directed movement, which is essential for developing communicative competence.” Besides developing the communicative competence of the students, teachers who train students to use language learning strategies can help them become better language learners. “Helping students understand good language learning strategies and training them to develop and use such good language learning strategies can be considered to be the appreciated characteristics of a good language teacher” (Lessard-Clouston 1997:3).

Therefore it is a fact that each learner within the same classroom may have different learning styles and varied awareness of the use of strategies. The language teacher should, therefore, provide a wide range of learning strategies in order to meet the needs and expectations of his/her students possessing different learning styles, motivations, strategy preferences, etc. Therefore, it can be stated that the most important teacher role in foreign language teaching is to encourage students to use of a range of tasks to enhance their learning (Hall 1997).
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**REFERENCES**


DOES AUTHENTICITY PREDICT SUBJECTIVE HAPPINESS OF TURKISH TEACHER CANDIDATES

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Abstract

Authenticity is associated with adaptive psychological characteristics and may be predictive of subjective happiness. The aim of this study is to investigate the associations of authenticity with subjective happiness. The study was conducted with 317 university students (133 men, 184 women; M age = 20.8 yr.). Participants completed the Turkish version of Authenticity Scale and the Turkish version of Subjective Happiness Scale. Subjective happiness was correlated negatively with two sub-factors of authenticity: accepting external influence and self-alienation and positively with the authentic living factor of authenticity. Self-alienation and accepting external influence predicted negatively and authentic living predicted positively to subjective happiness, accounting for 49% of the variance collectively. The results were discussed in the light of the related literature and dependent recommendations to the area were given.

Key Words: Authenticity, subjective happiness, multiple regression analysis.

INTRODUCTION

Throughout history in most of the cultures behaving congruent with feelings and thoughts and “to be oneself” has been perceived as a moral necessity (Bialystok, 2009), which is called often as authenticity. Origin of the authenticity concept can be found in recommendations of the ancient Greek philosophy; such as “Know thyself” and “To thine own self be true” (Harter, 2002). Similarly, from an Anatolian perspective, the very well-known Turkish theologian, Mevlana Celaleddin Rumi, has emphasized the importance of to be an authentic individual by saying; “Either appear as you are or be as you appear”.

Authenticity was described in various ways by different authors such as “accordance between how someone presents himself and what he actually is” (Bialystok, 2009) and “being emotionally sincere, having self-attunement, and psychological depth, and behaving candidly and without having hidden intentions” (Sheldon, 2009). Snyder and Lopez (2007) enlarged the description of the concept and considered authenticity as representing one’s true beliefs, values, and actions to oneself and others sincerely, behaving faithfully, and taking responsibility for one’s own emotions and behaviors (Peterson & Park, 2004). More recently, a three-dimensional authenticity model was developed by Wood and his colleagues: self-alienation, accepting external influence, and authentic living.

The first dimension involves an inadequate sense of identity because of not knowing oneself thoroughly and discrepancy between the conscious awareness and real experience. The second dimension includes a belief that the individual must adjust to the expectations of others. And the last dimension refers to being true to oneself and behaving consistent with one’s own beliefs and values. While these three components of authenticity have been experienced differently at the phenomenological level, they interact mutually each other. For instance an individual who does not accept external influence behaves more authentically while another individual who accepts external influence are more likely to behave with more self-alienated. In this
model authentic living is a sign of authenticity, whereas self-alienation and accepting external influences show inauthenticity (Pinto, Maltby, Wood & Day, 2012; Wood et al., 2008).

Studies traditionally demonstrated that authenticity is a strong and positive predictor of psychological health. In these studies it was found that authenticity is related positively to self-esteem, subjective well-being, psychological well-being (Wood et al., 2008), agreeableness, extraversion, conscientiousness, and openness (Ryan, Rawsthorne, & Ilardi, 1997), and well-being at work (Ménard & Brunet, 2011). Contrarily authenticity was found negatively associated with psychological symptoms such as stress, anxiety, depression (Sheldon, Ryan, Rawsthorne, & Ilardi, 1997; Wood et al., 2008), and neuroticism (Ryan et al., 1997).

**Subjective happiness**

The concept of subjective happiness, evolved from the positive psychology movement (Seligman & Csikszentmihalyi, 2000) and was described as the balance of positive-negative affect, overall life satisfaction (Diener, 2000) and psychological state of well-being, joy, and contentment (Lyubomirsky, 2001). It is based on the question of why some individuals are happier than others or why some seem to have the capacity to be happy in the face of negative experiences (Lyubomirsky, 2001). Subjective happiness is relatively consistent over time and across situations, and plays a crucial role on how people perceive, interpret, recall, and actually experience life events in a positive or negative way (Lyubomirsky & Tucker, 1998).

Subjective happiness contains both an emotional and a cognitive aspect, while the former is usually further, divided into presence of positive affect and the absence of negative affect, the latter is mentioned to as life satisfaction. Individuals who have higher level of subjective happiness are also more likely to have positive thoughts about themselves (Campbell, 1981; Lee & Im, 2007), to feel more personal control (Larson, 1989), to evaluate recent experiences in their lives as more pleasant (Matlin & Gawron, 1979), and to give more intense emotional reactions to positive events, but less long lasting to negative events (Seidlitz, Wyer, & Diener, 1997). And therefore subjective happiness is generally considered as a component of the good life (Diener, Scollon, & Lucas, 2003). Consistent with this Veenhoven proposed that “happiness is the degree to which a person evaluates the overall quality of his present life-as-a-whole positively and denotes an overall evaluation of life” (1997, p. 3-4). Similarly, Lyubomirsky and Lepper (1999) emphasized that ‘one may conceivably appraise oneself as a very happy person, despite having only a somewhat happy life; also ‘one may identify oneself as a generally unhappy person, despite having [experienced a number of positive emotions pleased, proud and particularly excited] in the previous month.’ (p. 140).

In previous research subjective happiness was found positively related with self-perceptions of well-being (Diener, 2000; Suh, Diener, Oishi, & Triandis, 1991), mental health (Liem, Lustig, & Dillon, 2010), life satisfaction (Garcia & Siddiqui, 2009), self-enhancing bias (Lee & Im, 2007), and internet addiction (Akin, 2012). On the other hand subjective happiness has been found to relate negatively to the depressive symptoms (Chaplin, 2006) and positive affect (Diener, 2000; Diener & Seligman, 2002; Suh et al., 1998; Wood et al., 2008). Therefore there may be a positive association between
authenticity and subjective happiness. Based on the above relationships of authenticity and subjective happiness, in the current research the following hypothesis was proposed:

Hypothesis 1. Accepting external influence will be negatively associated with subjective happiness.

Hypothesis 2. Self-alienation will be positively associated negatively associated with subjective happiness.

Hypothesis 3. Authentic living will be positively associated with subjective happiness.

METHOD

Participants

In this study, participants were 317 university students (184 women, 133 men) who enrolled four different undergraduate programs: psychological counseling and guidance (n= 80), primary school education (n= 67), science education (n= 75), and mathematics education (n= 95). Of the participants, 77 were freshman, 50 were sophomores, 127 were juniors, and 63 were seniors. Their ages ranged from 17 to 31 years old (M = 20.8, SD = 0.5). Convenience sampling was used for the selection of participants.

Measures

Authenticity Scale. This concept was measured using the Authenticity Scale (Wood et al., 2008). This scale is a 12-item self-report inventory. Items were rated on a 7-point scale with anchors 1: Does not describe me at all and 7: Describes me very well. The scale has three sub-dimensions: Accepting external influence (e.g., “Other people influence me greatly”), Self-alienating (e.g., “I don’t know how I really feel inside”), and Authentic living (e.g., “I live in accordance with my values and beliefs”). A Turkish adaptation of this scale by Akın and Dönmezogullari (2010) with 528 Turkish university students (288 women, 242 men), has three factors explaining 57% of the total variance. Internal consistencies were .73, .72, and .75 and three-week test-retest reliability estimates were .89, .86, and .79 for the three factors, respectively.

Subjective Happiness Scale. Subjective happiness was measured using the Subjective Happiness Scale (Lyubomirsky & Lepper, 1999). Turkish adaptation of this scale was done by Akın and Satici (2011). The Subjective Happiness Scale is a 4-item self-report instrument and each item was rated on a 7-point scale. This scale is a summative scale, with item 4 being reversed scored. All answers given will be totaled to indicate the level of subjective happiness, with a high number indicating a greater incidence of subjective happiness. Results of confirmatory factor analysis indicated that the uni-dimensional model was well fit to Turkish population ($\chi^2$/df=0.71, $p=0.49193$, RMSEA=.000, NFI=.99, CFI=1.00, IFI=1.00, GFI=.98, AGFI=.99, and SRMR=.015). The internal consistency reliability coefficient was .86 and the three-week test-retest reliability coefficient was .73.

Procedure

Permission for participation of students was obtained from related chief departments and students voluntarily participated in research. Completion of the scales was anonymous and there was a guarantee of confidentiality. The scales were administered to the students in groups in the classrooms. The measures were counterbalanced in administration. Prior to administration of measures, all participants were told about purposes of the study.

Statistical Analysis

In this research, multiple linear regression analysis and Pearson correlation coefficient were used to investigate the relationships between authenticity and subjective happiness. The variables which were entered in multiple regression analysis were measured by summing the items of each scale. These analyses were carried out via SPSS 11.5.

RESULTS

Descriptive Data and Correlations

Table 1 shows descriptive statistics and correlations among the variables. Preliminary correlation analysis showed that accepting external influence ($r= -.13$) and self-alienation ($r= -.61$) were related negatively to subjective happiness. Authentic living ($r= .41$) was positively associated with subjective happiness.
Multiple Regression Analysis

Before applying regression, assumptions of multiple regression were checked. The data were examined for normality by the Kolmogorov-Smirnov test. The Kolmogorov-Smirnov test indicated normality of distributions of test scores for all tests in the current study. Outliers are cases that have data values that are very different from the data values for the majority of cases in the data set. Outliers were investigated using Mahalanobis distance. A case is outlier if the probability associated with its $D^2$ is .001 or less (Tabachnick & Fidell, 2001). Based on this criterion, twelve data were labeled as outliers and they were deleted. Multi-collinearity was checked by the variance inflation factors (VIF). All the VIF values were less than 10 (Tabachnick & Fidell, 2001), which indicated that there was no multi-collinearity.

Multiple regression analysis was performed in which the dependent variable was subjective happiness and the independent variables were dimensions of authenticity (Table 2). As many of those predictor variables were dependent on each other, forward stepwise procedure, which includes one new explanatory variable at each step, specifically the most associated with the dependent variable while being, at the same time, independent of the explanatory variables already included in the model. The criteria to include the variables from the regression model were: criterion probability-of-F-to-enter <=.05.

Table 2: Summary of Stepwise Multiple Regression Analysis for Variable Predicting Subjective happiness

<table>
<thead>
<tr>
<th>Variables</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>R</th>
<th>$R^2$</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-alienation</td>
<td>-.69</td>
<td>-61</td>
<td>-13.77</td>
<td>.61</td>
<td>.37</td>
<td>189.608*</td>
</tr>
<tr>
<td>Step 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-alienation</td>
<td>-.85</td>
<td>-74</td>
<td>-14.83</td>
<td>.65</td>
<td>.42</td>
<td>114.604*</td>
</tr>
<tr>
<td>Accepting External Influence</td>
<td>.20</td>
<td>.25</td>
<td>5.01</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-alienation</td>
<td>-.77</td>
<td>-68</td>
<td>-14.06</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accepting External Influence</td>
<td>-.28</td>
<td>-.35</td>
<td>-7.07</td>
<td>.70</td>
<td>.49</td>
<td>101.077*</td>
</tr>
<tr>
<td>Authentic Living</td>
<td>.41</td>
<td>.30</td>
<td>6.57</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p<.001

Three stepwise multiple regression analysis has applied to assess which dimensions of authenticity were the best predictors of subjective happiness. Table 2 showed the results of multiple regression analysis where the independent variables were authenticity scores and the dependent variable was subjective happiness. Self-alienation entered the equation first, accounting for 38% of the variance in predicting subjective happiness ($R^2=.38$, adjusted $R^2=.37$, $F(1, 315)=189.608$, $p<.01$). Accepting external influence entered on the second step accounting for an additional 4% of the variance ($R^2=.42$, adjusted $R^2=.42$, $F(2, 314)=114.604$, $p<.01$). Authentic living entered on the third step accounting for an additional 7% of the variance ($R^2=.49$, adjusted $R^2=.49$, $F(3, 313)=101.077$, $p<.01$). The standardized beta coefficients indicated the relative influence of the variables in last model with self-alienation ($\beta=.68$, $p<.01$), accepting external influence ($\beta=-.35$, $p<.01$).
and authentic living ($\beta = .30$, $p<.01$) all significantly influencing subjective happiness and self-alienation was strongest predictor.

**DISCUSSION**

The aim of the present study was to investigate the predictive role of authenticity on subjective happiness. To our knowledge, this is the first study investigating the relationships between authenticity and subjective happiness. As predicted, results demonstrated that subjective happiness related to accepting external influence and self-alienation negatively and to authentic living positively. In interpreting the results of the present findings, several plausible explanations exist. First of all these findings are in line with the research that has shown that authenticity is closely associated with the indices of psychological adjustment such as self-esteem and life satisfaction (Goldman & Kernis, 2002). These findings are also consistent with the literature which demonstrated subjective happiness is closely associated with the indices of psychological adjustment such as life satisfaction (Garcia & Siddiqui, 2009), positive emotions (Diener & Seligman, 2002), positive self-evaluation in young (Cheng & Furnham, 2004), and self-enhancing bias (Lee & Im, 2007). Second subjective happiness provides (and also facilitates) feelings of warmth, positive thoughts, and equilibrium that people experience when they are authentic. Therefore authenticity and subjective happiness may share the same properties in nature and people who high in subjective happiness can feel themselves more authentic.

This study had many limitations. Firstly, it was correlational and based on a convenience sample. Secondly, the present sample’s results are limited to university students so generality is restricted and more population-representative samples need to be used in future studies to examine the relationships between authenticity and subjective happiness. Also explicit investigation of mediating or latent variables is important.

Consequently, the present research provides important information about the predictors of hope and would further our understanding of the psychological process of subjective happiness. The implication is that tendency to accept external influence and self-alienation may indicate a risk for low subjective happiness. Nonetheless it is important to note that scientific research on authenticity is still in its nascent phases and more research will need to be done before any implications can be drawn. Also there are enough positive indicators from to suggest that more research on authenticity would be a worthwhile.

**REFERENCES**


THE VALIDITY AND RELIABILITY OF TURKISH VERSION OF THE CIVIC ENGAGEMENT SCALE

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Abstract
The aim of this study is to examine validity and reliability of the Turkish version of the Civic Engagement Scale (Doolittle & Faul, 2013). The sample of this study consisted of 275 undergraduate students. The results of confirmatory factor analysis indicated that the 14 items and two-dimensional civic engagement model (Attitude and Behavior) was well fit ($\chi^2 = 167.35$, $df = 71$, RMSEA= .072, GFI= .92, CFI= .93, IFI= .93, and SRMR= .060). The internal consistency reliability coefficients of the scale were .83 for attitude subscale and .85 for behavior subscale. The corrected item-total correlations ranged from .47 to .73. Overall findings demonstrated that this scale had high validity and reliability scores.

Key Words: Civic engagement, validity, reliability, confirmatory factor analysis.

INTRODUCTION
Civic engagement, volunteer participation to the community life in order to improve conditions for the other people or to shape the community’s future (Adler & Goggin, 2005), is important for the individuals’ psychological and psycho-social life. Some researchers have claimed that volunteerism is involved with physical and mental health outcomes and successful aging (Grimm, Spring, & Dietz, 2007; Hinterlong & Williamson, 2007). Civic engagement plays also an important role for the adolescent identity formation process (Erikson, 1985). It has been found to linked with a better psycho-social adjustment both in adolescence and adulthood (Schmidt, Shumow, & Kackar, 2007; Vieno, Nation, Perkins, & Santinello, 2007).

In the recent two decades researchers have interested to the concept of civic engagement and several definitions have been put forward by different authors and so there is a lack of consensus about this concept (Gibson, 2000). For example while Richard and Judy (2005) defined civic engagement as collective actions of individuals and affect the civil society by this way, Putnam (1996) described civic engagement as “people's connections with the life of their communities, not only with politics” (Putnam, 1996, p. 34). In addition researchers have considered different aspects of civic engagement such as participation voluntary activities in a community or action taken collectively for improving society. According to Diller (2001), “Civic engagement as an individual's duty to embrace the responsibilities of citizenship with the obligation to actively participate, alone or in concert with others, in volunteer service activities that strengthen the local community” (p. 21). On
the other hand Van Benshoten (2001) has been described civic engagement as the means by which an individual, through collective action, influences the larger civil society. The former definition has emphasized the volunteerism dimension of the civic engagement while the latter has taken into consideration the action taken collectively aspect of the concept.

There are a plenty of studies conducted on civic engagement which generally demonstrated its positive associations with social adaptive variables. In these studies it was found that civic engagement positively related to neighborhood social connectedness (Lenzi, Vieno, Pastore, & Santinello, 2013), higher interest in the news media (Erentaite, Zukauskiene, Beyers, & Valickiene) and stronger connection in all family (Duke, Skay, Pettingell, & Borowsky, 2009). There were also demographic differences in terms of civic engagement. Rozaria’s (2007) study proved that women have higher rates of volunteer participation than men. It was also found that married people have higher levels of civic engagement than non-married ones (Zedlewski & Schaner, 2005). Lastly both higher education and income are positively associated with volunteer and civic activities (Choi, 2003; Tang, 2006).

Briefly, since civic engagement influences deeply individuals’ social, psychological and physical life, it is very important to measure this. Therefore the purpose of this study is to adapt into Turkish and to examine the validity and reliability of the Civic Engagement Scale (Doolittle & Faul, 2013).

METHOD

Participant
Participants were 275 undergraduate students (162 (59 %) were female, 113 (41%) were male) who were enrolled in Sakarya University, in Turkey.

Measures
Civic Engagement Scale. The Civic Engagement Scale (Doolittle & Faul, 2013) is a self-report questionnaire with 14 items rated on a 7-point scale. The scale has two sub-dimensions: Attitude (8 items) and behavior (6 items). High scores indicate higher levels of civic engagement. The Cronbach alpha internal consistency reliability coefficients of the scale were .91 for attitude subscale and .85 for behavior subscale.

Translation and adaptation process
Primarily the scale was translated into Turkish by three academicians who know English well. After that the Turkish form was back-translated into English and examined the consistency between the Turkish and English forms. Than Turkish form has been reviewed by two academicians from educational sciences department. Finally they discussed the Turkish form and along with some corrections this scale was prepared for validity and reliability analyses.

Procedure
Permission for participation of students was obtained from related chief departments and students voluntarily participated in research. Completion of the scales was anonymous and there was a guarantee of confidentiality. The scales were administered to the students in groups in the classrooms. Prior to administration of scales, all participants were told about purposes of the study. In this study confirmatory factor analysis (CFA) was executed to confirm the original scale’s structure in Turkish culture and Cronbach’ Alpha reliability coefficient was calculated to examine the reliability. Data were analyzed using LISREL 8.54 and SPSS 15 package programs.

RESULTS

Construct Validity
Confirmatory factor analysis demonstrated that the two-dimensional Civic Engagement model was well fit ($x^2= 167.35, df= 71, RMSEA= .072, GFI= .92, CFI= .93, IFI= .93, and SRMR=.060$). Factor loads of items belonging Turkish version of Civic Engagement Scale are presented in Figure 1.
Item Analysis and Reliability
The Cronbach alpha internal consistency reliability coefficients of the Turkish form were .83 for attitude subscale and .85 for behavior subscale. The corrected item-total correlations ranged from .47 to .73.

DISCUSSION
The purpose of this study was to translate Civic Engagement Scale into Turkish and to examine its psychometric properties. Overall findings demonstrated that this scale had acceptable validity and reliability scores. Further studies that will examine the convergent validity of the Civic Engagement Scale are important for its measurement force. Also the temporal stability of the Civic Engagement Scale may be calculated using test re-test method.
REFERENCES


THE DIFFERENTIATION OF FRENCH PERCEPTION COMPETENCIES
IN MARMARA UNIVERSITY STUDENTS

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Abstract
In this study, it has been aimed to determine the language proficiency perceptions of preparatory students taking courses in French at higher education institutions concerning the four fundamental language skills for language levels up to and including B1, proposed by the European Language Portfolio. Accordingly, French Language Proficiency Perceptions Scale, consisting of 28 articles within the Common European Framework of Reference for Languages into consideration has been prepared. The sample for this study consists of a total of 250 preparatory year students in Marmara University during the spring semester of 2012-2013 educational year. As a result of the validity and reliability works performed, the scale was determined to be valid and reliable. The results of the study can be read in the full text.

Key Words: B1 language level, Common European Framework of Reference, french language competencies perceptions.

INTRODUCTION
Currently, Turkey is in the process of becoming a member of the European Union. As Turkey becomes a member of the EU, positive developments will be experienced in Turkey concerning many areas such as education, economics, politics, commerce and competition. In relation with this agenda, concepts such as multilingualism and multiculturalism, which are of importance in the European Union member states, are also beginning to come into prominence in our country. In this sense, foreign language education is becoming more and more important at all educational levels. The overall purpose is to enable every citizen to know one or more foreign languages.

Turkey, within the scope of its efforts to become a member state of the European Union, made great progress in terms of economic, political, cultural and constitutional arrangements in line with the official progress reports dated October 9, 2002. In the recent years, Turkey’s full membership to the European Union is debated extensively. Turkey is certain to make contributions to the European Union in economic, political, cultural touristic, educational and constitutional areas as a result of becoming a European Union member state. Turkey will also be able to show great progress in the information age as a result of becoming a European Union member state and will accomplish great breakthroughs in terms of being a multicultural and multilingual country (Dura and Atik, 2007).

THE PROBLEM AND PURPOSE
The main issue of this study may be expressed in a single sentence as follows: what are the French language proficiency perceptions of the students during their preparatory classes in Marmara University at the higher education level in our country?

In this study, it has been aimed to determine the perception competence of the preparatory students learning French at the higher education level in our country, concerning the four fundamental language skills (listening, reading, speaking and writing), for language levels up to and including B1, proposed by the European Language Portfolio.
COMMON EUROPEAN FRAMEWORK OF REFERENCE FOR LANGUAGES

It is possible to mention the European Language Portfolio (Language File, Language Biography and Language Passport) and the Common European Framework of Reference for Languages (A1, A2, B1, B2, C1 and C2 proficiency levels) within the scope of the foreign language education efforts of the Council of Europe (CECR, 2001). In the university preparatory classes, the aim is to ensure that the students reach the B1 (Threshold) language level in French according to the Common European Framework of Reference for Languages. For this reason, in this study, the B1 (Threshold) language level has been included within the scope as the final proficiency level. The 6 fundamental linguistic levels (A1, A2, B1, B2, C1 and C2 proficiency levels) of the Common European Framework of Reference for Languages will be explained in the table below (Demirel, 2007):

Schema 1: CEFRL Proficiency Levels

Four Fundamental Language Proficiencies
In the table below, the proficiency perceptions that students need to have concerning foreign languages for the five fundamental language levels up to B1 (Threshold) are shown as a self assessment grid:

Table 1: Self Assessment Grid (including the B1 language level)

<table>
<thead>
<tr>
<th>Proficiency Level</th>
<th>A1</th>
<th>A2</th>
<th>B1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Comprehension</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Listening</td>
<td>I can recognize familiar words and very basic phrases concerning myself, my family and immediate personal relevance (e.g. very basic personal and family information, shopping, local area, employment).</td>
<td>I can understand the main points of clear standard speech on familiar matters regularly encountered in work, school, leisure, etc.</td>
<td>I can understand the main point of many radio or TV programs on current affairs or topics of personal or professional interest when the delivery</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Reading</th>
<th>Speaking</th>
</tr>
</thead>
<tbody>
<tr>
<td>I can understand familiar names, words and simple sentences in written texts for example on notices and posters or in catalogues. I can read very short, simple texts. I can find specific, predictable information in simple everyday material such as advertisements, prospectuses, menus and timetables and I can understand short simple personal letters. I can understand texts that consist mainly of high frequency everyday or job-related language. I can understand the description of events, feelings and wishes in personal letters.</td>
<td>I can interact in a simple way provided the other person is prepared to repeat or rephrase things at a slower rate of speech and help me formulate what I'm trying to say. I can ask and answer simple questions in areas of immediate need or on very familiar topics. I can communicate in simple and routine tasks requiring a simple and direct exchange of information on familiar topics and activities. I can handle very short social exchanges, even though I can't usually understand enough to keep the conversation going myself. I can deal with most situations likely to arise whilst travelling in an area where the language is spoken. I can enter unprepared into conversation on topics that are familiar, of personal interest or pertinent to everyday life (e.g. family, hobbies, work, travel and current events).</td>
</tr>
</tbody>
</table>

| Speech Production | | |
|-------------------|--------|
| I can use simple phrases and sentences to describe where I live and people I know. | I can use a series of phrases and sentences to describe in simple terms my family and other people, living conditions, my educational background and my present or most recent job. I can connect phrases in a simple way in order to describe experiences and events, my dreams, hopes and ambitions. I can briefly give reasons and explanations for opinions and plans. I can narrate a story or relate the plot of a book or film and describe my reactions. |
The language competencies divided into two categories as conversation and oral narration in the Self Assessment Grid above in accordance with the Common European Framework of Reference for Languages (the 5 fundamental linguistic proficiencies) have been handled as a single proficiency under the title of conversational proficiency.

It is highly important for the individual to make progress concerning the four fundamental linguistic proficiencies (listening, reading, speaking and writing) in the foreign language he/she is learning. To begin with, the listening proficiency is the listener's ability to make connections between what has been said previously and what has been spoken later on and the ability to comprehend the function of such in communication (Temur, 2001, Narr. Özbay, 2005). Secondly, reading proficiency is one of the most fundamental skills that must be developed in the foreign languages. The reading proficiency is defined as attributing meaning to a text that has been read and interpreting the meaning attributed to it (Grabe and Stoller, 2001, Narr. Razı, 2008). In foreign language education, listening must be practiced constantly and regularly in order for the speaking proficiency to be developed. It is also very important that pair works and group works are constantly performed during the lesson. There is no doubt that the regular practicing of such works shall ensure important developments in the speaking proficiencies of the individuals learning a foreign language (Işık, 2007). It is highly important for the foreign language speaking practices that dialogue, discussion, pair and group works are carried out constantly and in a planned fashion. In case of writing in the foreign language, not only writing paragraphs, letters or compositions but also filling in the blanks, being able to put into correct order the sentences that have been provided in a mixed order, writing the appropriate subject title, selecting and writing the supporting sentences is concerned. Determining the objectives within the framework of the pre-writing activities for the purpose of developing the writing skills, selecting and teaching the words and arranging the correct concepts in order are required. It is also necessary to connect, complete, spell check and check the word usage in between the activities performed during the writing phase. During the post-writing activities, evaluation, checking, providing feedback, awarding the successful students and performing Works on the incorrect texts are required (Demirel, 2007).

METHOD

The research method to be applied in this research will be the general scanning of the resources. The general scanning models are scanning arrangements performed on the scope as a whole or a group or sample of the scope, which consists of numerous components, in order to reach a general conclusion regarding the concerning scope. Individual or relational scanning can be performed with the general scanning methods (Karasar, 2010).

The Scope and the Sample

The scope of this study consists of preparatory year students, studying at the French Teaching, Translation and Public Administration departments in the Marmara University School of Foreign Languages. The sample for this study consists of a total of 250 preparatory year students from French Teaching, Translation and the Public
Administration departments, studying at the Marmara University School of Foreign Languages in the spring semester of 2009-2010 educational year, who have granted the necessary permissions to be a part of this survey.

Data Gathering Tools
In this study, the Personal Information form consisting of 5 questions (sex, age, department, order of preference in the university exam for their departments and whether they know or not another foreign language) has been utilized. A French Language Competency Perceptions Scale, consisting of 28 articles and taking the A1, A2 and B1 language levels concerning the four fundamental language competencies of the students within the Common European Framework of Reference for Languages into consideration has also been prepared. The articles in this scale were evaluated within the range of 1 (incompetent) and 7 (competent).

Validity Study
The validity of the proficiency perceptions for French has been tested using explanatory factor analysis. Before performing the factor analysis, the Kaiser-Meyer-Olkin test has been applied in order to understand whether the number of the study group was suitable for performing an analysis. The value 0.90 has been obtained as a result of the testing. The fact that this value is above 0.50 shows that the concerning number is appropriate. In accordance with this, it can be concluded that the number of the group is suitable for analysis. Following this, the Bartlett’s test has been applied to understand whether the measurement tool shall separate into the factor structures or not. As a result of this test, the values X=2670.61, sd=325 p=0.000 have been obtained. This result shows that the measurement tool can be separated into factor structures.

After it has been determined that the study group is of an appropriate size and that the measurement tool can be separated into factors, the factor analysis was performed. As a result of the factor analysis, two sub-dimensions with Eigen values above 1 have been obtained. The core value of the first sub-dimension is 22.230 whereas its disclosed variance percentage is 79.394. The core value of the second sub-dimension is 1.216 whereas its disclosed variance percentage is 4.344. Since the core value and variance percentage of the first factor is much higher than the second one, it can be concluded that the scale consists of a single dimensional structure. In order to support this result, the factor loads of the articles have been examined individually. The factor loads concerning the articles of Future Time Perception Scale are indicated in Table 2.

<table>
<thead>
<tr>
<th>Articles</th>
<th>Factors</th>
<th>Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.Factor</td>
<td>2. Factor</td>
</tr>
<tr>
<td>Article 26</td>
<td>.951</td>
<td></td>
</tr>
<tr>
<td>Article 25</td>
<td>.940</td>
<td></td>
</tr>
<tr>
<td>Article 11</td>
<td>.939</td>
<td></td>
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<tr>
<td>Article 7</td>
<td>.939</td>
<td>-.284</td>
</tr>
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<td>Article 6</td>
<td>.939</td>
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</tr>
<tr>
<td>Article 1</td>
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<td>-.284</td>
</tr>
<tr>
<td>Article 13</td>
<td>.938</td>
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</tr>
<tr>
<td>Article 12</td>
<td>.938</td>
<td></td>
</tr>
<tr>
<td>Article 2</td>
<td>.935</td>
<td>-.147</td>
</tr>
<tr>
<td>Article 18</td>
<td>.931</td>
<td></td>
</tr>
<tr>
<td>Article 10</td>
<td>.928</td>
<td></td>
</tr>
<tr>
<td>Article 24</td>
<td>.922</td>
<td>-.224</td>
</tr>
<tr>
<td>Article 27</td>
<td>.909</td>
<td></td>
</tr>
<tr>
<td>Article 28</td>
<td>.905</td>
<td>.220</td>
</tr>
</tbody>
</table>

According to Table 2, the factor load values of articles vary between .770 and .951. The acceptable lower limit for the factor load values is .45 (Büyüköztürk, 2007). According to this table, all articles fulfill the required
necessary criteria. Articles numbered 1, 2, 3, 6, 7, 14, 16, 17, 20, 21, 22, 23, 24 and 28, have a load value with both the first and the second factors. When there is a difference of .10 between the load values of the articles that have a load value with both factors, the concerning article is included in the factor containing the greater value ( Büyüköztürk, 2007). According to this, all articles can be said to be contained within the first factor. This situation proves that the proficiency perceptions scale in French has a structure consisting of a single factor.

Reliability

The reliability coefficient of the language proficiency perceptions scales determined in accordance with the Cronbach’s Alpha is .987. The alpha coefficient of the scales consisting of articles that have a high level of relationship with each other tends to be high. The reliability coefficient that can be accepted as sufficient in a Likert type scale must be close to 1 ( Tezbaşaran, 1997). Based on these explanations, it can be concluded that the reliability coefficient calculated using Cronbach Alpha is sufficient and that the articles contained in the scale are consistent with each other. The reliability chart of the scale is displayed below.

<table>
<thead>
<tr>
<th>French Proficiency Perceptions Scale</th>
<th>Cronbach Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>.987</td>
<td></td>
</tr>
</tbody>
</table>

Based on the validity and reliability analysis, it can be concluded that the French proficiency perceptions scale displays a single dimensional structure consisting of 28 articles that perform measurements in congruence with each other.

FREQUENCY AND PERCENTAGE CALCULATIONS

The frequency and percentage distributions for the 5 questions (sex, age, department, order of preference in the university exam for the department they’re studying in and whether they know or not another foreign language) contained in the Personal Information Form will be provided in table 4 below.

Percentage and frequency calculations regarding the sex and age of the preparatory students learning French, which are the first 2 questions of the personal information form, will be indicated in table 4.

<table>
<thead>
<tr>
<th>Variables</th>
<th>F</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>193</td>
<td>77.2</td>
</tr>
<tr>
<td>Male</td>
<td>57</td>
<td>22.8</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-20</td>
<td>87</td>
<td>34.8</td>
</tr>
<tr>
<td>21-23</td>
<td>143</td>
<td>57.2</td>
</tr>
<tr>
<td>24-26</td>
<td>20</td>
<td>8.0</td>
</tr>
<tr>
<td>Total</td>
<td>250</td>
<td>100.0</td>
</tr>
</tbody>
</table>

According to table 4, a total of 250 French preparatory year students, consisting of 193 females and 57 males, have participated in the study. % 34.8 of the students are within the 18-20 age range whereas % 57.2 of them are in the 21-23 and % 8 of them are in the 24-26 age ranges.

After, in table 5, the percentages and frequency distributions of the departments of students, the order of preference in the university exam for their departments and whether they know or not another will be given.
Table 5: The departments, the order of preference in the university exam for their departments and knowing any other foreign languages than French?

<table>
<thead>
<tr>
<th>Variables</th>
<th>Department</th>
<th>F</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>French Teaching</td>
<td>80</td>
<td>32.0</td>
</tr>
<tr>
<td></td>
<td>Public Administration</td>
<td>122</td>
<td>48.8</td>
</tr>
<tr>
<td></td>
<td>French Translation</td>
<td>48</td>
<td>19.2</td>
</tr>
<tr>
<td>Order of preference</td>
<td>1-5</td>
<td>141</td>
<td>56.4</td>
</tr>
<tr>
<td></td>
<td>6-10</td>
<td>65</td>
<td>26.0</td>
</tr>
<tr>
<td></td>
<td>11-15</td>
<td>18</td>
<td>7.2</td>
</tr>
<tr>
<td></td>
<td>16-20</td>
<td>26</td>
<td>10.4</td>
</tr>
<tr>
<td>Do you know any other foreign languages than French?</td>
<td>Yes</td>
<td>214</td>
<td>85.6</td>
</tr>
<tr>
<td>Total</td>
<td>No</td>
<td>36</td>
<td>14.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>250</td>
<td>100.0</td>
</tr>
</tbody>
</table>

According to table 5, % 32 of the students participating in the study are studying in French teaching, % 48.8 are studying in public administration in French whereas % 19.2 are studying in French translation departments. % 56.4 of the students preferred the department they’re studying in as their 1-5 choices, % 26 of them listed the department they’re studying in as their 6-10 choices, % 7.2 of them listed the department they’re studying in as their 11-15 choices and % 10.4 of them listed the department they’re studying in as their 16-20 choices. % 85.6 of the students know another foreign language than French but % 14.4 didn’t know another foreign language than French.

Differences of the French Proficiency Perceptions Scale According to the Personal Characteristics

In the table 6, the differences of the proficiency perceptions of the French preparatory students concerning the 4 fundamental language competencies will be displayed according to their sex.

In the tables 7 and 8, the differentiation of the proficiency perceptions of the French preparatory students concerning the 4 fundamental language competencies will be displayed according to their ages.

Table 6: The results of the t test applied for the purpose of comparing the results obtained from the French competency perceptions scale according to sex

<table>
<thead>
<tr>
<th>Sex</th>
<th>Average</th>
<th>Standard Deviation</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>169.6</td>
<td>20.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>163.6</td>
<td>26.3</td>
<td>1.802</td>
<td>.073</td>
</tr>
</tbody>
</table>

According to table 6, a meaningful difference does not exist between male and female students concerning the averages of the scores obtained from the competency perceptions scale for French (p>0.05).

The differences of the competency perceptions of the students studying in the French preparatory students concerning the 4 fundamental language competencies according their age shall be indicated in table 7 and table 8.

Table 7: The results of the ANOVA test applied for the purpose of comparing the results obtained from the French competency perceptions scale according to their age

<table>
<thead>
<tr>
<th>Age</th>
<th>Average</th>
<th>Standard Deviation</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-20</td>
<td>182.8</td>
<td>13.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21-23</td>
<td>165.7</td>
<td>17.3</td>
<td>114.258</td>
<td>.000</td>
</tr>
<tr>
<td>24-26</td>
<td>123.6</td>
<td>16.8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
According to table 7, a meaningful difference exists between students of age ranges 18-20, 21-23 and 24-26 concerning the averages of the scores obtained from the competency perceptions scale for French (p<0.05). In Table 8, the Tukey test shall be performed as the Post-Hoc test for the purpose of determining between which ages the difference is in.

### Table 8: Tukey Test Results

<table>
<thead>
<tr>
<th>Age</th>
<th>Average Difference</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>21-23</td>
<td>17.1</td>
<td>.000</td>
</tr>
<tr>
<td>18-20</td>
<td>59.2</td>
<td>.000</td>
</tr>
<tr>
<td>24-26</td>
<td>42.1</td>
<td>.000</td>
</tr>
</tbody>
</table>

According to tables 7 and 8, the average scores of the students in the 18-20 age group is higher than the 21-23 and 24-26 age groups find in a meaningful differentiation (p<0.05). The score average of the students between the ages of 21-23 are higher than the score average of the students between the ages 24-26 (p<0.05). As can be seen in the table above, when the differentiation of the competency perceptions of the students in the French preparatory class regarding the 4 fundamental language competencies for French are examined, it can be seen that the students between the ages of 24-26 have a more advanced competency perception regarding the 4 fundamental language competencies compared to students who are younger.

Differences of the competency perceptions of the students studying in the French preparatory concerning the 4 fundamental language competencies according to the departments they’re studying in shall be indicated in tables 9 and 10.

### Table 9: The results of the ANOVA test applied for the purpose of comparing the results obtained from French competency perceptions scale according to their departments

<table>
<thead>
<tr>
<th>Department</th>
<th>Average</th>
<th>Standard Deviation</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>French Teaching</td>
<td>175.4</td>
<td>19.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public Administration</td>
<td>160.8</td>
<td>23.5</td>
<td>14.875</td>
<td>.000</td>
</tr>
<tr>
<td>Translation and Interpretation</td>
<td>175.2</td>
<td>16.3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

According to table 9, a meaningful difference exists between students who are studying in the French teaching, in public administration and in French translation departments concerning the averages of the scores obtained from the French competency perceptions scale (p<0.05). According to table 10, the Tukey test has been performed as the Post-Hoc test for the purpose of determining among which department the difference can be seen.

### Table 10: Tukey Test Results

<table>
<thead>
<tr>
<th>Department</th>
<th>Average Difference</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Administration</td>
<td>-14.6</td>
<td>.000</td>
</tr>
<tr>
<td>Translation and Interpretation</td>
<td>-14.4</td>
<td>.000</td>
</tr>
</tbody>
</table>

According to tables 9 and 10, the scores averages founded in a meaningful differentiation in the departments for example in public administration, in French teaching and in French translation (p<0.05). There is no difference between students who are studying in French teaching and in French translation departments (p>0.05).

Differences of the competency perceptions of the students studying in the French preparatory concerning the 4 fundamental language competencies according to the order of preference in the university exam for their departments will be indicated in tables 11 and 12.
Table 11: The results of the ANOVA test applied for the purpose of comparing the results obtained from the French competency perceptions scale according to order of preference

<table>
<thead>
<tr>
<th>Order of preference</th>
<th>Average</th>
<th>Standard Deviation</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-5</td>
<td>182.7</td>
<td>8.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6-10</td>
<td>161.5</td>
<td>6.8</td>
<td>417.551</td>
<td>.000</td>
</tr>
<tr>
<td>11-15</td>
<td>151.7</td>
<td>20.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16-20</td>
<td>118.0</td>
<td>22.2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

According to table 11, a meaningful difference exists between students whose order of preference for their department are between 1-5, 6-10 and 11-15 and 16-20 concerning the averages of the scores obtained from the French competency perceptions scale (p<0.05).

According to table 12, the Tukey test will be performed as the Post-Hoc test for the purpose of determining among which groups the difference is in.

Table 12: Tukey Test Results

<table>
<thead>
<tr>
<th>Order of Preference</th>
<th>Average Difference</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-10</td>
<td>21.2</td>
<td>.000</td>
</tr>
<tr>
<td>11-15</td>
<td>31.0</td>
<td>.000</td>
</tr>
<tr>
<td>16-20</td>
<td>64.7</td>
<td>.000</td>
</tr>
<tr>
<td>11-15</td>
<td>9.7</td>
<td>.000</td>
</tr>
<tr>
<td>6-10 16-20</td>
<td>-43.4</td>
<td>.000</td>
</tr>
<tr>
<td>11-15 16-20</td>
<td>33.7</td>
<td>.000</td>
</tr>
</tbody>
</table>

According to tables 11 and 12, the average scores of the students with an the 1-5 order of preference for their departments is meaningful higher than the 6-10, 11-15 and 16-20 order of preference for their departments (p<0.05). The average score of those whose the 6-10 order of preference for their departments is higher meaningful than the 11-15 and the 16-20 order of preference for their departments (p<0.05). Finally, the average score of those whose the 11-15 order of preference for their departments is higher meaningful than those whose the 16-20 order of preference for their departments (p<0.05).

The differentiation of French preparatory students’ competency perceptions regarding the 4 fundamental language competencies for French according to whether they know another foreign language other than French will be displayed in table 13.

Table 13: The results of the test applied for the purpose of comparing the results obtained from the French competency perceptions scale according to students’ knowledge of another foreign language than French

<table>
<thead>
<tr>
<th>Does the student know another foreign language?</th>
<th>Average</th>
<th>Standard Deviation</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>174.8</td>
<td>14.9</td>
<td>16.358</td>
<td>.000</td>
</tr>
<tr>
<td>No</td>
<td>129.2</td>
<td>18.5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

According to table 13, a meaningful difference exists between students who know and do not know another foreign language than French, concerning the averages of the scores obtained from the French competency perceptions scale (p>0.05). The score average of those who know other languages other than French are higher than those who do not know another foreign language than French.
Table 14: The relationship between the listening, speaking, reading and writing competencies of the students

<table>
<thead>
<tr>
<th></th>
<th>Listening</th>
<th>Reading</th>
<th>Speaking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>r</td>
<td>.975</td>
<td></td>
<td></td>
</tr>
<tr>
<td>p</td>
<td>.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speaking</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>r</td>
<td>.919</td>
<td>.933</td>
<td></td>
</tr>
<tr>
<td>p</td>
<td>.000</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>Writing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>r</td>
<td>.944</td>
<td>.956</td>
<td>.935</td>
</tr>
<tr>
<td>p</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
</tbody>
</table>

There is a strong positive correlation between the reading and listening competencies of the students participating in the study (r=.975, p<0.01). According to this result, it can be claimed that those with a high level of reading skills also have a high level of listening skills. There is a strong positive correlation between the speaking and listening competencies of the students (r=.919, p<0.01). According to this result, it can be claimed that those with a high level of speaking skills also have a high level of listening skills. There is a strong positive correlation between the speaking and reading competencies of the students (r=.933, p<0.01). According to this result, it can be claimed that those with a high level of speaking skills also have a high level of reading skills. There is a strong positive correlation between the writing and listening competencies of the students (r=.975, p<0.01). According to this result, it can be claimed that those with a high level of writing skills also have a high level of listening skills. There is a strong positive correlation between the writing and reading competencies of the students (r=.975, p<0.01). According to this result, it can be claimed that those with a high level of writing skills also have a high level of reading skills. There is a strong positive correlation between the writing and speaking competencies of the students (r=.975, p<0.01). According to this result, it can be claimed that those with a high level of writing skills also have a high level of speaking skills (See Table 14).

**DISCUSSIONS**

In this study, there is a meaningful differentiation according to the ages of the French Preparatory students at the Marmara University School of Foreign Languages in terms of the competency perceptions concerning the four fundamental language competencies (listening, reading, speaking and writing). In the study conducted by Palladino and Cesare (2004), a meaningful differentiation has been shown according to the ages of the Italian students who are studying at a university and learning English. Italian students of ages 20-25 learning English, have higher competency perceptions concerning the four fundamental language competencies (listening, reading, speaking and writing) compared to the university students with age ranges of 26-30 and 31-35.

In this study, no meaningful differentiation according to the sex of the French Preparatory Students at the Marmara University School of Foreign Languages in terms of the competency perceptions concerning the four fundamental language competencies (listening, reading, speaking and writing) can be seen. Contrary to this study, in the study conducted by Bangou and Bourdet (2010), there is a meaningful difference according to the sex of the students in the competency perceptions regarding the four fundamental language competencies (listening, reading, speaking and writing) of the Chinese students learning French. The competency perceptions of female students are higher compared to male Chinese students concerning the four fundamental language competencies for French (listening, reading, speaking and writing).

**RESULTS**

The differentiation according to certain personal characteristics of the French Preparatory Students at the Marmara University School of Foreign Languages in terms of the competency perceptions concerning the four fundamental language competencies (listening, reading, speaking and writing) have been listed below:

1) There is no meaningful differentiation according to the sex of the French Preparatory Students at the Marmara University School of Foreign Languages in terms of the competency perceptions concerning the four fundamental language competencies (listening, reading, speaking and writing) (p>0.5).
2) There is a meaningful differentiation according to the ages of the French Preparatory Students at the Marmara University School of Foreign Languages in terms of the competency perceptions concerning the four fundamental language competencies (listening, reading, speaking and writing) \((p<0.5)\). When the differentiation of the competency perceptions of the students in the French preparatory class regarding the 4 fundamental language competencies for French are examined, it can be seen that the students between the ages of 24-26 have a more advanced competency perception regarding the 4 fundamental language competencies compared to students who are younger.

3) There is a meaningful differentiation according to the departments of the French Preparatory Students at the Marmara University School of Foreign Languages in terms of the competency perceptions concerning the four fundamental language competencies (listening, reading, speaking and writing). \((p<0.5)\). The score averages of the Public Administration preparatory students are lower than the students French teaching and French translation preparatory students.

4) There is a meaningful differentiation according to the order of preference of the French Preparatory Students at the Marmara University School of Foreign Languages in terms of the competency perceptions concerning the four fundamental language competencies (listening, reading, speaking and writing) \((p<0.5)\). The average score of those whose v the 6-10 order of preference for their departments is higher than those whose the 11-15 and 16-20 order of preference for their departments \((p<0.05)\). Finally, the average score of those whose the 11-15 order of preference for their departments is higher meaningful than those whose the 16-20 the order of preference for their departments \((p<0.05)\).

5) There is a meaningful differentiation the French Preparatory Students at the Marmara University School of Foreign Languages who know or do not know another foreign language than French in terms of the competency perceptions concerning the four fundamental language competencies (listening, reading, speaking and writing) \((p<0.5)\). A meaningful difference exists between students who know and do not know another foreign language than French, concerning the averages of the scores obtained from the French competency perceptions scale \((p>0.05)\). The score average of those who know another language than French are higher than those who do not know another language than French.

6) There is a strong positive correlation between the speaking and listening skills of the French Preparatory students studying at the Marmara University School of Foreign Languages in terms of their speaking and listening skills. It can be claimed that those with a high level of speaking skills also have a high level of listening skills. It is possible to say that those with a high level of writing skills also have a high level of listening skills too. Another thing that is possible to claim is that those with a high level of writing skills also have a high level of speaking skills.

**SUGGESTIONS**

The suggestions for students, who learn French as a foreign language, are given below:

1) They should listen French songs.
2) They should watch programs in French television channels.
3) They should read magazines and books in French out of school.
4) They should speak French with their friends out of school.
5) They should find French friends in yahoo messenger or facebook. They should chat with them.

The suggestions for foreign language teachers are listed below:

1) Since the students knowing another foreign language than French will increase their competency perceptions concerning the four fundamental language competencies, composing the department students from those who know another foreign language than French will increase their chances of being successful.
2) The lessons have to be enriched with listening activities other than those in the textbook in order to elevate the competency perceptions of the students concerning the four fundamental language competencies in French.

3) The lessons have to be developed with reading activities other than those in the textbook in order to elevate the competency perceptions of the students concerning the four fundamental language competencies in French.

4) The lessons have to be enriched with speaking activities other than those in the textbook in order to elevate the proficiency perceptions of the students concerning the four fundamental language competencies in French.

5) The lessons have to be developed with writing activities other than those in the textbook in order to elevate the proficiency perceptions of the students concerning the four fundamental language competencies in French.

6) The teachers have to use different teaching methods together during the lessons in order to elevate the competency perceptions of the students regarding the four fundamental language competencies for French.

7) In order to elevate the students’ proficiency perceptions concerning the four fundamental language competencies for French, the teacher must use technological devices such as computers and projectors in order to elevate the competency perceptions of the students’ four fundamental language competencies for French.

The suggestions for other researchers are given below:

1) They should realize the same type of research for university students who learn English.
2) They should accomplish the same type of research for primary and college students who learn English.
3) They should make the same type of research for university students who learn German.
4) They should accomplish the same type of research for foreign language teachers in primary level or colleges who teach English.
5) They should accomplish the same type of research for foreign language teachers in primary level or colleges who teach German.

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REFERENCES


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THE TURKISH ADAPTION OF THE CONCEPTIONS OF LEARNING SCIENCE QUESTIONNAIRE: THE STUDY OF VALIDITY AND RELIABILITY

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Abstract
The purpose of the present study is to translate the "Conceptions of Learning Science Questionnaire (COLS)" into Turkish language and also adapt and validate it. First, three English teachers translated the original questionnaire from English to Turkish. Later three other experts, blind to the original questionnaire performed a back translation from Turkish to English. Moreover, another expert conducted Turkish grammar check and made the necessary corrections. Later the questionnaire translated was prepared for validity and reliability analyses. 415 students from Anatolian High Schools participated in the study. Construct validity was tested by exploratory factor analysis and confirmatory factor analysis. The reliability coefficient was calculated for each factor in the scale. For the analysis, SPSS 15 and Lisrel 8.72 software were used. When the analysis results were examined, it was seen that the Turkish version of the questionnaire had a 7-factor structure, which are memorizing, preparing for exams, calculating and practicing, increasing one’s knowledge, applying, understanding and seeing in a new way, like the original version. These factors together explain the 58.0% of the variance. In the Turkish version of the questionnaire, internal consistency for the questionnaire in general was calculated as 0.82 and Cronbach's alpha reliability coefficient for each factor varied between 0.65 and 0.82. As a result, it can be said that the Turkish-COLS is a reliable and valid scale that can be used to identify and categorize the framing conceptions of students in Turkish culture while they are learning science in general.

Key Words: Conceptions of Learning Science Questionnaire, Path Model.

INTRODUCTION

One of the common aims of the research studies conducted in the field of science education today is to research the factors that affect students’ academic achievement and to reveal the ways to use these factors in favor of students and teachers. Especially, the recent studies conducted on such topics as the effect of cognitive and affective variables on academic achievement (Sadi & Uyar, 2013; Gürbüz, Çakmak & Derman, 2013; Demir, Öztürk & Dökme, 2012; Reyes, Brackett, Rivers, White & Salovery, 2012; Henning & Shulruf, 2011; Sadi & Çakıroğlu, 2011), metacognition (Whitebread et al., 2009; Topcu & Tüzün, 2009), approaches to learning (Chiou, Liang & Tsai, 2012; Blüc, Ellis, Goodyear & Piggott, 2011) and epistemological beliefs (Tümkaya, 2012; Liang & Tsai, 2010; Brownlee, Purdie & Boulton-Lewis, 2001) stand out. In addition to these topics, another topic that the researchers focus on is the identification of students’ conceptions of learning. A lot of terms which are very close to each other in meaning are used to define conceptions of learning (Liang & Tsai, 2010; Purdie & Hattie, 2002; Meyer, 2001; Entwistle & Peterson, 2004; Benson & Bor, 1999). In general, it is

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emphasized that conceptions of learning have a certain hierarchy and that it can cover surface or quantitative learning and in-depth or qualitative learning (Entwistle & Peterson, 2004). Benson and Bor (1999) describe conceptions of learning as “what students think of the topics learned or learning process or of what they have learned.” According to Vermunt and Vermetten (2004), the conception of learning is learning and a consistent system of knowledge and beliefs on the events regarding learning. In other words, conception of learning might be a student’s individual learning goals, activities, responsibilities, strategies or what he/she thinks about the learning process. Buehl and Alexander (2001) and Tsai (2004) defined conception of learning as students’ beliefs about their school knowledge and learning, i.e. their academic epistemological beliefs. Moreover, Liang and Tsai (2010) defined conceptions of learning as students’ own learning experiences and their opinions about the ways they prefer.

The oldest study on conceptions of learning was conducted by Saljo (1979). Saljo made interviews with 90 university students and categorized conceptions of learning under five different categories. These categories are 1) increase of knowledge, 2) memorizing, 3) acquisitions of facts, procedures that can be retained and/or utilized in practice, 4) abstraction of meaning and 5) an interpretative process aimed at the understanding of reality. Recently a lot of researchers have conducted studies on students’ conceptions of learning with various student groups and on different subjects (Li, Liang & Tsai, 2013; Chiou et al., 2012; Yang & Tsai, 2010; Tsai & Khuo, 2008; Duarte, 2007; Liang & Tsai, 2010; Eklund-Myrskog, 1997). For example, Tsai (2004) conducted interviews with 120 high school students using phenomenographic method and divided conceptions of learning science under seven categories. These categories are (1) memorizing, (2) preparing for tests, (3) calculating and practicing the tutorial problems, (4) increase of knowledge, (5) applying, (6) understanding, and (7) seeing in a new way. As it was emphasized in the previous studies, Tsai (2004) stated that the categories he created had a certain hierarchy and defined the first three categories as “lower-level conceptions of learning” and the last four categories as “higher-level conceptions of learning.” In lower-level conceptions of learning, the student usually adopts learning conceptions of “memorizing” and “preparing for the exam.” However, in higher-level conceptions of learning, the student wants to apply the acquired knowledge and creates a new perspective with this knowledge. In addition, in their survey study Liang and Tsai (2010) analyzed the relationship between the epistemological beliefs and conceptions of learning of 407 Taiwanese science-major college students. In the findings of the study, it is stated that the students who are sophisticated in terms of their epistemological beliefs are found to be less consistent with lower-level conceptions of learning science, but more consistent with higher-level conceptions of learning. Another recent study is the quantitative study of Li and his colleagues (2013) with 369 chemistry-major college students. In this study, the link between students’ conceptions of learning and their learning approaches. The conceptions of learning chemistry of the students participated in the study are grouped under four categories and these categories are named as “memorizing”, “testing”, “calculating and practicing” and “transforming.” Moreover, according to the findings of the research study, the students who have a deep learning approach adopt higher level conceptions of learning, whereas the ones who have a surface learning approach adopt lower level conceptions of learning.

When the studies given above are analyzed, it is understood that in order to identify students’ conceptions of learning, both qualitative and quantitative studies were conducted and the link between the conception of learning and learning approaches and also its link to epistemological beliefs were revealed. Furthermore, the researchers who stated that the conception of learning might be related to the learning process, and thus learning outcomes (Hofer, 2001; Sinatra, 2001) emphasized that the conception of learning may also vary depending on cultural differences (Purdie, Hattie & Douglas, 1996; Tsai, 2004; Tsai, 2006; Tsai & Khuo, 2008). For example, different categories were formed for Australian and Japanese students’ conceptions of learning (Tsai, 2006, 2008). Similarly, in his studies, Li (2003) compared the learning conceptions of Chinese and American students and revealed that the conceptions of learning of Chinese students were related more to “seeking knowledge” because of Chinese cultural features. Therefore, it is important to conduct studies in different cultures and to identify the conceptions of learning of those students due to its contribution to the literature. In addition to this, the differences in educational contexts might have an effect on the formation of different conceptions of learning (Marshall, Summer & Woolnough, 1999; Trigwell & Ashwin, 2006; Tsai & Khuo, 2008; Tsai, 2004). In his study, Tsai (2004) claimed that the differences in educational contexts in high schools may cause differences in students’ conceptions of learning. Moreover, another important point emphasized by the researchers is that the conception of learning can be domain-specific. Duell and Schommer-
Aikins (2001) and then Schommer-Aikins (2004) claimed that the conception of learning can be regarded as part of epistemological belief system. As a result, similar to domain-specific epistemological beliefs of students (Buehl & Alexander, 2003; Hofer, 2000), the conception of learning can also be domain-specific (Tsai, 2004; Tsai & Khoo, 2008). Chiou et al. (2012) emphasized that in order to closely analyze students’ conception of learning, it is necessary to do research in more specific domains.

As it is summarized in the studies above, the conception of learning might change depending on educational and cultural contexts and the topics to be researched. In this regard, the purpose of this study is to adapt “Conceptions of Learning Science” questionnaire, which was developed by Lee, Johanson and Tsai, (2008) and was used by them in their following studies, to Turkish and also to carry out analyses for reliability and validity. In this way, it will be possible to reach a big sample in Turkey, which is a meeting point for different cultures using the adapted version of “Conceptions of Learning Science” questionnaire and to identify the conceptions of learning of Turkish students.

METHOD

Research Group
The research group of this study consists of 415 Anadolu (Anatolian) High School students who live in Karaman, a city in the south of Middle Anatolia Region. There are 225 girls (54.2%) and 190 boys (45.8%) in the research group. Moreover, 145 students in 9th grade (34.9%), 90 in 10th ((21.7%), 103 in 11th (24.8%) and 77 in 12th (18.6%) participated in the study.

Measures
In order to identify students’ conceptions of learning through quantitative methods, Lee and his colleagues (2008) developed the conceptions of learning science questionnaire. The authors sent the original version of the questionnaire that they have used in their following studies to the researchers via e-mail. In the original version of the questionnaire, there are 35 items measuring 7 sub-dimensions. The questionnaire items which are grouped under 7 factors are 1) memorizing (5th item), 2) preparing for an exam (6th item), 3) calculating and practicing (5th item), 4) increasing one’s knowledge (5th item), 5) application (5th item), 6) understanding (4th item) and 7) seeing in a new way (5th item). In “memorizing” dimension, students prefer to learn science by “memorizing” definitions, formulas and terms. For these students, learning is keeping the knowledge in mind and remembering it when necessary. In the second factor, students’ main goal in learning science is to “prepare for the exam” and getting high grades in the exams. In the third factor, students’ conceptions of learning is usually solving scientific problems and making quantitative calculations. In the 4th factor, students prefer to learn science in order to increase their knowledge. In the 5th factor, students define the purpose of learning science as applying the acquired knowledge to daily life. In the 6th factor, which is “understanding,” meaningful learning of scientific knowledge and forming links between concepts. In the last dimension, students gain a new perspective by learning science and find new ways of thinking. 5 point likert scale (strongly agree, agree, neither agree nor disagree, disagree and strongly disagree) was used in order to measure these factors in the questionnaire.

In this study, “Conceptions of Learning Science Questionnaire” is adapted to Turkish and necessary analyses were conducted. The term “science” was preferred since it refers to science and natural science (e.g. physics, chemistry and biology) and their features and methods like the word “science” in English.

The scale was translated from English to Turkish and then again from Turkish to English by three experts to make comparisons. Moreover, another expert conducted Turkish grammar check and made the necessary corrections. As a result of this stage, it was decided that there is consistency in meaning between the original and Turkish questionnaire by making some comparisons. The questionnaire was also prepared for validity and reliability analyses.

Data Analysis
Construct validity was tested by exploratory factor analysis and confirmatory factor analysis. The reliability coefficient (Cronbach Alfa) was calculated for each factor in the scale. For the analysis, SPSS 15 and Lisrel 8.72
software were used. In order to test the suitability of the data collected from 415 high school students for factor analysis, Kaiser-Meyer-Olkin (KMO) and Bartlett’s Sphericity tests were applied. KMO coefficient gives information about whether data matrix is suitable for factor analysis or not and whether data structure is suitable for factor subtraction. For factorability, KMO is expected to be higher than .50 (Field, 2000). Since the value obtained from KMO test was 0.871 and this value was close to 1, it was possible to model the data by factor analytical model (Tavşancıl, 2005). Bartlett’s test shows whether there is relationship between the variables basing on partial correlations (Büyüköztürk, 2011). After Bartlett’s Sphericity test, the Ki-Square ($\chi^2$) was found to be 4651.92 ($p < 0.01$) and zero hypothesis was rejected. The fact that the result of Bartlett’s test was meaningful shows that there is a normal distribution of the data with many variables and thus it is suitable for factor analysis (Çokluk, Şekerçioğlu & Büyüköztürk, 2010).

RESULTS

Exploratory Factor Analysis

According to the results of factor analysis which was conducted to examine the construct validity of the Turkish adaptation of the “The Conceptions of Learning Science” questionnaire, $10^{th}$, $11^{th}$, $13^{th}$ and $17^{th}$ items of the scale were removed from the scale since these items loaded on more than one factor or their factor loadings were under 0.45. After these items were removed from the scale, the same analysis was repeated by using SPSS 15.0 statistical package for the remaining 31 items. The results of the analysis are given in Table 1.

Table 1a: KMO and Bartlett’s Test Results

| Kaiser-Meyer-Olkin Measure of Sampling Adequacy | .871 |
| Bartlett’s Test of Sphericity | Ki Square | 4651.923 |
| sd | 465 |
| p | .000 |

Table 1b: Factor Analysis Results of the Scale

<table>
<thead>
<tr>
<th>Item No</th>
<th>Factor Common Variance</th>
<th>Factor 1 Loading Value</th>
<th>Factor 1 Loading Value after Rotation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor 1</td>
<td>Factor 2</td>
<td>Factor 3</td>
<td>Factor 4</td>
</tr>
<tr>
<td>B1</td>
<td>.769</td>
<td>.675</td>
<td>--</td>
</tr>
<tr>
<td>B2</td>
<td>.759</td>
<td>.705</td>
<td>--</td>
</tr>
<tr>
<td>B3</td>
<td>.597</td>
<td>.676</td>
<td>--</td>
</tr>
<tr>
<td>B4</td>
<td>.519</td>
<td>.501</td>
<td>--</td>
</tr>
<tr>
<td>B5</td>
<td>.597</td>
<td>.682</td>
<td>--</td>
</tr>
<tr>
<td>B6</td>
<td>.536</td>
<td>.576</td>
<td>--</td>
</tr>
<tr>
<td>B7</td>
<td>.670</td>
<td>.539</td>
<td>--</td>
</tr>
<tr>
<td>B8</td>
<td>.699</td>
<td>.525</td>
<td>--</td>
</tr>
<tr>
<td>B9</td>
<td>.535</td>
<td>.450</td>
<td>--</td>
</tr>
<tr>
<td>B12</td>
<td>.425</td>
<td>.428</td>
<td>--</td>
</tr>
<tr>
<td>B14</td>
<td>.567</td>
<td>.444</td>
<td>--</td>
</tr>
<tr>
<td>B15</td>
<td>.581</td>
<td>.428</td>
<td>--</td>
</tr>
<tr>
<td>B16</td>
<td>.462</td>
<td>.384</td>
<td>--</td>
</tr>
<tr>
<td>B18</td>
<td>.428</td>
<td>.580</td>
<td>--</td>
</tr>
<tr>
<td>B19</td>
<td>.657</td>
<td>.559</td>
<td>--</td>
</tr>
<tr>
<td>B20</td>
<td>.627</td>
<td>.664</td>
<td>--</td>
</tr>
<tr>
<td>B21</td>
<td>.516</td>
<td>.606</td>
<td>--</td>
</tr>
<tr>
<td>B22</td>
<td>.551</td>
<td>.540</td>
<td>--</td>
</tr>
<tr>
<td>B23</td>
<td>.484</td>
<td>.498</td>
<td>--</td>
</tr>
<tr>
<td>B24</td>
<td>.511</td>
<td>.520</td>
<td>--</td>
</tr>
<tr>
<td>B25</td>
<td>.637</td>
<td>.592</td>
<td>--</td>
</tr>
<tr>
<td>B26</td>
<td>.508</td>
<td>.548</td>
<td>--</td>
</tr>
<tr>
<td>B27</td>
<td>.597</td>
<td>.573</td>
<td>--</td>
</tr>
</tbody>
</table>
In Table 1b, it is seen that the 31 items that are analyzed are grouped under 7 factors whose Eigenvalue is over 1. These factors explain the 58% of the total variance regarding the scale. The common variance of the seven factors defined in relation to these items varied between 0.425 and 0.769. This situation is seen in Figure 1. According to the results of the analysis, the seven factors together that appeared as important factors in the analysis explain most of the total variance in the items and the variance regarding the questionnaire.

According to the rotated component matrix analysis given in Table 1b, it was found that the first factor of the scale consisted of five items (B31, B32, B33, B34, B35); the second factor consisted of five items (B1, B2, B3, B4, B5); the third factor consisted of five factors (B22, B23, B24, B25, B26); fourth factor consisted of four items (B18, B19, B20, B21); the fifth factor consisted of four items (B6, B7, B8, B9); sixth factor consisted of four items (B12, B14, B15, B16) and the seventh factor consisted of four items (B27, B28, B29, B30). The loading values of the items in the first factor varied between .578-.714, in the second factor between .500-.860, in the third factor .478-.716, in the fourth factor .484-.757, in the fifth factor .624-.795, in the sixth factor .561-.733 and in the seventh factor between .552-.734. When the contents of the items loaded on the factors were analyzed, depending on the names given in the original version of the questionnaire, the first factor was named “Seeing in a new way”, the second factor “memorizing”, the third factor “applying”, the fourth factor “increasing one’s knowledge”, the fifth factor “preparing for exams”, the sixth factor “calculating and practicing”, and the seventh factor “understanding.”

Moreover, regarding the reliability of the “Conceptions of Learning Questionnaire,” Cronbach’s alpha reliability coefficient was found to be 0.82. The item numbers and Cronbach’s alpha reliability coefficients for each sub-dimension are given in Table 2.
Table 2: The Reliability Results regarding the factors of the Conception of Learning Science Questionnaire

<table>
<thead>
<tr>
<th>Factors</th>
<th>Item Numbers</th>
<th>Cronbach's Alpha Internal Consistency Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor-1 Seeing in a new way</td>
<td>5</td>
<td>.81</td>
</tr>
<tr>
<td>Factor -2 Memorizing</td>
<td>5</td>
<td>.82</td>
</tr>
<tr>
<td>Factor -3 Applying</td>
<td>5</td>
<td>.74</td>
</tr>
<tr>
<td>Factor -4 Increasing One’s Knowledge</td>
<td>4</td>
<td>.74</td>
</tr>
<tr>
<td>Factor -5 Preparing for the exam</td>
<td>4</td>
<td>.74</td>
</tr>
<tr>
<td>Factor -6 Calculating and Practicing</td>
<td>4</td>
<td>.65</td>
</tr>
<tr>
<td>Factor -7 Understanding</td>
<td>4</td>
<td>.77</td>
</tr>
<tr>
<td>Total</td>
<td>31</td>
<td>.82</td>
</tr>
</tbody>
</table>

According to Büyüköztürk (2011), the internal consistency coefficient gives the lowest value that reliability is allowed to have and in social sciences a general reliability value over 0.70 is considered satisfactory to make the test points reliable. When the values in Table 2 are considered, it can be said that the reliability of the test is satisfactory.

Findings of Confirmatory Factor Analysis

In the study, exploratory factor analysis, which is the performance of identifying factor loadings by using the relationships between the variables, was made on 35 items in the scale. After the exploratory analysis, confirmatory factor analysis was performed on the reduced 31 items with the help of Lisrel 8.72 analysis software. In confirmatory factor analysis, it is aimed to test the hypothesis which is formulated on the relationship between the variables (Büyüköztürk, 2011).

In the first stage of the confirmatory factor analysis performed on the seven hidden variables determined by the exploratory factor analysis and the 31 indicator variables of the questionnaire, the suitability and modification indices of the model were examined. According to the result of this analysis, values of $x^2 = 929.08$ and $sd = 413$ were found. It is accepted that the suitability of the scale increases as the $x^2/sd$ ratio gets lower than 5:1 ratio (Haşlaman, 2005). When the ratio obtained from the study was examined, the ratio was found to be lower than 5:1 and thus it was seen that the suitability was acceptable although it was not high. When the suitability indices of Root Mean Square Error of Approximation (RMSEA); the goodness of fit index (GFI); comparative fit index (CFI) and normed fit index (NFI) were analyzed, the values of RMSEA=.055; GFI=0.87; CFI=0.95; NFI=0.92 were found. Since the RMSEA value was greater than .05 (a cut-off rule) and the GFI suitability index was smaller than 0.90, it was understood that the model needed some modifications to have high suitability (Vierra, 2011).

In order to identify on which items the modification would be performed, first path model was examined. Path model reveals the relationship between each observed variable and the corresponding factors (Albright, 2006). According to the model, the value of the relationship of the “memorizing” factor in the scale with B1 observed factor was found to be 1.17 and with B2 it was 1.16, with B3 0.90, with B4 0.49, with B5 0.83. The value of the relationship of the factor of “preparing for the exam” with B6 variable was 0.74, and with B7 it was 1.20, with B8 1.03, with B9 0.73. The value of the relationship of the factor “calculating and practicing” with B12 was 0.67, and with B14 it was 0.78, with B15 0.90, with B16 0.61. The value of the relationship of the factor of “increasing knowledge” with B18 was 0.68, and with B19 it was 0.60, with B20 0.74, with B21 0.72. The value of the relationship of the factor “applying” with B22 variable was 0.74, and with B23 it was 0.67, with B24 0.69, with B25 0.75, with B26 0.67. The value of the relationship of the factor of “understanding” with B27 variable was 0.60, and with B28 it was 0.73, with B29 0.79, with B30 0.69. Finally, the value of the relationship of the factor of “seeing in a new way” with B31 variable was 0.66, and with B32 it was 0.72, with B33 0.80, with B34 0.76, with B35 0.68.
In order to determine whether the values (predictions) showing the relationship between the factor and the variable were meaningful or not, for each relationship standard error value which was calculated in the path model and the relationship value were compared. As a result of this, the fact that the values showing the relationship were at least the twice of the standard error value shows that each relationship constructed in the path model had a meaningfulness level of .05. Moreover, when the calculated variance ($R^2$) value for each observed variable was examined, it was concluded that all variables had a high compatibility with the model. $R^2$ values were minimum 0.15 and maximum 0.75. All these obtained values shows that the predictions made for the path model were correct. Therefore, in order to increase the compatibility of the model, it is not necessary to remove the existing predictions from the model.

Finally, in order to increase the compatibility of the model, modification indices were analyzed and it was aimed to contribute to the improvement of the model by decreasing $\chi^2$ value through additional links formed between factors and variables. The modification indices which were analyzed for this purpose revealed that some of the variables in the scale had a relationship with more than one factor. Based on this, in addition to the links formed in the first path model, links between B6 variable and the factor of memorizing and calculating, between B23 variable and preparing for an exam, between B21 and B27 variables and calculating and practicing, between B21 and B22 variables and calculating and practicing, between B21 and B27 variables and applying, and finally between B31 variable and understanding were formed. After the modifications mentioned above were made, the compatibility indices and modification index of the newly constructed model were examined with the help of Lisrel 8.72 analysis software once more. According to the analysis result, $\chi^2=778.03$ and sd=405 ($p=.00$) values were obtained. When these values were compared with the results obtained from the previous model, they show that the model had a higher compatibility since these values were lower than the ratio of 5.1. When the other compatibility indices were analyzed, it was seen that the new model was more compatible with the data (RMSEA=.047; GFI=0.90; CFI=0.96; NFI=0.93).

The path model of the confirmatory factor analysis is given in Figure 2. As it is seen in Figure 2, the relationship value of the “memorizing” factor in the scale with B1 ($R^2=0.72$) observed variable was found to be 1.17, with B2 ($R^2=0.75$) 1.17, with B3 ($R^2=0.48$) 0.90, with B4 ($R^2=0.21$) 0.42, with B5 ($R^2=0.39$) 0.83;

The relationship value of “preparing for the exam” factor with B6 ($R^2=0.33$) variable was 0.63, with B7 ($R^2=0.62$) 1.20, with B8 ($R^2=0.58$) 1.05, with B9 ($R^2=0.27$) 0.72;

The relationship value of “calculating and practicing” factor with B4 variable was 0.32, with B6 0.28, with B12 ($R^2=0.24$) 0.66, with B14 ($R^2=0.39$) 0.82, with B15 ($R^2=0.46$) 0.87, with B16 ($R^2=0.25$) 0.61, with B22 0.28;

The relationship value of “increasing knowledge” factor with B18 ($R^2=0.35$) variable was 0.67, with B19 ($R^2=0.43$) 0.66, with B20 ($R^2=0.59$) 0.76, with B21 ($R^2=0.39$) 0.48;

The relationship value of “applying” factor with B21 variable was 0.31, with B22 ($R^2=0.41$) 0.59, with B23 ($R^2=0.37$) 0.73, with B24 ($R^2=0.32$) 0.70, with B25 ($R^2=0.45$) 0.77, with B26 ($R^2=0.34$) 0.68, with B27 0.28;

The relationship value of “understanding” factor and B27 ($R^2=0.33$) variable was 0.35, with B28 ($R^2=0.41$) 0.70, with B29 ($R^2=0.53$) 0.80, with B30 ($R^2=0.53$) 0.74, with B31 0.49;

Finally, the relationship value of “seeing in a new way” factor with B31 ($R^2=0.48$) variable was 0.23, with B32 ($R^2=0.44$) 0.71, with B33 ($R^2=0.55$) 0.82, with B34 ($R^2=0.56$) 0.78, with B35 ($R^2=0.36$) 0.70.

Moreover, t-values of the variables are given on another path model (Image 3). As it is seen in Image 3, t-value of B1 variable was 20.15; of B2 20.71; of B3 18.29; of B4 6.58; of B5 13.37; of B6 3.52; of B7 15.71; of B8 16.31; of B9 10.26; of B12 9.05; of B14 11.73; of B15 12.81; of B16 9.09; of B18 12.05; of B19 13.53; of B20 16.35; of B21 3.71; of B22 9.36; of B23 11.72; of B24 11.42; of B25 11.86; of B26 15.86; of B27 13.45; of B28 15.82; of B29 15.78; of B30 14.07; of B31 5.79; of B32 14.27; of B33 16.49; of B34 16.53; of B35 12.43. As a result, the findings of the analysis reveal that the model formed for the factor structure of the scale is valid.
Figure 2: The path analysis and factor loading values of the questionnaire according to the confirmatory factor analysis
Figure 3: t-values of the variables
CONCLUSIONS AND DISCUSSIONS

In this study, the “Conceptions of Learning Science Questionnaire”, which was developed by Lee and his colleagues (2008), was adapted to Turkish and exploratory and confirmatory factor analyses were conducted to examine its factor structure. 415 students from Ana dolu High Schools participated in the study. While in the original version of the questionnaire, there are 35 items, after the adaptation there are 31 items in the Turkish version. Basing on the factor analysis, 4 items (item 10, 11, 13 and 17) which were below the item loading of 0.45 and were overlapping were removed from the questionnaire.

In order to evaluate the suitability of the questionnaire for Turkish students, its construct validity was examined by exploratory factor analysis. Moreover, confirmatory factor analysis was conducted for the factor structure. When the analysis results were examined, it was seen that the Turkish version of the questionnaire had a 7-factor structure like the original version. Therefore, while naming the newly determined factors, names in the original version, which are memorizing, preparing for exams, calculating and practicing, increasing one’s knowledge, applying, understanding and seeing in a new way, were preferred. These factors together explain the 58.0% of the variance.

In the Turkish version of the questionnaire, internal consistency for the questionnaire in general was calculated as 0.82 and Cronbach's alpha reliability coefficient (α) for each factor varied between 0.65 and 0.82. The minimum point that a person can get in the questionnaire is 31 and the maximum is 155. As a result, under the light of the analyses conducted, it can be said that the “Conceptions of Learning Science Questionnaire” is a reliable and valid scale that can be used to identify and categorize the framing conceptions of students in Turkish culture while they are learning science in general.

It is thought that the COLS will be useful for education researchers and people who are interested in this field. It is important to apply the questionnaire to different samples, and then, to conduct reliability and validity tests for the standardization of the questionnaire.

In the research studies conducted, it was emphasized that there might be a close relationship between students’ conceptions of learning and their learning approaches and learning outcomes (Tsai & Khuo, 2008). Therefore, it is crucial to identify students’ conceptions of learning and to look for alternative solutions if the lower-level conceptions of learning (for example, if students conceptualized learning science as practice of memorization, tests, and calculations) are dominant. Curriculum developers, teachers and even parents should spend a considerable effort to reflect on the evaluation of the curriculum, varying teaching methods and techniques and implementing them effectively and creating a better understanding of their children. In further studies, with the help of adapted questionnaires of this kind, how students conceptualize learning science should be determined by identifying students’ conceptions of learning science. Under the light of the findings of these studies, students, teachers and parents should make concrete inferences regarding the learning process, learning approach and learning outcomes and, if necessary, they should come up with solutions.

REFERENCES


Yang, Y.F., & Tsai, C.C.(2010). Conceptions of and approaches to learning through online peer assessment. Learning and Instruction, 20, 72-83.