# MOBILE LEARNING PERCEPTIONS OF THE PROSPECTIVE TEACHERS (TURKISH REPUBLIC OF NORTHERN CYPRUS SAMPLING)

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## ABSTRACT
The aim of this research is to analyze mobile learning perceptions and mobile learning levels of the prospective teachers at a university in Turkish Republic of Northern Cyprus according to their departments and gender. The research consists of 355 prospective teachers studying at a private university. The "Mobile Learning Perception Scale" was used for data collection. In the analysis of the data, descriptive statistics, t-test and variance analysis were used. As a result of the research, it was found out that mobile learning perceptions and mobile learning levels of the prospective teachers showed no significant difference according to the department and gender variables. As a result it was found out that prospective teachers' mobile learning perception levels were low.
**Keywords:** Prospective teacher, mobile learning perception, appropriateness of branch, aim-mobile technologies fit, forms of m-learning application and tools' sufficient adequacy of communication

## INTRODUCTION
With the rapid development of the technology and advances in electronic learning technologies, mobile learning began to occupy a great part of our lives. The pace of the life getting together with the need of learning started mobile learning (m-learning) concept. The rapid development in computers, mobile devices, and internet technologies resulted in the emergence of the mobile learning (m-learning) concept. M-learning can be realized independently of place and time (Bal & Arıcı, 2011). Mobile technologies, which were previously preferred mostly by young people, started to be used by all age groups in recent years. While the laptops and mobile phones that have the highest usage in percentage among the mobile technologies have become widespread, there is a decrease in the use of technologies such as cable phones and TV sets, which are considered to be examples of old technology. Meanwhile, there have been significant advances in the services provided by cell phones and tablet PCs. M-learning is an education model that emerged with the development of mobile technologies (Odabaşı, 2009). Today, some technological devices make a significant contribution to the process of learning. Among these devices; cell phones, tablet PCs, portable games, computers, digital sound recorders are the most frequently used devices. Day by day, the use of mobile technological devices is preferred to those that are immobile (Tarımer, Şenli, & Doğan, 2010).

Mobile learning is identified as e-learning that can be realized by means of mobile computing devices (Quin, 2000); that assists in the development of learners' literacy and numeral skills, their skills in using information and communication technologies, and in having an access to the fields of their concern (Attewell, 2011); that facilitates students' access to educational materials and contributes to their learning with the help of mobile devices in wireless environments (Litchfield, Dyson, Lawrence, & Zmijewska, 2007); that is an education model in which education process is carried out fully or partially with mobile technologies (Oran & Karadeniz, 2007); that increases life long learning and informal learning (Vavoula & Sharples, 2009). The most important difference between mobile learning and other learning activities is that "learners are continually on the move" (Sharples, Taylor, & Vavoula, 2005).

In m-learning activities, tablet PCs are preferred for their appropriate screen sizes and multi-functional features. They are not much common among people in Turkey; on the other hand, it is a fact that mobile phones are the technological devices used by the people of all age groups (Oran & Karadeniz, 2007). Although it provides more flexible facilities of usage than tele-learning, and web based learning models, it is not used as much as it is expected as it is a new model without enough services and materials (Odabaşı, 2009).

### Mobile Learning Theories
Current mobile learning theories make use of the following:
Behaviourism, Cognitivism, Constructivism, Situated Learning, Problem-Based Learning, Context Awareness Learning, Socio-Cultural Theory, Collaborative Learning, Conversational Learning, Lifelong Learning, Informal Learning as well as Activity Theory, Connectivism, Navigationism, Location-based learning. All of the aforementioned theories are discussed in Table 1 (Keskin & Metcalf, 2011).

Table 1. Mobile Learning Theories

| Theories | Definitions | Focus | Examples with mobile technologies |
|---|---|---|---|
| Behaviorist Learning | Learning has occured when learners evidence the appropriate reinforcement of an association between a particular response and stimulus (Smith and Ragan, 2005) | **Information and content delivery in mobile learning** Language learning: Test, practices, quiz, listening-practice speaking Drill and feed back: Mobile Response System Content delivery by text messages. | English learning Applications *SMS, MMS, Voice recorder softwares* Mobile Response System: *Qwizdom, Turning Point Response System Tell me tech. (searching)* |
| Cognitivist learning | Learning is the acquisition or reorganization of the cognitive structures through which humans process and store information (Good and Brophy, 1990) | **Information and content delivery in mobile learning** Using Multimedia learning (Dual code, Cognitive Load Theory): Images, audio, video, text, animations | Multimedia (text, video, audio, animation, images) *SMS, MMS, e-Mail Podcasting Mobile TV* |
| Constructive learning | Learning is an activity process in which learners construct new idea or concepts based on their current and past knowledge (Bruner, 1966) | **Context and content-dependent mobile learning** Questions for Exploration Cases and examples Problem solved and Decision making applications Multiple representations Authentic contexts based information database **Collaboration and interaction in mobile learning** Collaboration and interaction between students Comunication via mobile phones | Handheld games Simulation Virtual reality Interactive Podcasting and SMS Interactive mobile TV and SMS |
| Situated learning | Learning is not merely the acquisition of knowledge by individuals, but instead a process of social participation (Brown et all, 1989). | **Social Context and Social participant dependent mobile learning** Authentic domain activity Collaborative social interaction Cooperative activities Expert modeling Situated mentoring Workplace learning | Natural science learning Medical education Multimedia museum Virtual experts by artificial intelligence tech. Mobile performance support system |
| Problem-based learning | Learning aims to develop students' critical thinking skills by giving them an illdefined problem that is reflective of what they would encounter as a practicing professional (Koschmann et all, 1996) | **Problem based context and solved based contentdependent mobile learning** Problems–Solutions Case centred activities Collaborative social interaction | Medical education Business administration Nursing *Simulations SMS MMS Voice responde systems* |
| Context awareness learning | Context awareness means gathering information from the environment to provide a measure of what is currently going on around user an the device (Naismith et all, 2004) | **Context aware in mobile learning** Context-dependent content management Contextual event notification Context-aware communication Navigation and retrieval of learning materials User interface adapted according | Multimedia museum and gallery Pre-class podcasts *Films e-books Podcasting* |

| | | to time and location contexts | |
|---|---|---|---|
| Socio-cultural theory | Learning occurs first through interpersonal (interaction with social environment) than intrapersonal (internalization) (Vygotski, 1978). | **Social Context and Social participant dependent mobile learning** Mobile experts Community of practice Workplace learning Mobile communication | Mobile performance support system Virtual experts Mobile forum, E-mail Social network (Web 2.0 tools) |
| Collaborative learning | Learning is promoted, facilitated and enhanced by interaction and collaborations between students. | **Collaboration and interaction dependent mobile learning** Actively participation Social context Communication between peers via mobile phones. | Mobile Assisted Language Learning Mobile Response System Mobile computer supported collaborative learning *Forum, Web 2.0 tools, email, mobile portal, games* |
| Conversational learning | Learning is in terms of conversations between different systems of knowledge (Sharples, 2002). | **Interaction and communication dependent mobile learning** Solving a problem Exploring an environment Communication between peers via mobile phones. | Laboratory classes Field trip Mobile computer supported collaborative learning *Calling, Interactive Voice Respond (IVR)* |
| Lifelong learning | Learning happens all the time and is influenced both by our environment and the particular situations we are faced with (Sharples, 2000). | **Lifelong information and interaction with education content in mobile learning** Podcasting Information resources Mobile web site | Social networks (Blogs, Wikipedia, Twitter, Youtube) Podcast E-mail Mobile Forums |
| Informal learning | Learning is a process of learning that occurs autonomously and casually without being tied to highly directive curricula or Instruction (Vavoula, 2004) | **Information and interaction with education content in informal mobile learning setting** Mobile information resources Mobiles in a museum setting Field Trips Science Field Work | Social networks (Blogs, Wikipedia, Twitter, Youtube) Podcast E-mail Mobile Forums |
| Activity theory | Learning occurs with three features-involving a subject (the learners), an object (the task or activity) and tool or mediating artefacts and human behaviour is situated within a social context that influences their actions (Vygotsky, 1987). | **User actions in social context dependent mobile learning** Actively participation Social context Activities | Museum Art Gallery exhibit via SMS, polls, calling Mobile Games Multimedia |
| Connectivism | Learning is process of connecting specialized nodes or information sources (Siemens, 2004). | **Diversity of information sources in mobile learning** Connecting specialized nodes Information sources Facilitate continual learning environment Knowledge management Activities Decision-making | Social networks (Blogs, Wikipedia, Twitter, Youtube) Podcast E-mail Mobile Forums Diccussion Platforms Podcasting |
| Navigationism | Learning is a process of | **Complex of information** | Social networks |

| | connecting specialized nodes or information sources (Brown, 2005). | **sources in mobile learning** Connecting specialized nodes Information sources Facilitate continual learning environment Knowledge management activities Decision-making Manage information (identify, analyse, organize, classify, assess, evaluate, etc.) Sense making and chaos management. | (Blogs, Wikipedia, Twitter, Youtube) Podcast E-mail Mobile Forums Diccussion Platforms Podcasting |
|---|---|---|---|
| Location based Learning | Location-based learning holds promise for just- in-time learning tied to a student's physical location (Johnson et all, 2009) | **Location context in mobile learning** Conceptual knowledge Conceptual application Constructive environment Partnership with location Immersive activities | Field trips Archaeology studies Location based game Virtual world *Google Map, GPS, RFID, network triangulation* |

Keskin & Metcalf (2011, p. 203-205).

In the research carried out with university students by Çakır (2011), most of the participants who had the opportunity of using mobile education tools stated that they were interested in mobile learning environments and wanted to make use of mobile learning technologies if they had an opportunity. Moreover, this study supports the fact that the learning process continues on the move. In the study on mobile learning, Liaw, Hatala, & Huang (2010), found out that students' interest in the subject matter, motivation and academic success increase when online learning and published learning sources are used together. In another study, Acartürk (2012) states that the use of mobile devices has become more common in many areas in daily life than previous years and the technologies like e-book have begun to replace printed materials. The study carried out by Uzunboylu & Ozdamlı (2011) investigated the attitudes of the students towards the technology based cooperative learning after receiving training in the technology-based cooperative learning environment. It was found out that the students significantly developed positive attitudes towards technology at the end of the experiment.

In recent years there are many studies related to mobile learning in education (Seppala & Alamaki, 2003; Rismark, Sølvberg, Strømme, & Hokstad, 2007; Mcconatha, Praul, & Lynch, 2008; Hussain, & Adeeb, 2009; Çuhadar, Odabaşı, & Kuzu, 2009; Sharples, 2000; Başoğlu & Akdemir, 2010; Franklin, 2011; Alzaidiyeen, N. J., Abdullah, A. G. K., & Al-Shabatat, A. M., 2011; Korucu & Alkan, 2011; Zhang, Song, & Burston 2011; Keskin & Metcalf, 2011; Wu, Wu, Chen, Kao, Lin, & Huang, 2012; Hung, Hwang, Su, & Lin, 2012). As is seen in the literature review on mobile learning, although most of the studies are related to the development of mobile learning materials the studies on the attitudes of the prospective teachers towards mobile learning are few in number (Al Fahad, 2009). It is thought that the outcomes of this research on the attitudes of the prospective teachers towards mobile learning will contribute to the field of study in determining whether prospective teachers have positive m-learning perceptions and whether there are deficiencies in the use of mobile technologies.

**The Aim of the Study**
The aim of this research is to determine mobile learning perception levels of the prospective teachers and to find out whether their mobile learning perceptions differ or not according to their department and gender. The aim of the study is to provide answers to the following questions.

1. What are the mobile learning perception levels of the prospective teachers?
2. Do the mobile learning perception levels of the prospective teachers differ significantly according to their department?
3. Do the mobile learning perception levels of the prospective teachers differ significantly according to gender?
4. What are the opinions of prospective teachers about mobile learning?

## RESEARCH METHODOLOGY

### Research Model

In this study, in which attitude towards mobile learning was studied, mixed method where qualitative and quantitative methods are used together was used (Denzin & Lincoln, 2005; Vitale, Armenakis, & Field, 2008).

### The Universe and Sample of the Study

The sample of the study consists of total 1171 prospective teachers who are studying in Turkish Language Teaching (n=172), English Language Teaching (n=47), Pre-school Teacher Education (n=338), Computer and Instructional Technology Teaching (n=20), Mentally Handicapped Teaching (n=236), Primary School Teaching (n=54) and Guidance and Psychological Counselling (n=298) at a private university in Turkish Republic of Northern Cyprus.

In this study, 30% quota sampling method was used for quantitative method sampling selection; maximum variety method among purposeful sampling methods was used for qualitative method working group selection.
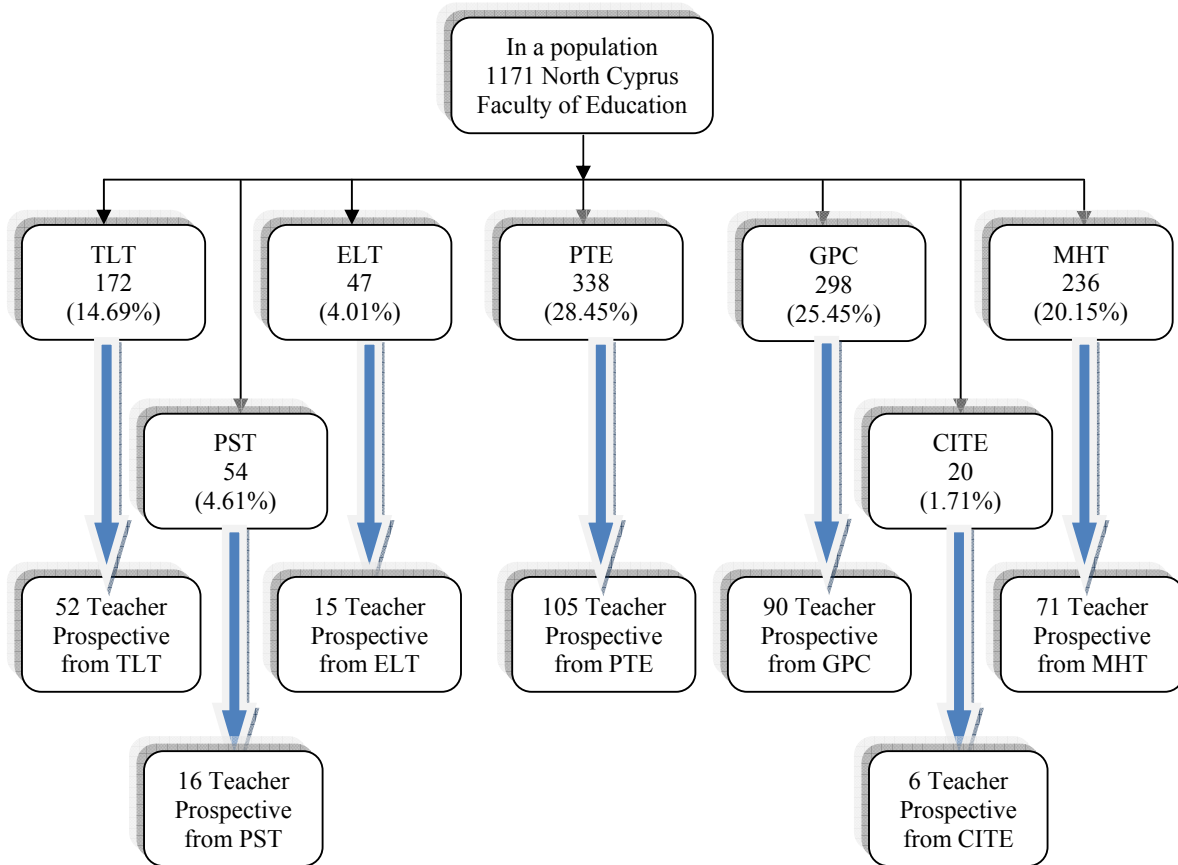


Figure 1. Selecting a quota sample

TLT: Turkish Languange Teaching, ELT: English Languange Teaching, PTE: Pre-school Teaching Education, GPC: Guidance and Psychological Counceling, MHT: Mentally Handicapped Teaching, PST: Primary School Teaching, CITE: Computer and Instructional Technology Teaching Education.

Average age of individuals is between $2.96 \pm .963$ (21-22) age range. During the collection of the data through interview which is one of qualitative methods, 35 prospective teachers who represent working group the best was chosen according to age, department, gender and socio-demographic independent variables.

Tablo 2. Teacher Prospectives' Demographic Characteristics

| Independent variables | | n | % |
|---|---|---|---|
| Department | TLT | 52 | 14.6 |
| | PTE | 105 | 29.6 |
| | GPC | 90 | 25.4 |
| | MHT | 71 | 20.0 |
| | PST | 16 | 4.5 |
| | ELT | 15 | 4.2 |
| | CITE | 6 | 1.7 |
| Gender | Female | 135 | 38.0 |
| | Male | 220 | 62.0 |
| Age | 18-20 | 142 | 40.0 |
| | 21-22 | 113 | 31.8 |
| | 23-25 | 71 | 20.0 |
| | 26+ | 29 | 8.2 |

TLT: Turkish Language Teaching, ELT: English Language Teaching, PTE: Pre-school Teaching Education, GPC: Guidance and Psychological Counselling, MHT: Mentally Handicapped Teaching, PST: Primary School Teaching, CITE: Computer and Instructional Technology Teaching Education.

**Data Collecting Instruments**
**Demographic Information Form:** Independent variables of the study were collected by a personal information form prepared by the researcher.

**Mobile Learning Perception Scale:** "Mobile Learning Perception Scale" developed by Uzunboylu and Özdamlı (2011) is 5-point Likert scale type and consists of 26 items. Mobile learning scale has three sub dimensions: "Aim-Mobile Technologies Fit (8 items)," "Appropriateness of Branch (9 items)" and "Forms of M-learning Application and Tools' Sufficient Adequacy of Communication (9 items)". Replies to the items are graded as "Completely agree", "Agree", "Indecisive", "Disagree" and "Completely disagree". In positive items "Completely agree" is 5 points, "Completely disagree" is 1 point. The points given to the scale range from 26 to 130. Point means of mobile learning perception scale was explained in 3 point range as low ($\bar{x}$=26-60), average ($\bar{x}$=61-95) and high ($\bar{x}$=96-130). High points show positive mobile learning perception and low points show negative mobile learning perception. Cronbach Alpha coefficient of the scale originally used by Uzunboylu and Özdamlı (2012) was determined as .97. In this study, Cronbach Alpha coefficient of the scale was determined as .91.

In order to get suitable data, in this study, scanning model among qualitative research models and semi-constructed interview technique were used. Qualitative research was identified as a research type in which qualitative data collecting methods like observation, interview, and document analysis were used; and in which a qualitative process was followed in order to show perception, events in a natural, real, and holistic manner (Yıldırım & Şimşek, 2004). Scanning model is a concept that aims to describe a situation as it is. In scanning model an individual or an object that take part in a study is tried to be identified in their own conditions as they are. They are not changed or affected in anyway (Karasar, 2009).

**Data Collection**
Before application of the scale, participants were asked whether they were volunteering or not after the aim of the research was explained; and scale was applied to volunteer prospective teachers. Prospective teachers answered the scale in 15-20 minutes.

In this study held in order to determine prospective teachers' mobile learning perception, data were collected with semi-constructed interviews from qualitative data collecting methods. The most important ease that semi-constructed interview gives to the researcher is that it gives more systematic and comparable information to the researcher since interview is carried on the protocol prepared in advance (Yıldırım & Şimşek, 2004). According to Berg (1998) some questions are prepared to use in all interview for semi-constructed interviews. Interviewees are asked questions in the same order; however interviewees are allowed to answer the questions as long as they want.

Convenient day and time was decided by asking prospective teachers who are volunteer. Interviews were carried out in the office of the researcher in a silent environment on the day and time decided in advance. Real names of

attendants were used during interviews. And then each participant was given a code name. Before asking interview questions, they were informed by giving an interview form.

**Analysis of Data and Application**
In the statistical evaluation of the research, all analyses are performed by using SPSS 16.0 for windows. When the number of individuals included within the scope of the research exceeds 50, it is recommended that Kolmogorov-Smirnov test be utilized for testing whether or not the data obtained from the attitude scales display a normal distribution (Coakes & Steed, 1997; Tabachnick & Fidell, 2000). In the Kolmogorov-Smirnov test, since the statistical null hypothesis states that "the distribution of the grades does not display a meaningful difference from the normal distribution", the fact that the calculated "p" value exceeds .05 has led to the evaluation that the grades do not display a significant difference from the normal distribution (Büyüköztürk, 2010). A frequency analysis was done relating to the distribution of the answers. Furthermore, the relationship between independent and dependent variables was analyzed. To determine whether there was a difference between the groups, the "t" test was conducted for double variables and the "F" test for three or more variables. In the study, the level of significance was accepted as .05.

**FINDINGS**
Points of dependent variables "Aim-Mobile Technologies Fit", "Appropriateness of Branch" and "Mobile Learning Application and Tools" were tested in order to find whether they show normal distribution or not. Normal distribution test result is given in the Table 3.

Table 3. Descriptive Statistics and Kolmogorov-Simirnov Z and Normality Test Results for MLPS Dimensions.

|  |  | A-MTF | AB | FMA and TSAC |
|---|---|---|---|---|
| N |  | 355 | 355 | 355 |
| Normal Parameters (a,b) | Mean | 18.940 | 21.157 | 20.436 |
|  | Std.Deviation | 4.3911 | 6.0228 | 5.6870 |
| Most Extreme Differences | Absolute | .066 | .058 | .071 |
|  | Positive | .066 | .058 | .071 |
|  | Negative | -.058 | -.041 | -.058 |
| Kolmogorov-Smirnov Z |  | 1.244 | 1.087 | 1.346 |
| Asymp. Sig. (2-tailed) |  | .090 | .188 | .053 |

a  Test distribution is Normal; b  Calculated from data; AB, Appropriateness of Branch; A-MTF, Aim-Mobile Technologies Fit; FMA and TSAC, Forms of M-learning Application and Tools' Sufficient Adequacy of Communication; MLPS, Mobile Learning Perception Scale; SD, standard deviation.

When the Table 3 was analyzed it was found out that points of dependent variables "Aim-Mobile Technologies Fit", "Appropriateness of Branch" and "Forms of M-learning Application and Tools' Sufficient Adequacy of Communication" show normal distribution. Therefore, parametric tests were used for the analysis of dependent variables of the research.

**Findings about the first sub-question**
The first sub-question was identified as "What are the mobile learning perception levels of the prospective teachers?". Identifying statistics about prospective teachers' mobile learning perception are given in the Table 4.

Tablo 4. Descriptive Statistics on Prospective Teachers' Mobile Learning Perception Scale Dimensions.

| | Mobile Learning Perception Scale dimensions | | | |
|---|---|---|---|---|
|  | n | Mean | SD | Range |
| A-MTF |  | 18,9408 | 4,39110 | 9-30 |
| AB | 355 | 21,1577 | 6,02283 | 9-39 |
| FMA and TSAC |  | 20,4366 | 5,68707 | 9-35 |
| Mobile Learning Perception |  | 60,5352 | 12,16208 | 34-101 |

AB, Appropriateness of Branch; A-MTF, Aim-Mobile Technologies Fit; FMA and TSAC, Forms of M-learning Application and Tools' Sufficient Adequacy of Communication; MLPS, Mobile Learning Perception Scale; SD, standard deviation.

When Table 4 is analyzed, it is found out that prospective teachers' mobile learning perception is in "low" level in general.

**Findings about the second sub-question**

The second sub-question was identified as "Do the mobile learning perception levels of the prospective teachers differ significantly according to their department?" ANOVA result that was applied for finding whether mobile learning perception of prospective teachers differ according to their departments or not are given in Table 7.

Table 5. Descriptive Statistics about Prospective Teachers' Mobile Learning Perception According to Department Variable

| | Branches of Prospective Teachers | | | | | | |
|---|---|---|---|---|---|---|---|
| | Mean (SD) | | | | | | |
| | PTE *n* = 105 | GPC n=90 | MHT n=71 | TLT n=52 | PST n=16 | CITE n=6 | ELT n=15 |
| A-MTF | 18.400 (4.166) | 19.8333 (4.834) | 18.647 (4.545) | **17.980** (4.065) | 19.625 (3.383) | **21.333** (2.875) | 20.400 (3.850) |
| AB | 20.781 (5.853) | 21.300 (6.323) | 21.521 (6.559) | **20.596** (5.681) | 19.937 (6.082) | **26.000** (4.195) | 22.533 (3.602) |
| FMA and TSAC | 21.114 (6.114) | 20.588 (5.045) | 19.647 (5.867) | **19.615** (6.142) | 19.562 (4.830) | **24.000** (3.346) | 20.866 (4.882) |

AB, Appropriateness of Branch; A-MTF, Aim-Mobile Technologies Fit; FMA and TSAC, Forms of M-learning Application and Tools' Sufficient Adequacy of Communication; MLPS, Mobile Learning Perception Scale; SD, standard deviation.

Table 6. Test of Homogeneity of Variances for the Variables by Department

| Variables | F | df1 | df2 | Sig. |
|---|---|---|---|---|
| A-MTF | 1.329 | 6 | 348 | .243 |
| AB | 1.845 | 6 | 348 | .090 |
| FMA and TSAC | 1.650 | 6 | 348 | .133 |

As it is seen in Table 5, the best mean (Mean$_{A\text{-}MTF}$=21.333$\pm$2.875; Mean$_{AB}$=26,000$\pm$4.195; Mean $_{FMA\ and\ TSAC}$=24.000$\pm$3.346) belongs to prospective teachers of Computer and Instructional Technology Teaching Education Department in Mobile Learning Perceptions. The lowest mean (Mean$_{A\text{-}MTF}$=17.980$\pm$4.065; Mean$_{AB}$=20.596$\pm$5.681; Mean $_{FMA\ and\ TSAC}$= 19.615$\pm$6.142) belongs to prospective teachers of Turkish Language Teaching Department in Mobile Learning Perceptions.

Table 7. Results of the Multivariate one-way ANOVA

| | | Sum of Squares | df | Mean Square | F | *p* | Partial eta square |
|---|---|---|---|---|---|---|---|
| **A-MTF** | Between Groups | 230.196 | 6 | 38.366 | 2.024 | .062 | .033 |
| | Within Groups | 6595.561 | 348 | 18.953 | | | |
| | Total | 6825.758 | 354 | | | | |
| **AB** | Between Groups | 235.396 | 6 | 39.233 | 1.083 | .372 | .018 |
| | Within Groups | 12605.770 | 348 | 36.223 | | | |
| | Total | 12841.166 | 354 | | | | |
| **FMA and TSAC** | Between Groups | 220.731 | 6 | 36.788 | 1.140 | .338 | .019 |
| | Within Groups | 11228.593 | 348 | 32.266 | | | |
| | Total | 11449.324 | 354 | | | | |

p<.05

As a result of ANOVA test that was applied to find whether there was a significant difference between mobile learning perception sub-dimensions of according to prospective teachers' departments or not, it was determined that there was not any significant difference. In this case, it can be said that mobile learning perception is independent from the department variable. In other words, it is not affected.

**Findings about the third sub-question**

The third sub-question was identified as "Do the mobile learning perception levels of the prospective teachers differ significantly according to gender?". T-test was used in order to determine whether mobile learning perception of prospective teachers differ according to gender. And the results are given in Table 8.

Table 8. Descriptive Statistics and T-test of Gender on Mobile Learning Perception Scale Dimensions.

| | Gender | | | | Levene's Test for Equality of Variances | F value | t value | p value | Partial eta squared |
|---|---|---|---|---|---|---|---|---|---|
| | Male n=220 | | Female n=135 | | | | | | |
| | Mean | SD | Mean | SD | | | | | |
| **A-MTF** | 18.840 | 4.240 | 19.103 | 4.638 | 1.476 | .225 | .547 | .585 | .001 |
| **AB** | 21.186 | 5.982 | 21.111 | 6.110 | .004 | .947 | .114 | .909 | .000 |
| **FMA and TSAC** | 20.518 | 5.624 | 20.303 | 5.806 | .168 | .683 | .345 | .731 | .001 |

AB, Appropriateness of Branch; A-MTF, Aim-Mobile Technologies Fit; FMA and TSAC, Forms of M-learning Application and Tools' Sufficient Adequacy of Communication; MLPS, Mobile Learning Perception Scale; SD, standard deviation.

As it is seen in Table 8, "Aim-Mobile Technologies Fit", "Appropriateness of Branch" and "Forms of M-learning Application and Tools' Sufficient Adequacy of Communication" perception of male and female prospective teachers is similar. In this case, it can be said that mobile learning perception is independent from gender variable. In other words, it is not affected.

**Findings about the fourth sub-question**

The fourth sub-question was identified as "What are the opinions of prospective teachers about mobile learning?". Thoughts of prospective teachers about mobile learning are summarized as follows:

- ✓ "It is a learning type that lets us reach any information by using mobile phones, tablet PCs, and PDAs (Personal Digital Assistant)."

- ✓ "It is reaching information without depending on any place (home, school, office etc.). For example, it is a thing that allows a student not to reach information or training just being in a stationary place, but in the street, cafe or a bus, briefly everywhere, with mobile devices such as mobile phones."

- ✓ "I do not know what it is. / I do not have any idea about what it is. / I do not know what it is because I am against technology."

- ✓ "Reaching information has become easier since the integration of the internet to mobile phones. I can say that people got into mobile learning process with mobile phones".

- ✓ "It is the learning technology in which people can reach information with their mobile phones after the integration of the internet to mobile phones."

- ✓ "It is a process of learning through the internet. It is an education without interaction through distance education."

- ✓ "It is a kind of thing in which teachers record their instructions, share on the net and students follow them."

- ✓ "Mobile learning includes mobile phones, smart phones, laptops, notebooks, tablet PCs. Education with these materials is called mobile learning. I believe that it will become more common, it will ease education and training, and it will be useful in the future."

- ✓ "It is the case in which people can reach information anytime and anywhere they want with their mobile phones, tablet PCs and all technology devices through developing technology."

- ✓ "Mobile learning is a kind of learning through the Internet. / Using the Internet with mobile phones."

- ✓ "It is a distance education of school courses with technology."

✓ "Mobile learning never replaces a teacher because one's teaching is very different as a result of experiences. Computer assisted teaching keeps students away from the courses. It cannot supply permanent learning."

✓ "Mobile learning is computerized learning system. It is a learning process in which student listens to computer instead of the teacher."

✓ "As I have heard, it is cyber learning technology."

✓ "Mobile learning is instruction on the Internet. Mobile learning is not accurate. It is not as healthy as teacher-student interaction."

✓ "It is learning by using technology devices. It is online and offline learning apart from traditional learning. Since it provides instant information, I completely agree to use it."
✓ "I think it can be technology education. That is to say, it is a kind of distance learning."

✓ "It is distance education that is not one to one. I think information is not permanent as there is not teacher-student interaction."

✓ "It is learning everywhere without going to a school via computer, phone or any other technologies. In this way, an individual spend, much more time for himself with his friends, family. Briefly it saves time."

✓ "I know it is applied in Oxford and Kazakhstan. You should be online to attend the course. I have seen in a documentary that many people get a profession while working."

✓ "Mobile learning is sharing lecture, homework, e-book and course activities on the intenet. It is a kind of studying without going to a school. For example, courses of open-university are sent to the student on the internet. It is advantageous in terms of time but it cannot be useful in terms of interaction with people."

✓ "Mobile learning reminds me of correspondence school."

✓ "I do not believe this type of can accomplish its aim with mobile learning. However, I believe that it will raise the quality of education if it is used as an aid because education should take place face to face and in a social environment."

## CONCLUSION AND RECOMMENDATION

It was determined that prospective teachers' mobile learning perception is, in general, low and many of them have no information about mobile learning. It is also found out that prospective teachers who stated they have knowledge about mobile learning have inaccurate knowledge about it, and they believe that mobile learning will diminish effective communication environment. It was determined that prospective teachers' mobile learning perception does not differ significantly according to their department. This research finding is parallel to the result of the study of Uzunboylu & Ozdamlı (2011). It was determined that prospective teachers' mobile learning perception does not differ significantly according to gender. This result is parallel to the study of Economides & Grousopoulou (2008), Uzunboylu & Ozdamlı (2011). According to the study of Economides & Grousopoulou (2008) held on Greek male and female's phone using, there is not a significant difference in terms of gender. According to a study by Uzunboylu & Ozdamlı (2011) carried out with teachers who work in TRNC, mobile learning perception does not differ significantly in terms of gender. This result conflicts with the studies held by McKinney, Dyck & Luber (2009), Wang, Wu & Wang (2009), Al Fahad (2009), Çavuş & Biçen (2009), and Broos (2005). In the research by McKinney, Dyck & Luber (2009), male teachers have more positive mobile learning perception than female teachers. In a similar way, Wang, Wu & Wang (2009) found that mobile learning perception differs in favour of males according to age and gender variable. In the studies of Çavuş & Biçen (2009), and Broos (2005), there is a significant difference in favour of males towards communication technologies. The case in which there is not any significant difference according to gender and department can result from prospective teachers' lack of knowledge about mobile learning. These recommendations can be given as a result of this research for further studies and applications.

1. When prospective teachers' mobile learning perception is thought to be in "low" level, informative meetings can be held at school about what the mobile learning is.

2. Studies can be carried out with instructors.
3. Similar studies can be held in different faculties and universities.

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