

# REFLECTIONS OF UNDERGRADUATE STUDENTS REGARDING PDA USE FOR INSTRUCTIONAL PURPOSES

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## ABSTRACT

This study investigated opinions of students regarding instructional use of PDAs (personal digital assistants). The study was conducted in the 4th semester elective course, BTÖ 204 - Business English at the Faculty of Education at Anadolu University. Purposeful sampling was applied in the current study. Five PDAs were distributed to sophomore students. Before students started using PDAs in Business English classes, they were given training on how to use PDAs. Semi-structured interviews were conducted with each student to investigate their reflections about using PDAs. Findings were analyzed through inductive coding technique and the results of the analyses were interpreted, which suggested that participants generally had positive feelings towards using PDAs during instruction.

**Keywords:** Mobile learning, PDA, m-learning

## BACKGROUND

In recent years, mobile information and communication devices have been a crucial component of inter-personal communication. Mobile devices supported with wireless networks provide additional opportunities in comparison to desktops and cable networks, since mobile devices help individuals to communicate independent of the time and place the communication occurs, and allow them to access information whenever and wherever it is needed. In this respect, applying mobile technologies during instructional practices is considered an important field of study.

M-learning can be defined as the delivery of learning to students, who do not have to be at a fixed location, through the use of mobile or wireless devices. It refers to the transfer of electronic course content to students through computers or wireless networks, and involves an approach where a constant collaboration and communication among students is sustained. One of the commonplace instruments used in M-Learning is Personal Digital Assistant (i.e. PDA). The current study is conducted with the aim of determining student opinions in the context of PDA use for instructional purposes.

### *Mobile Learning (m-Learning)*

Several definitions were provided in the literature regarding m-learning. Quinn (2000) defines m-learning as e-learning through mobile computational devices. Fagerberg, Rekkedal and Russell (2002) define it as the use of mobile technologies in education. Georgiev, Georgieva and Smrikarov (2004) claim that m-learning is not a new concept which is different from existing e-learning or distance learning applications; rather it should be considered as a new form of these applications. One concept is common in all definitions, that is, learning content is delivered to learners through cable networks and mobile computational devices.

Mobile information and communication technologies constitute the core of m-learning applications. Handheld computational devices known as PDAs are among the most popular of these technologies. These devices process through specially configured operating systems such as PalmOs, Symbian, and Windows. They have the capacity to run frequently used programs such as Ms Word, Excel, PowerPoint and Adobe Acrobat. It is easy to carry these devices everywhere since they are very small. They have touchpad screens or special pens to operate the device. They allow learners to access Internet and other mobile and non-mobile devices regardless of the place and time they are used, since they have the capacity to use the wireless networks.

Through instructional use of PDAs, students can reach electronic materials and online course contents outside the classroom, and enrich their communication with their teachers and peers. PDAs have two basic purposes in mobile learning (Power & Thomas, 2006):

- to provide sustained personal access to ICT, through which teachers might develop familiarity with relevant concepts and practices,
- to provide access to the projects and professional development materials

M-learning realized through use of mobile information and communication technologies have some advantages (Smith and Kent, 2003):

- provides a motivational stimulus

- offers ease of storage and portability
- contributes to improved written work
- makes it easier to produce written work
- increases knowledge of computers
- offers a range of useful functions
- readily available at all times

M-learning has some application limitations in terms of the technical infrastructure needed. Besides, learners' knowledge on and attitudes toward technology use influence m-learning applications as well. These limitations could be listed as follows (BECTA, 2007):

- Small PDA screens limit the amount and type of information to be displayed,
- Storage capacities for mobiles and PDAs are limited,
- Batteries need to be charged regularly, and data lost might occur if this is not done correctly,
- They are less robust than desktops,
- It's still difficult to use moving graphics, although 3G and 4G will eventually allow this,
- Devices can become out of date very quickly since it is a fast-moving market
- While using wireless networks, bandwidth may degrade with a larger number of users.

### *Purpose*

The main purpose of the current study is to determine learner opinions regarding instructional PDA use. Thus, the research question of the study is; "What are student opinions regarding instructional use of PDAs?"

## **METHOD**

### *Participants*

The study was conducted with 5 (3 female and 2 male) participants in the 4th semester elective course, BTÖ 204 - Business English at Anadolu University, Faculty of Education, Department of Computer Education and Instructional Technologies. Purposeful sampling was applied to determine the participants. Since the number of PDAs was 5, only 5 participants who took the Business English course and who volunteered to participate in the study were purposefully selected.

### *Procedure*

Application and data collection procedures were completed between November 21, 2006 and January 13, 2007. At the beginning of the research process, each student was given a "Palm Tungsten W" PDA along with its setup CD. Besides, students were provided training on using PDA for two sessions each of which lasted 90 minutes.

The course instructor asked every student taking the course to prepare a personal website. Students participated in the current study prepared their websites in a way that is compatible with the technical features of PDAs, so that websites can be displayed in PDAs. Besides, participants used their PDAs during the class for activities such as note-taking and looking up words in their electronic dictionaries.

### *Data Collection*

Semi-structured interviews were conducted with each student in order to investigate students' reflections on using PDAs for instructional purposes in Business English Course. Interviews were scheduled according to time slots suggested by participants. Semi-structured interview questions were prepared by the researchers, and modified in accordance with expert opinion.

### *Data Analysis and Interpretation*

Findings were analyzed through descriptive analysis where inductive coding technique was particularly helpful (Strauss & Corbin, 1990). Initial data were audio-taped, transcribed, reviewed sentence by sentence, and statement patterns that occurred in the data were listed based on determined themes and categories. The list of the statements that grew after this analysis was also reviewed by another independent rater, and a consensus on the template between the researchers was built. Data were described, interpreted, cause-and-effect relationships were scrutinized and some conclusions were drawn. In order to reflect participants' ideas properly, direct quotations were also made (Yıldırım & Şimşek, 2000).

In order to determine the themes, an inventory involving the checklist of interview themes was prepared. Researchers and an expert in the field independently examined the data forms through selecting appropriate themes in the inventory. Inventories

were filled in for each participant and the consistency of the inventory was examined. To examine reliability, the formula suggested by Miles and Huberman (1994; pp.64) was applied (i.e. reliability = number of agreements / total number of agreements + disagreements). The findings revealed better than 70 % inter-coder reliability suggesting that coding procedure was reliable.

## FINDINGS

### *Learner Opinions Regarding Instructional Use of PDAs*

Participants reported that they had never used a PDA beforehand. However, they usually had positive attitudes toward using PDAs. The data forms revealed a total of 34 opinions which were categorized under three themes. The themes, frequencies and percentages are provided in Table 1:

Table 1: Learner opinions regarding instructional use of PDAs

Themes	f	%
<i>Types of instructional use</i>	11	32
Immediate access to course content		
Use of software to support course content		
Note-taking in electronic environment		
<i>Advantages</i>	16	47
Portable		
Immediate access to information		
Wireless communication		
Note-taking in electronic environment		
<i>Limitations</i>	7	20
Limited technical capacity		
Limited budget to use		
Total	34	100

While stating their opinions regarding instructional PDA, participants reported that they were able to access information regardless of the time and place the devices were used. Besides, they reported that they could take down their notes in an electronic environment. Below sample quotations from the participants are provided:

*“You do not need to carry a notebook. If you carry that (i.e. PDA), it is a communication tool, it can connect to the Internet, and can be used as a notebook like this.” [YK]*

Two of the popular points mentioned by students regarding advantages of PDAs were portability and immediate access to information. Besides, students talked about PDAs ability to provide wireless communication and their ability to store class notes in the electronic environment. A sample statement regarding these advantages is given below:

*“...at least, this is just like a notebook and it is a digital environment. It has infrared technology. Immediate interaction in a short time is possible with that. Besides, person A and person B can exchange their class notes immediately.” [CS]*

Participants also mentioned some limitations regarding instructional PDA use. They particularly talked about problems stemming from limited technical abilities provided by PDAs. Besides, they complained about insufficient budget to buy such high-tech devices and to use wireless Internet. Sample statements are as follows:

*“For example, I was looking up a word in Business English class. Sometimes it did not show the word, I mean, we cannot find the meanings of all words. They are limited...According to its brand and type, its technical features... I mean I believe that the more it is high-tech the more beneficial it is.” [HA]*

### *Suggestions Regarding Instructional Use of PDAs*

Participants made some suggestions regarding efficient use of PDAs for instructional purposes. Besides, they made some recommendations on the types of classes in which PDAs can be used efficiently. Eighteen opinions were summarized under two themes and these are provided in Table 2:

Table 2: Suggestions regarding instructional uses of PDAs

Themes	f	%
<i>Suggestions</i>	8	44,44
High-tech PDAs should be used		
Schools should be provided with more budget		
<i>Suggested courses for PDA use</i>	10	55,55
Computer assisted instruction		
Foreign language		
Educational sciences		
Total	18	100

One of the points made by participants was that they emphasized the importance of using high-tech PDAs for instructional activities. They also thought that schools should be provided with more budgets to use such devices. Sample statements are as follows:

*“First schools, universities need financial support. Because it is an expensive device, not everybody can use it. There are even people who do not have a PC at home.” [AA]*

Participants stated that they could use PDAs in other courses as well. When their opinions were examined, these courses were found to be computer, education and foreign language courses. Sample statements on these comments are provided below:

*“...in other courses, related to computers... education, I think it can be used in computer assisted education courses. Others...I mean, it can be used for note-taking, storing class notes, communication...” [EA]*

## CONCLUSION

As a result of the current study which was conducted to investigate learners’ opinions towards instructional use of PDAs, it was observed that participants had positive attitudes towards using PDAs. They particularly emphasized PDA’s ability to provide communication and access to information independent from time and place. On the other hand, data on the limitations of PDAs revealed that instructional PDA use was restricted by the technical features of the device. Using devices with better technical features might lead to positive changes in students’ attitudes. Besides, using high-tech devices could lead to a better and more efficient application of the instructional activities.

Using PDAs and similar mobile computational devices places a financial burden to individuals and institutions where instructional PDA use is realized. This is particularly observed in situations where high-tech devices are needed or when wireless connection is used. Thus, it is important to conduct necessary financial analyses at the inception of studies and applications which will require m-learning activities, so that instructional practices are efficient.

## REFERENCES

- BECTA. (2007). What the research says about portable ICT devices in teaching and learning. Retrieved February 10, 2007, from <http://www.aclearn.net/display.cfm?page=958>
- Fagerberg, T., Rekkedal, T., & Russell, J. (2002). Designing and Trying Out a Learning Environment for Mobile Learners and Teachers. Retrieved February 21, 2005 from <http://www.nettskolen.com/pub/artikkel.xsql?artid=115>
- Georgiev, T., Georgieva, E., & Smrikarov, A. (2004). M-Learning – a New Stage of E-Learning. International Conference on Computer Systems and Technologies. Retrieved January 4, 2006 from [http://ecet.ecs.ru.acad.bg/cst04/ Docs/sIV/428.pdf](http://ecet.ecs.ru.acad.bg/cst04/Docs/sIV/428.pdf)
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative Data Analysis: An Expanded Sourcebook*. Second Edition. California: Sage Publications.
- Quinn, C. (2000). mLearning: Mobile, Wireless, In-Your-Pocket Learning. 2000 Line Zine. Retrieved February 21, 2005 from <http://www.linezine.com/2.1/features/cqmmwiyp.htm>
- Power, T., & Thomas, R. (2006). mLearning: The classroom in your pocket? Research Group on International Development in Teacher Education across Societies and Cultures (RITES). Open University, UK. Retrieved February 10, 2007 from <http://www.open.ac.uk/deep/Public/web/publications/pdfs/TPowerRThomas2006-BERA.pdf>
- Smith, C. S., & Kent, P. (2003). The use of palmtop computers for learning: A review of literature. Learning and Skills Development Agency. Retrieved February 15, 2007 from [http://www.m-learning.org/archive/docs/the\\_use\\_of\\_palmtop\\_computers\\_for\\_learning\\_sept03.pdf](http://www.m-learning.org/archive/docs/the_use_of_palmtop_computers_for_learning_sept03.pdf)
- Strauss, A. L., & Corbin, J. (1990). *Basics of qualitative research: Grounded theory procedures and techniques*. Newbury Park, CA: Sage Publications.

Yıldırım, A., & Şimşek, H. (2005). Sosyal Bilimlerde Nitel Araştırma Yöntemleri. Ankara: Seçkin Yayıncılık.