

*Full Length Research Paper*

# **Determining the readiness levels of pre-service teachers towards mobile learning in classroom management**

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**Mobile Technologies are used in many areas of education, but they can be used for many purposes towards mobile learning such as the most supporting and developing learning, accessing information, being independent from time and space, increasing motivation, conducting research and preparing for examinations. The fact that mobile technology and mobile learning are independent from time and space means that they are always ready to use, and being practical and potable has made mobile events accepted all over the world. The aim of this study is to determine the level of readiness of the pre-service teachers studying in education faculties towards mobile learning. In the study, general survey model was used. The sample of the study is composed of 934 prospective teachers studying at the education faculty of Mustafa Kemal University, Turkey. The mobile learning readiness scale was used as data collection tool in the research. The validity and reability study of the scale used in the research was calculated in general terms of the scale and the Cronbach Alpha coefficient is reported as 0.95. As a result of the research, it was determined that the readiness level of the prospective teachers does not change depending on the gender and the students use the mobile technologies most in communication, studying, acquiring information and making plans. In addition, in the study, the results have been reached, such as both theoretical and practical training should be given in universities in order to increase the availability of prospective teachers on mobile learning.**

**Key words:** Mobile learning, online learning, mobile technology, readiness, classroom management.

## **INTRODUCTION**

With the rapid development and widespread use of technology, wired and stationary devices are fixed and made portable (Elçiçek and Bahçeci, 2017). These devices which are used as mobile, removable or portable are nowadays called mobile devices. Mobile technologies

that are developing very rapidly carry learning activities such as research and practice in the field of education out of the classroom environment thanks to their easy accessibility and portability (Crowley and Heyer, 2015; Saran et al., 2009).

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The history of mobile technology dates back to the 1970s. Mobile technologies are constantly evolving from day to day, developing and being added to these mobile devices every day (Sezal, 2018; Crompton, 2014; Polat and Odabaşı, 2008; Sharples et al., 2005). The first serious study of mobile learning is based on the concept of the device named as dynabook developed in 1972 with the slogan 'personal computer for all children' (Kukulka-Hulme et al., 2009).

Some of these devices used in education today are mobile phones, smartphones, handhelds, iPods, MP<sub>3</sub> players, tablet PCs, lap-tops, flash drives, personal media players and portable hard drives (Koşar, 2018; Ekren and Kesim, 2016; Kukulka-Hulme and Traxler, 2005; Lan and Sie, 2010; Caudill, 2007; Yuen and Wang, 2004; Jacob and Isaac, 2014). These mobile devices can make synchronized voices easier and less costly than other online technologies, depending on the content generated by the learning styles, files such as radio programs and videos that are automatically downloaded over the internet can be used both in formal education and distance education through educational materials (Keengwe and Bhergava, 2014; Shunye, 2014; Brown, 2003; Traxler and Vosloo, 2014; Traxler, 2005).

According to Crompton (2013), mobile learning occurred with the combination of mobile devices with softwares and the combination of these adapted to the educational environments is the learning that takes place in a multifaceted context through social interaction and content interaction using personal electronic devices. Mobile learning is defined, according to Quinn (2000), as effective use of mobile devices in e-learning activities, according to Traxler (2013), as any kind of learning activity that can be carried out by mobile devices, according to Wyne (2015), as learning and teaching activities carried out through wearable or portable technologies. With a general definition, mobile learning is a period in which communicative and collaborative environments can be accessed through mobile technologies without content and time constraints, which will meet the learning needs of individuals (Baran, 2014; Mouza and Barrett-Greenly, 2015; Clark and Mayer, 2016).

Firstly, there is a need for learning management system software which will be updated continuously to reach information with mobile devices, to increase learning and to make information easily manageable by everyone (Ozan, 2009; Tekerek and Bay, 2009). Learning management system is the management software that keeps statistics about topics such as sharing of course content and materials prepared for educational purposes between teachers and students, sending and collecting assignments, attendance level of students, success level and enabling online communication (McGill and Klobas, 2008). The learning management system is a substructure that transmits and distributes educational content, identifies and evaluates

personal and organizational learning and educational goals, follows the process towards these goals and collects and presents data to supervise the organizational learning process as a whole (Szabo and Flesher, 2002). The Learning Management Systems also provide user and administrator interface support for mobile devices for users (Elçiçek and Bahçeci, 2017). These systems have become a focus of interest in education as well as in every area of our lives where technology is heavily used (Raua et al., 2008).

Mobile learning has many benefits for learners. Some of them can be listed as instantly getting the latest information, getting support, gaining time, being independent from time and space, increasing motivation, managing learners, spreading knowledge quickly, communicating with the environment (Bolat, 2016). Mobile learning can make learning environments for students more attractive, motivating and more interesting (Vinci and Cucci, 2007). Thanks to mobile technology and mobile learning, teachers can reach their students at any time and direct them by giving ideas or information on each topic. Teachers and students can contact simultaneously or asynchronously by mobile technologies (Zhang and Nunamaker, 2003). Teachers can manage the students in their classes through various games through mobile technology and can increase the motivation and motivation of the students. According to Yıldırım and Demir (2014), in classroom management, the arrangement of learning environments with play items will ensure that students are motivated in the positive direction.

Students can learn by transforming their moments into advantages when walking, doing sports, traveling, doing daily work or resting as they are independent of the place, can maximize their skill acquisition and manage the learning period better than to mobile learning (Tonga, 2015). However, mobile technologies with such an advantage can cause information pollution because information can be spread very quickly and easily. It has also been found that in the areas of limited bandwidth with the spread of new mobile devices and learning environments, the fact that synchronized voices are delivered easier and less costly than other online technologies increase existing information, which also makes management of information more difficult (Brown, 2003; Şendağ, 2008).

The world states have moved into the information society as a new social phenomenon with the influence of mobile technologies in the last century. The most important feature of the information society like in mobile education is the creation and rapid dissemination of information through the virtual environment. The world states have improved mobile devices at this stage by first producing mobile devices and then developing systems or softwares that are necessary for the use of mobile devices. These carefully developed systems have been equipped with continuously renewed technologies, have

been opened up to countries that are advancing towards the information society (Duran et al., 2006; Vaishnavi and Kuechler, 2015).

Countries that have been transformed into knowledge societies have developed some competencies under the name of lifelong learning for decades to come to an end during the lives of individuals since 2000s. Lifelong learning developed by the European Commission (2002), is all activities aimed at improving individual's knowledge, competencies, competences individually, socially or professionally throughout life. The European Commission has also identified some knowledge, skills and attitudes they need to have in order for them to be lifelong learners within lifelong learning (Karakuş, 2013). Lifelong learning has identified eight key competencies that need to be developed for personal achievement, active citizenship, social inclusion and employment within the information society in terms of core qualifications (European Commission, 2007). One of these qualifications is digital competence. Digital competence according to Özgür (2016), covers both the self-confident and critical use of information society technologies for business, entertainment and communication, as well as the use of computers; including the use of basic information and communication technologies, including information acquisition, measurement and evaluation, production, presentation, sharing and use in online environments by the internet. Digital competencies should be supported by basic information communication technologies to enable computers to communicate, evaluate, store, produce, share and collaborate on the internet through open networks (European Commission, 2007). To be a lifelong learner, it is necessary to have current literacy such as information literacy, media literacy, internet and computer literacy at a basic level (European Commission, 2007; Bryce, 2006; Adams, 2007; Candy et al., 1994).

As a result, mobile learning is a form of learning that sharing of learning resources among teachers and learners in the same or different places based on flexibility of time and space, instruction of students or students by using mobile devices, utilization of internet services by evaluating e-learning areas and allows to communicate with others (Tarimer and Okumuş, 2007; Tick, 2006).

The impact on learning and teaching is undoubtedly crucial in terms of education and training in mobile and mobile learning, where the level of readiness of prospective teachers is at a level and whether the demographic variables affect prospective teachers' readiness for mobile learning. For this reason, it was considered necessary for the researcher to conduct this research both in terms of providing information and ideas to teachers, inspectors, academicians, trainers, administrators and students.

## METHODOLOGY

Here, place to the problem cluster has been given, the purpose, the

universe and sample, the data collection tool, the method and the model of the research.

### Problem sentence

What level of readiness of the pre-service teachers studying at the faculty of education is for mobile learning? Does the readiness of the candidates for mobile learning differ according to gender, program type and grade level variables?

### Purpose of the research

The purpose of this research is to try to determine the readiness of the pre-service teachers studying in the faculty of education by taking into consideration the gender, program type and class level demographic variables and to find out some inferences from the arithmetic mean of the responses given to the scale items.

### Universe and sample

This study's universe constitutes all the students who study in the programs of Mustafa Kemal University, Faculty of Education and the sample of this study is 934 pre-service teachers who are studying in Mustafa Kemal University, Faculty of Education, Turkish Language Teaching, English Language Teaching, Science Education, Computer Teaching Technology and Classroom Teaching programs.

### Research model

This research was carried out in order to determine the readiness of the pre-service teachers studying in the education faculties for mobile learning by taking into consideration the gender, program type and class level demographic variables. For this purpose, the questionnaires and scales used in the previous researches on mobile learning were scanned and the mobile learning readiness scale developed by Lin et al. (2016) and adapted to Turkish by Gökçearslan et al. (2017), was used as data collection tool in the research. For the scale developed by Lin et al. (2016), a pool of 55 questions about mobile learning, readiness, mobile anxiety, and basic characteristics of mobile learning was established and scale items were administered to 319 participants for validity and reliability analyses and a 19-item mobile learning readiness scale consisting of 3 sub-dimensions was developed.

Turkish adaptation studies was made by Gökçearsla et al. (2017), in order to be used in Turkey. Studies on adaptation of the scale to the Turkish language were carried out on 698 students studying in the university and undergraduate. Kaiser Mayer Olkin test result was determined as 0.95, Barlett sphericity test result as ( $X_2=12779.55$ ;  $p=0.000$ ) in Turkish adaptation studies of the scale. Also, it was determined that the factor loadings of 17 items of 19 items were 0.651 and above, the variance caused by the first factor was 54.9%, and that the return result was composed of 3 sub-dimensions consisting of items with a scale greater than 1. It has been determined that the size of the optimism, the 1st dimension of the scale, accounts for 28.8% of the total variance of the scale, the second sub-dimension, self-efficacy dimension, accounts for 27.7% of the total variance, the third dimension, the self-learning dimension, accounts for 18.5% of the total variance and the third subscale discloses 75.1% of the common variance.

When an experts opinion is sought in order to examine the scale items in terms of meaning, it has been determined that article 7 covers article 6, article 18 covers article 19 and it has been decided to dispose of items 6 and 19 in the scale and then analyzed over 17

**Table 1.** t-test analysis results according to gender variable of answers given by prospective teachers to the readiness scale for mobile learning.

| Gender                 | N   | $\bar{x}$ | Ss    | Sd  | -t    | p      |
|------------------------|-----|-----------|-------|-----|-------|--------|
| <b>Mobile learning</b> |     |           |       |     |       |        |
| 1. Female              | 576 | 103.953   | 6.365 | 932 | 1.408 | 0.159  |
| 2. Male                | 358 | 103.338   | 6.686 |     |       |        |
| Total                  | 934 | -         | -     | -   | -     | p>0.05 |

articles. As in general terms of the scale consisting of 17 matters, Cronbach Alpha internal consistency coefficient was calculated as 0.95, first sub-dimension as 0.95, second sub-dimension as 0.94 and third sub-dimension as 0.89. The internal consistency coefficients greater than 0.70 indicate that the scale is reliable (Karasar, 2010). The Pearson moment product correlation coefficient was calculated as 0.68 in the analysis for the determination of the scale. Correlation coefficients between 0.30 and 0.70 indicate that the scale has moderate stability (Büyükoztürk, 2008).

The responses of the participants to the scale according to the demographic variables were calculated using the t-test with the help of the SPSS 20 statistical package program and the ANOVA test with one-way analysis of variance. The scale used in the research consists of 17 items in the type of the seven likert (1) Strongly disagree, (2) Not agree, (3) Partially not agree, (4) Undecided, (5) Partially agree, (6) Agree and (7) Strongly agree. The general assessment of the scale used in the research is as follows (Dönger et al., 2016):

$$OR = \frac{HV - LV}{NO} = \frac{7 - 1}{7} = 0.85$$

where OR: option range, HV: highest value, LV: lowest value, and NO: number of options. 1.00 - 1.85: Strongly disagree, 1.86 - 2.71: Not agree, 2.72 - 3.57: Partially not agree, 3.58 - 4.43: Undecided, 4.44 - 5.29: Partially agree, 5.30 - 6.15: Agree, and 6.16 - 7.00: Strongly agree.

In the study, the general survey model, which is one of the descriptive scanning methods, was used. The general survey model is a screening of the whole universe or a set of samples or samples taken from it, in order to arrive at a judgment about the universe in an environment composed of a large number of elements (Karasar, 2010).

## FINDINGS

Here, it was tried to determine the readiness levels of the pre-service teachers for mobile learning depending on the gender, program type and class level demographic variables and also the answers that the pre-service teachers gave to the scale items were tabled and interpreted.

From the analysis of the data in Table 1, depending on the answers given by the pre-service teachers participating in the survey to the Readiness Survey for Mobile Learning scale, depending on the gender variable; it has been determined that there is no statistically significant difference between male and female pre-

service teachers ( $p < 0.05$ ). Therefore, it can be said that the readiness of male pre-service teachers and female pre-service teachers are close to or equal to those of mobile learners.

In the analysis of the data in Table 2, by using the answers given by prospective teachers to the Preparedness Survey for Mobile Learning, it was determined from the Tukey test analysis results that among the pre-service teachers who study at different grade levels, there was a statistically significant difference in opinion between the students studying in the 4th grade and the students in the 1st grade which was in favor of the students studying in the 4th grade [ $F_{(3,16)}$ ,  $p_{(,024)}$ ;  $p < 0.05$ ]. Therefore, it can be said that the readiness level of the pre-service teachers who study in the 4th grade is higher than the prospective teachers who study in the 1st grade.

When the data in Table 3 were examined, from the answers given by the pre-service teachers participating in the survey to the Preparedness Survey for Mobile Learning, it was determined from Tukey test results that among the prospective teachers who read in different types of programs, there is a statistically significant difference in opinion in favor of prospective teachers who are studying in Computer and Teaching Technology (CTE), Teaching English (TE) and Teaching Science (TS) and Teaching Computer Science Teaching (CTE) [ $F_{(2,736)}$ ,  $p_{(,028)}$ ;  $p < 0.05$ ]. Based on the results of the research, it can be said that the pre-service teachers who study in the Teaching Technology Teaching Program have higher readiness of using mobile technology than the pre-service teachers who study in other programs because of the program they have studied.

When the analyses of the data in Table 4 were examined, moving from the answers given by the pre-service teachers participating in the survey to the Preparedness Survey for Mobile Learning, it was determined from ANOVA test analysis results that there was no statistically significant difference in opinion among the prospective teachers with different monthly maternity incomes [ $F_{(,587)}$ ,  $p_{(,623)}$ ;  $p > 0.05$ ]. Therefore, it can be said that monthly income of the family does not affect the readiness of the pre-service teachers towards mobile learning.

**Table 2.** Analysis results of Anova test according to the grade level variable of answers given by prospective teachers to the readiness scale for mobile learning.

| Grade level | N   | $\bar{x}$ | Ss   | Source of variance | Sum of squares | Sd  | Squares average | F    | P (Tukey) |
|-------------|-----|-----------|------|--------------------|----------------|-----|-----------------|------|-----------|
| 1. Grade    | 250 | 102.72    | 6.17 | Between groups     | 396.97         | 4   | 132.32          | 3.16 | 0.024     |
| 2. Grade    | 244 | 104.13    | 6.49 | In groups          | 38940.41       | 342 | 41.87           |      |           |
| 3. Grade    | 227 | 103.72    | 6.67 | Total              | 39337.38       | 346 |                 | 4-1  |           |
| 4. Grade    | 213 | 104.42    | 6.57 | -                  | -              | -   |                 | -    |           |
| Total       | 934 | 103.72    | 6.49 | -                  | -              | -   | -               | -    | p<0.05    |

**Table 3.** Analysis results of Anova test according to program type variable of answers given by prospective teachers to the readiness scale for mobile learning.

| Program type | N   | $\bar{x}$ | Ss   | Source of variance | Sum of squares | Sd  | Squares average | F     | P (Tukey) |
|--------------|-----|-----------|------|--------------------|----------------|-----|-----------------|-------|-----------|
| 1. TT.       | 105 | 104.05    | 6.98 | Between groups     | 458.09         | 4   | 114.52          | 2.736 | 0.028     |
| 2. TE.       | 135 | 103.36    | 6.54 | In groups          | 38879.29       | 929 | 41.85           |       |           |
| 3. TS.       | 119 | 102.92    | 6.07 | Total              | 39337.38       | 933 |                 |       |           |
| 4. CTE       | 121 | 105.37    | 6.85 | -                  | -              | -   |                 | 4-2   |           |
| 5. CT.       | 354 | 103.65    | 6.26 | -                  | -              | -   |                 | 4-3   |           |
| Total        | 934 | 103.72    | 6.49 | -                  | -              | -   | -               | -     | p<0.05    |

**Table 4.** ANOVA test analysis results according to the variable of the monthly earnings of the answers of the pre-service teachers to the readiness scale for mobile learning.

| Family income | N   | $\bar{x}$ | Ss   | Source of variance | Sum of squares | Sd  | Squares average | F     | P (Tukey) |
|---------------|-----|-----------|------|--------------------|----------------|-----|-----------------|-------|-----------|
| 1. 1-2000     | 267 | 104.05    | 6.92 | Between groups     | 74.39          | 3   | 24.80           | 0.587 | 0.623     |
| 2. 2001-4000  | 285 | 103.33    | 6.34 | In groups          | 39262.99       | 930 | 42.22           |       |           |
| 3. 4001-6000  | 165 | 103.76    | 6.35 | Total              | 39337.38       | 933 |                 |       |           |
| 4. 6001-up.   | 217 | 103.79    | 6.27 |                    |                |     |                 |       |           |
| Total         | 934 | 103.72    | 6.49 |                    |                |     |                 |       | p>0.05    |

Table 5 shows the arithmetic mean of the answers given by the prospective teachers studying in the Faculty of Education to the Preparedness Survey for Mobile Learning.

When the arithmetic averages of the answers to the items of the self-sufficiency dimension which is the first sub-dimension of the scale were examined, it was determined that the items with the highest arithmetic mean in the sub-dimension are the third item ( $\bar{x} = 6.52$ ), the fourth item ( $\bar{x} = 6.47$ ) and the fifth item ( $\bar{x} = 6.37$ ). In addition, it was determined that the sub-dimension ( $\bar{x} = 6.15$ ), which has the highest arithmetic mean of the scale, is again the self-sufficiency dimension.

When the arithmetic averages of the responses to the second subscale of optimism were examined, it was determined that the 7th item ( $\bar{x} = 6.50$ ), the 10th item ( $\bar{x} = 6.36$ ) and the 8th item ( $\bar{x} = 6.16$ ) have the highest arithmetic mean. The arithmetic average ( $\bar{x} = 6.12$ ) of the optimistic subscale of your scale was calculated.

When the arithmetic mean of the responses to the self-learning subdimension, which is the third subdimension of the scale, was examined, it was determined that the 16th item ( $\bar{x} = 6.26$ ), the 15th item ( $\bar{x} = 6.01$ ) and the 14th item ( $\bar{x} = 5.93$ ) have the highest arithmetic mean. The arithmetic mean ( $\bar{x} = 5.98$ ) of the self-learning sub-dimension was calculated as the lowest arithmetic mean of the scale. Moreover, when the arithmetic mean of the scale items is taken into consideration, it is determined that the 17th item with the lowest arithmetic average is again in this dimension with good time ( $\bar{x} = 6.26$ ).

When the correlation analysis of the sub-dimensions of the Mobile Learning Readiness Scale of Table 6 was examined, it was found that there was a positive correlation at the weak level ( $r = 0.156$ ) between the self-efficacy subscale with the subscales of the scale and the optimistic subscale, self- ( $r = 0.117$ ) between positive dimension and weak dimension ( $r = 0.217$ ) between self esteem subscale and self learning subdimension ( $r =$

**Table 5.** The arithmetic mean and skill levels of answers given by prospective teachers to the readiness scale for mobile learning.

| Mobile learning readiness scale                                                                      | $\bar{x}$ | Level of skills |
|------------------------------------------------------------------------------------------------------|-----------|-----------------|
| <b>Self-sufficiency</b>                                                                              |           |                 |
| 3. I am self-reliant on using mobile learning systems to communicate effectively with others.        | 6.52      | Strongly agree  |
| 4. I am self-reliant when using the internet to acquire knowledge or to collect for mobile learning. | 6.47      | Strongly agree  |
| 5. I am self-reliant while working on using mobile learning systems.                                 | 6.37      | Strongly agree  |
| 11. I am self-reliant on using the basic functions of mobile learning systems.                       | 5.88      | Agree           |
| 6. I am self-reliant in knowing how mobile learning systems work.                                    | 5.84      | Agree           |
| 2. I rely on my knowledge and skills about mobile learning systems.                                  | 5.83      | Agree           |
| <b>Optimism</b>                                                                                      |           |                 |
| 7. I like working with mobile learning systems because I can work whenever I want.                   | 6.50      | Strongly agree  |
| 10. I like mobile learning systems.                                                                  | 6.36      | Strongly agree  |
| 8. Mobile learning systems allow me to work more effectively.                                        | 6.16      | Strongly agree  |
| 12. The newest mobile learning systems are much more useful.                                         | 6.08      | Strongly agree  |
| 13. Mobile learning systems give me more freedom to work.                                            | 6.04      | Agree           |
| 9. I like mobile learning systems that I can tailor to my needs.                                     | 5.98      | Agree           |
| 11. Mobile learning systems enable people to have more control over their working times.             | 5.75      | Agree           |
| <b>Self Learning</b>                                                                                 |           |                 |
| 16. I set goals in my work and take high responsibility.                                             | 6.26      | Strongly agree  |
| 15. I have my own work plan.                                                                         | 6.01      | Agree           |
| 14. I can manage my own learning process.                                                            | 5.93      | Agree           |
| 17. I manage time well.                                                                              | 5.74      | Agree           |

General Arithmetic Average of the Scale: 6.101 (Agree).

**Table 6.** Correlations analysis results according to the subscales of the answers given by the prospective teachers to the readiness scale for mobile learning.

| Lower dimensions of the scale |                     | Self-sufficiency | Optimism | Self learning |
|-------------------------------|---------------------|------------------|----------|---------------|
| Self-sufficiency              | Pearson correlation | 1                | 0.156**  | 0.117**       |
|                               | p                   |                  | 0.000    | 0.000         |
|                               | N                   | 934              | 934      | 934           |
| Optimism                      | Pearson correlation | 0.156**          | 1        | 0.242**       |
|                               | p                   | 0.000            |          | 0.000         |
|                               | N                   | 934              | 934      | 934           |
| Self learning                 | Pearson correlation | 0.117**          | 0.242**  | 1             |
|                               | p                   | 0.000            | 0.000    |               |
|                               | N                   | 934              | 934      | 934           |

0.217). It has been determined that there is a weak or a relationship between each dimension of the scale and the movement from the obtained data.

## DISCUSSION

Here, the results obtained without the research and the

recommendations developed for the results are given.

In the study, there was no significant difference in the level of readiness for mobile learning between female and male pre-service teachers due to gender. Therefore, it can be said that the prospective teachers' prospects for mobile learning are close to each other or at the same level. In a survey conducted by Elçiçek and Bahçeci (2015), there was no difference in the attitudes of mobile

vocational high school students towards mobile learning depending on gender. There was no significant difference between male and female teachers in the study of determining the level of perception of mobile learning by Kuşkonmaz (2011). In a study conducted by Kantaroğlu and Akbıyık (2017), the students' attitudes towards mobile learning were determined and there was no significant difference between female and male students in the study.

In the study, it was determined that the students who study in the 4th grade have higher mobile learning readiness than the students who study in the 1st grade. In interviews with students, it has been found that the reasons for this situation are that students studying in the first semester do not have any purpose such as preparing for exams to be engaged in a job or life, whereas students studying in the fourth semester are prepared for continuous exams in order to become a profession. It has been determined that they are ready to use mobile technology because they are forced to use mobile technologies continuously in order to exchange information or communicate with their friends about the questions to be asked during the exams. In a study conducted by Sirakaya and Sirakaya (2017), the mobile learning attitudes of the students studying at vocational school were examined and there was no significant difference between the students who study in the first grade and the students who study in the second grade.

In the study, among the students who study in different types of programs, the students who study in Computer Education and Instructional Technology Teachers were found to have higher readiness on mobile learning than the students who study in other sections. When the reason for this situation was investigated, it was determined that most of the students studying in Computer Education and Instructional Technology Teachers graduated in the computer department of the vocational high schools and therefore the information about the mobile technologies studied more than other students because they study in the computer related sections for 4 years before they settled in the university. In a research conducted by Kantaroğlu and Akbıyık (2017), the attitudes of students in different faculties on mobile learning were examined and there was no statistically significant difference between the students studying in different faculties.

In the study, it was determined that the monthly income of the family does not affect the readiness of the students on mobile learning. This is because today's students have all the mobile devices that they use, and because their families have received at least one mobile device for their children who study their lessons, regardless of their monthly earnings, and because of this they partially fulfill the duty of the family it has been determined that the availability of mobile learning remains in the child's own skill rather than their family. However, although there is no connection between the monthly income of the family

and the use of mobile technology, the fact that mobile phones are constantly and monthly fixed in terms of both speaking and communicating and using the internet, and that this fee is directly proportional to usage, depends on the monthly income of the family.

Based on the highest arithmetic mean of the research, it was determined that the prospective teachers preferred mobile technologies because of communication, academic achievement, knowledge acquisition, learning to work with mobile technology, lesson plans made by mobile technology, and effective study. When examining the research data, it can be said that the pre-service teachers are familiar with mobile technologies and they use mobile technologies to improve themselves in academic and cultural sense. In some researches, it has been determined that mobile learning increases the academic success of the students (Enriquez, 2010; Çavus and Doğan, 2009; Fetaji and Fetaji, 2010; Chena et al., 2008; Korkmaz, 2010).

In the study, the overall arithmetic mean of the scale used was 6.01 (Agree). However, it was expected that the arithmetic average of the scale would be between 6.16 and 7.00 (Strongly agree). Based on the interviews with the students, it has been determined that the reason of this situation is that the students are informed about mobile learning, mobile technology or mobile applications, in part, but not on the desired level of mobile learning. According to Asher and Miller (2011), students often have access to information but have difficulty understanding, comprehending, synthesizing and evaluating online information.

## RECOMMENDATIONS

Mobile devices have entered life in all areas of life. For this reason, all our students should be equipped with the skills necessary to use mobile technology even at the level of literacy. Since these skills are often available at school, students should be given both theoretical and practical lessons in mobile technology at every level, from primary education to university.

To be able to effectively use mobile technologies and reach the latest, most accurate and most advanced knowledge, students must know at least one of the universal languages widely used in the world. Students should be supported in this subject.

Students who are able to use mobile technology effectively will want to access the information easily. For this reason, libraries must be translated into e-libraries, and access to these libraries should be either cheap or free.

Thanks to mobile technology, teachers' dominance in classroom management is increasing, and motivation and motivation of students are increased, thanks to some games played in class. For this reason, all classes in education should be equipped with digital or mobile

technologies in order to raise the morale and motivation of both teachers in classroom management or in control and morale.

Teaching programs that are used effectively in schools should be designed from scratch and made to include mobile technologies. Therefore, either the necessary changes should be made in existing teaching programs or the teaching programs should be prepared from scratch.

In-service trainings should be given to all teachers who are studying at universities' education faculties or working in schools by institutions or organizations that are in charge of mobile technology so that both pre-service teachers and teachers working at schools should be made more knowledgeable and competent about mobile learning and mobile technologies.

## CONFLICT OF INTERESTS

The authors has not declared any conflict of interests.

## REFERENCES

- Adams DN (2007). Lifelong learning skills and attributes: The perceptions of Australian secondary school teachers. *Issues Educ. Res.* 17:1-12.
- Asher A, Miller S (2011). So you want to do anthropology in your library? Or a practical guide to ethnographic research in academic libraries. <http://www.erialproject.org/wp-content/uploads/2011/03/Toolkit-3.22.11.pdf> Erişim Tarihi: 05.02.2018.
- Baran E (2014). A Review of research on mobile learning in teacher education. *Educ. Technol. Soc.* 17(4):17-32.
- Bolat Y (2016). The Flipped classes and education information network. *J. Hum. Sci.* 13(2):3373-3388.
- Brown T (2003). The role of m-learning in the future of e-learning in Africa. Paper Presented at the 21st ICDE World Conference, June, Hong Kong.
- Bryce J (2006). Schools and lifelong learners. In J. Chapman, P. Cartwright & E.J. McGilp (Eds.), *Lifelong learning, participation and equity*. Dordrecht: Springer. pp. 243-263
- Büyükoztürk Ş (2008). Veri analizi el kitabı. Ankara: Pegem A Yayıncılık.
- Candy PC, Crebert RG, O'Leary J (1994). Developing lifelong learners through undergraduate education. Commissioned report no. 28, NBEET: Canberra.
- Caudill JG (2007). The growth of m-learning and the growth of mobile computing: Parallel developments. *Int. Rev. Res. Open Distrib. Learn.* 8(2):1-13.
- Chena RTH, Bennetta S, Matonb K (2008). The adaptation of Chinese international students to online flexible learning: two case studies. *Distance Educ.* 29(3):307-323.
- Clark RC, Mayer RE (2016). *E-learning and the science of instruction* (4th. Ed). San Francisco: Pfeiffer.
- Crompton H (2013). Mobile learning: New approach, new theory. In Z. L. Berge and L. Y. Muilenburg (Eds.), *Handbook of Mobile Learning*, Florence, KY: Routledge. pp. 47-57.
- Crompton H (2014). A diachronic overview of technology contributing to mobile learning: A shift towards student-centered pedagogy. In M. Ally & A. Tsinakos (Eds.), *Increasing access through mobile learning*. Canada: Athabasca University. pp 7-15.
- Crowley D, Heyer P (2015). *Communication in history: Technology, culture, society*. Routledge.
- Çavus N, Doğan İ (2009). m-Learning: An experiment in using SMS to support learning new English language words. *Brit. J. Educ. Technol.* 40(1):78-91.
- Dönger A, Özkartal Z, Sarıgöz O (2016). An investigation into variables that affect self efficacy beliefs of people working in educational institutions. *IIB Int. Refereed Acad. Soc. Sci. J.* 24(4):1-17.
- Duran N, Önal A, Kurtuluş C (2006). E-öğrenme ve kurumsal eğitimde yeni yaklaşım öğrenim yönetim sistemleri. IV. Bilgi Teknolojileri Kongresi, Akademik Bilişim, Bildiriler Kitabı, 97-101.
- Ekren G, Kesim M (2016). Mobil iletişim teknolojilerindeki gelişmeler ve mobil öğrenme. *Açıköğretim Uygulamaları ve Araştırmaları Dergisi*, 2(1):36-51.
- Elçiçek M, Bahçeci F (2015). Meslek yüksekokulu öğrencilerinin mobil öğrenmeye yönelik tutumlarının incelenmesi. *Sakarya Üniversitesi Eğitim Fakültesi Dergisi*, 30:16-33.
- Elçiçek M, Bahçeci F (2017). Mobil öğrenme yönetim sisteminin öğrenenlerin akademik başarıları ve tutumları üzerindeki etkilerinin incelenmesi. *Kastamonu Üniversitesi Kastamonu Eğitim Dergisi*, 25(5):1695-1714.
- Enriquez AG (2010). Enhancing student performance using tablet computers. *Coll. Teach.* 58(3):77-84.
- European Commission (2002). European report on quality indicators of lifelong learning. Fifteen quality indicators. European Commission, Directorate General for Education and Culture, June, Brussels.
- European Commission (2007). Directorate-general for education and culture. Key competences for lifelong learning European reference framework, Brussels, Belgium, EC lifelong learning programme. [http://ec.europa.eu/dgs/education\\_culture/pub\\_1/pdf/ll-learning/keycomp\\_en.pdf](http://ec.europa.eu/dgs/education_culture/pub_1/pdf/ll-learning/keycomp_en.pdf) Erişim tarihi: 12.03.2018.
- Fetaji B, Fetaji M (2010). Software engineering mobile learning software solution using task based learning approach. *world academy of science. Eng. Technol.* 54:400-404.
- Gökçearslan Ş, Solmaz E, Kukul V (2017). Mobil öğrenmeye yönelik hazırbulunuşluk ölçeği: Bir uyarılama çalışması. *Eğitim Teknolojisi Kuram ve Uygulama*, 7(1):143-157.
- Jacob SM, Issac B (2014). The mobile devices and its mobile learning usage analysis. arXiv preprint arXiv: 1410.4375.
- Kantaroğlu T, Akbıyık A (2017). İşletme fakültesi ve eğitim fakültesi öğrencilerinin mobil öğrenmeye yönelik tutumlarının karşılaştırılması. *İşletme Bilimi Dergisi*, 5(2):25-50.
- Karakuş Ç (2013). Meslek yüksekokulu öğrencilerinin yaşam boyu öğrenme yeterlikleri. *Eğitim ve Öğretim Araştırmaları Dergisi*, 2(3):26-35.
- Karasar N (2010). *Bilimsel araştırma yöntemi*. Ankara: Nobel Yayın Dağıtım.
- Keengwe J, Bhargava M (2014). Mobile learning and integration of mobile technologies in education. *Educ. Inf. Tech.* 19(4):737-746.
- Korkmaz H (2010). The effectiveness of mobile assisted language learning as a supplementary material for english language teaching coursebooks. Unpublished Master's Thesis, Bilkent University, The Department of Teaching English as a Foreign Language, Ankara.
- Koşar D (2018). Examining the views of prospective teachers on the use of mobile phones. *J. Int. Soc. Res.* 11(55), 641-654.
- Kukulka-Hulme A, Traxler J (2005). *Mobile learning: A handbook for educators and trainers*. London: Routledge.
- Kukulka-Hulme A, Sharples M, Milrad M, Arnedillo-Sanchez IA, Vavoula G (2009). Innovation in mobile learning: A European perspective. *Int. J. Mobile Blended Learning*, 1(1):13-35.
- Kuşkonmaz H (2011). İlköğretim okullarındaki öğretmenlerin mobil öğrenmeye yönelik algı düzeylerinin belirlenmesi. *Yayınlanmamış Yüksek Lisans Tezi*, Bahçeşehir Üniversitesi, Fen Bilimleri Enstitüsü, İstanbul.
- Lan YF, Sie YS (2010). Using RSS to support mobile learning based on media richness theory. *Comput. Educ.* 55(2): 723-732.
- Lin HH, Lin S, Yeh CH, Wang YS (2016). Measuring mobile learning readiness: Scale development and validation. *Internet Res.* 26(1):265-287.
- McGill TJ, Klobas JE (2008). A task-technology fit view of learning management system impact. *Comput. Educ.* 52(2):496-508.
- Mouza C, Barrett-Greenly T (2015). Bridging the app gap: An examination of a professional development initiative on mobile learning in urban schools. *Comput. Educ.* 88:1-14.
- Ozan Ö (2009). CMS, LMS, LCMS kavramları. *Akademik Bilişim'09 - XI*.

- Akademik Bilişim Konferansı Bildirileri. Şanlıurfa: Harran Üniversitesi. pp.1-6.
- Özgür H (2016). Öğretmen adaylarının yaşam boyu öğrenme yeterlikleri ve bilgi okuryazarlığı öz-yeterlikleri üzerine bir çalışma. Mersin Üniversitesi Eğitim Fakültesi Dergisi, 12(1):22-38.
- Polat C, Odabaş H (2008). Bilgi toplumunda yaşam boyu öğrenmenin anahtarı: Bilgi okuryazarlığı. Küreselleşme, Demokratikleşme ve Türkiye Uluslararası Sempozyumu, Akdeniz Üniversitesi, 27-30 Mart, Antalya, Bildiriler Kitabı, pp. 143-151.
- Raua PLP, Gaoa Q, Wub LM (2008). Using mobile communication technology in high school education: Motivation, pressure, and learning performance. *Comput. Educ.* 50(1):1-22.
- Saran M, Seferoğlu G, Çağıltay K (2009). Mobile assisted language learning: English pronunciation at learners' fingertips. *Eurasian J. Educ. Res.* 34:97-114.
- Sezal L (2018). Türk sigortacılık sektöründe mobil teknoloji uygulamaları. *Sosyal Bilimler Dergisi*, 5(19):130-143.
- Sharples M, Taylor J, Vavoula G (2005). Towards a theory of mobile learning. *Proceedings of mLearn*, 1(1):1-9.
- Shunye W (2014). A new m-learning system for higher education. *J. Chem. Pharm. Res.* 6(7):1301-1307.
- Sırakaya M, Sırakaya D (2017). Ön lisans öğrencilerinin mobil öğrenme tutumlarının çeşitli değişkenler açısından incelenmesi. *Gazi Üniversitesi Gazi Eğitim Fakültesi Dergisi*, 37(3):1085-1114.
- Szabo M, Flesher K (2002). CMI Theory and practice: Historical roots of learning management systems. *Proceedings of world conference on e-learning in corporate, government, healthcare, and higher education, (White Paper)* (Montreal, Canada: In M. Driscoll & T. Reeves (Eds.), pp. 929-936.
- Şendağ S (2008). Webde yeni eğilimler: Öğrenme ortamlarına entegrasyonu. *International Educational Technology Conference*. Eskişehir: Anadolu Üniversitesi. pp. 995-1001.
- Tarımer İ, İstanbullu A (2007). Eğitimde kullanılabilecek bir Podcast uygulama modülünün hazırlanması. *Soma MYO Teknik Bilimler Dergisi*, 7(1):25-34.
- Tekerek A, Bay ÖF (2009). Web İçerik Yönetim Sistemi Tasarımı ve Gerçekleştirilmesi. *Politeknik Dergisi*, 12(2):85-91.
- Tick A (2006). A Web-based e-learning application of self study multimedia programme in military English, 3rd Romanian-Hungarian Joint Symposium on Applied Computational Intelligence, Romanya.
- Traxler J (2005). Defining mobile learning. Paper presented at IADIS International Conference Mobile Learning, New York, NY.
- Traxler J (2013). Mobile learning: Shaping the frontiers of learning technologies in global context. In *Reshaping learning*. Springer Berlin Heidelberg. pp. 237-251
- Traxler J, Vosloo S (2014). Introduction: The prospects for mobile learning. *Prospects*, 44(1):13-28.
- Tonga ES (2015). Öğretmen adaylarının mobil teknolojileri öğrenme faaliyetlerinde kullanma sıklıklarının incelenmesi. Yayımlanmamış Yüksek Lisans Tezi. Gazi Üniversitesi, Eğitim Bilimleri Enstitüsü, Ankara.
- Quinn C (2000). mLearning: Mobile, wireless, in-your-pocket learning, <http://www.linezine.com/2.1/features/cqmmwiyp.htm> Erişim Tarihi: 18.03.2018.
- Vaishnavi VK, Kuechler W (2015). Design science research methods and patterns: innovating information and communication technology. Crc Press.
- Vinci ML, Cucchi D (2007). Possibilities of application of e-tools in education: mobile learning, *Proc. Conf. on ICT for Language Learning*, Florence, Italy.
- Wyne MF (2015). Merging mobile learning into traditional education, 2013-2016. *The International Conference on E-Learning*. New York: ABD.
- Yıldırım İ, Demir S (2014). Oyunlaştırma ve eğitim. *Int. J. Hum. Sci.* 11(1):655-670.
- Yuen S, Wang S (2004). M-learning: Mobility. *Health ve Higher Education*, 1:2248-2252.
- Zhang D, Nunamaker JF (2003). Powering e-Learning in the new millennium: An overview of e-Learning and enabling technology. *Inf. Syst. Frontiers*, 5(2):207-218.