Global Journal of human-social science: G
Linguistics & Education
Volume 18 Issue 9 Version 1.0 Year 2018
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals
Online ISSN: 2249-460x & Print ISSN: 0975-587X

Students Attitudes and Effect of Mobile Learning on Academic Performance

By Ronke Ogunmakin

Abstract- This study investigated the effects of Mobile Learning on students academic performance and student attitudes about the use of mobile devices for learning. The study used the quasi-experimental approach. Respondents in this study consisted of (42) Adeyemi College of education social studies English language major that were on teaching practice at National Institute for Educational Planning and Administration Ondo. The students were divided into experimental and control groups of (21) students in each. The soft copy of the course content on Strategies of Teaching and Learning" was uploaded to the mobile phone for students in the experimental group. Another hardcopy of the course content was delivered to students in the control group by hand in the first meeting. Data collection tools included an academic performance examination and students attitudinal questions. The result was analyzed using Relative Importance Index, Simple percentage, Analysis of Variance and Independent Sample t Test. It was found that mobile learning had quite significant effect on students' academic performance and student attitudes about using mobile phone for learning were moderately positive with a pooled RII of 89.48% on a likert scale of 1 = Not at all well, to 5 = Extremely well. In view of these, it was recommended that educationists as well as educational institutions to take the next step in effectively integrating mobile devices and instruction optimized for mobile devices in education in order to improve teaching and learning.

GJHSS-G Classification: *FOR Code: 930101*

Strictly as per the compliance and regulations of:

Students Attitudes and Effect of Mobile Learning on Academic Performance

Ronke Ogunmakin

Abstract- This study investigated the effects of Mobile Learning on students academic performance and student attitudes about the use of mobile devices for learning. The study used the quasi-experimental approach. Respondents in this study consisted of (42) Adeyemi College of education social studies English language major that were on teaching practice at National Institute for Educational Planning and Administration Ondo. The students were divided into experimental and control groups of (21) students in each. The soft copy of the course content on Strategies of Teaching and Learning" was uploaded to the mobile phone for students in the experimental group. Another hardcopy of the course content was delivered to students in the control group by hand in the first meeting. Data collection tools included an academic performance examination and students attitudinal questions. The result was analyzed using Relative Importance Index, Simple percentage, Analysis of Variance and Independent Sample t Test. It was found that mobile learning had quite significant effect on students' academic performance and student attitudes about using mobile phone for learning were moderately positive with a pooled RII of 89.48% on a likert scale of 1 = Not at all well, to 5 = Extremely well. In view of these, it was recommended that educationists as well as educational institutions to take the next step in effectively integrating mobile devices and instruction optimized for mobile devices in education in order to improve teaching and learning.

I. Introduction

Distance education has developed in two major directions: 'the individual flexible teaching model' and 'the extended classroom model' (Rekkedal & Dye, 2007). The former allows students to start the class at any time, study in isolation and communicate with instructors and classmates through asynchronous tools. The latter organises students into groups, requires them to meet at local study centres, and allows them to use interactive technologies such as video conferencing to interact (Rekkedal & Dye, 2007). Learning can occur inside and outside the classroom and the learning situations can be either formal planned lessons or informal unplanned and spontaneous learning experiences (Crompton 2013).

Learning anywhere at any time is not a new concept. Books have been available for centuries and were probably the first "mobile" learning device. In his introduction to *The New Landscape of Mobile Learning*, Searson (2014) wrote: "Consider for a moment, the book as education's first mobile device; specifically, the type of book driven by the invention of Johannes Gutenberg's printing press." What is new in the concept of mobile learning is access to interactive learning content, contact and communication with teachers and other students, and assessments through the internet via wireless-enabled smart phones.

The availability of contemporary mobile devices has marked a turning point for the rates of 9mobile device usage. In 2013, vendors shipped more than one billion smart phones worldwide (International Data Corporation 2014) and in 2014, the global mobile penetration rate reached 95% (Ericsson Mobility Report 2014). Ericsson's Mobility Report (2014) estimated that 90% of the world's population would have a mobile phone by 2020. Tablet device shipments are expected to surpass personal computer shipments by the end of 2015 (International Data Corporation 2013). As a consequence of this rapid diffusion of mobile technologies, the ways in which people interact, communicate, and work have changed (Lam, *et al*, 2010).

Remarkably, even some children under the age of 12 months are already playing with mobile devices (Suoninen, 2010). Mobile technologies have altered our societies and the way we live in many respects.

Educational institutions are nowadays facing the reality of the rapid development and widespread of mobile phones, which are considered one form of those mobile devices used for E-learning all over the world. Such development has involved an increase in both mobile phones speed and storage capacity. The continuous drop in prices, on the other hand has resulted in the vast widespread of these mobile phones making them one main component of most learners' (boys and girls) daily lives. Mobile phones are not accessory anymore; they are integrated like our clothes, (Dos 2014).

It is true that mobile phones are mainly used for completely communication purposes, but fortunately, some people have begun to regard them as a core pedagogical activity in higher educational institutions, (El-Hussein & Cronje 2010). The number of those teachers and students who have begun to use them as a teaching and/or learning tool is growing tremendously. Most students have started overcoming their difficulties regarding the place and time of lectures via the effective exploitation of their mobile phones or what has been so called "Mobile Learning". Teachers, on their turn have

Author: e-mail: tanronng@yahoo.com

started to think seriously of providing their students with the teaching materials and activities through their mobile phones. Nowadays, Mobile Learning has been widely accepted by learners. In other words, learning via mobile devices is widely accepted by the learner community because of its application as well as its philosophy and standards, (Lan& Huang, 2012 & Little, 2012).

The advances in technology used in today's mobile phones qualify them to be instructional as well as communicational tools. In addition to their main purpose, mobile phones, are nowadays used to send and receive instructional messages through text, voice or even images, (Kim, et. al., 2013). Furthermore, mobile phones and consequently Mobile Learning facilitate accessing various educational resources on Internet and help developing and creating interesting teaching content that can be used inside or outside classrooms, (UNISCO, 2013).

Mobile Learning can deliver the right information to the right person at the right time better than any other learning/teaching technology yet devised, (Little, 2012). Besides, students' interest to use all available resources of Mobile Learning through their mobile phones and Personal Digital Assistants (PDAs) to access information anytime and anywhere has also played a significant role in the success of mobile learning prevalence, (López, et. al. 2009). Mobile Learning not only fosters the way we access information, but also helps learners be innovative and good problem-solvers, (West, 2013). However, teaching-learning materials should be re-designed, developed, and carried out in a way that fits this new kind of learning and makes it more effective. It is on this back ground, this research work intend to assess the impact of mobile learning on students' learning behaviours and performance.

II. Statement of the Problem

Researchers have agreed that mobile technologies have great potential to improve teaching and learning. Some authors have highlighted that with mobile learning, learning can take place in different contexts inside and outside the classroom (Traxler, 2007; Shih, et al. 2011) and that mobile devices at their best can enable learning that is "just in time, just enough, and just for me" (Peters, 2005; Traxler, 2007). However, far too little attention has been paid to educational practices.

Educational outcomes and impacts, however, cannot be fully assessed before the use of mobile technology in education is integrated into everyday educational practices or at least all affecting variables are well known. For instance, when mobile learning employs design and evaluation principles taken from traditional or electronic learning, it may fail to take into account the unique possibilities of learning through mobile technologies (Shuler, 2009).

Chen and de Noyelles (2013) indicated that in a study about mobile-device usage, more than half of college students utilized a mobile device for academic purposes. Eighty-two percent of students that owned a tablet device reported using the device for academic purposes while only58% of students that owned a smart phone used their device for academic purposes. The study also indicated that there was a negative relationship between students' GPA and academic use of smart phones and that freshman used smart phones and small mobile devices in an academic setting more than juniors or seniors. Students also expected technological support from instructors, but only about 54% of students indicated that their instructors provided support (Chen & Denoyelles, 2013).

Most mobile learning projects occur in isolation and are disconnected from teacher development programs and broader ICT initiatives and goals (UNESCO, 2011). Thus, many mobile learning projects may not have had a direct impact on educational practices. According to the Cognitivist, learning is an active, constructive, cumulative, and self-directed process that is dependent on the mental activities of the learner, (Shuell, 1986). However one can argue that Mobile Learning, because of the advanced technology embedded inside, can provide such mental, social, contextual, and spatial activities via micro learning all the daylong and make the learning process more self-directed and regulated, Edge, et.al. (2011).

Therefore, this study intends to assess the effect of mobile learning on students' achievement.

III. Research Questions

1. What are students' attitudes about using personal mobile devices for learning?
2. What are students' beliefs about the ease of learning on mobile devices?
3. Is there any difference between the effect of Mobile Learning in comparison with Face-to-Face learning on the academic achievement of students'

IV. Methodology

a) Study design

The study adopted the experimental approach to check whether the use of mobile phones has an effect on students' academic achievement. An experimental design is usually used because it identifies easily the independent, dependent, and inconvenience variables. Also an academic achievement pre and posttests of equivalent groups were employed for both groups. Besides, pre and post- participants' conversational skills ratings were implemented, as illustrated in table 1.

Table 1: Pretest and Posttest Experiment Design

Group	Pre-test	Treatment	Post-test
Experimental	O_1: Achievement of pretest	X_1: Mobile learning Treatment	O_2: Achievement of posttest
Control	O_1: Achievement of pretest	X_2 : Traditional Treatment	O_2: Achievement of posttest

b) Research Population

Participants in this study consisted of (42) Adeyemi college of education social studies English language students that were on teaching practice at National Institute for Educational Planning and Administration Ondo were enrolled in two equal groups of "Strategies of Teaching and Learning" within the three months of teaching practice . One of these groups was assigned as a control group, was taught by Face-to Face Learning while the other one represented the experimental group, and studied the course content via Mobile Learning.

V. Data Collection Instruments

Two main instruments were developed for this study, namely an academic achievement test and a scale for rating students' conversational skills. However, items in the achievement test were drafted based on the desired learning outcomes of "Strategies of Teaching and Learning" course in addition to participant students' academic level. The test consisted of two main parts. In the first part there were (7) questions of the essay type to answer (5) with question (1) compulsory and any other (4) questions. The second part involved (20) multiple-choice statements whereas,. Twenty (25) points were assigned for the first part, i.e. (10) points for compulsory easy question and 5 point for each of the remaining 4 essay question. (20) points were devoted to the second one, one point for each statement. Thus, the total mark on the achievement test was (50) points.

a) Validity of the research

Burns and Grove (1993) define the validity of an instrument as a determination of the extent to which the instrument actually reflects the abstract construct being examined. There are two ways to evaluate instrument validity: content validity and statistical validity, which include criterion-related validity and construct validity.

b) Content validity of the questionnaire

Experts in the field of measurement and evaluation as well as computer science engineers at the National Institute for educational planning and National Open University of Nigeria help to validate the entire instrument designed for the study. Their expert advice and observations was used in revising the draft instruments to meet both the face and content validity. In general, they agreed that the questionnaire is suitable to achievethe goals of the study. Important comments and some modifications have been done.

c) Reliability of the research

i. *Cronbach's coefficient alpha*

Prior to implementation, the test was piloted on (15) Industrial Training Students at (NIEPA) who were enrolled in "Practicum" course to determine the test needed time for completion, validity, and reliability. After calculating the time needed by those 15 students, it was found that the approximate needed time was 2 hours. Cronbach Alpha was then used to extract the test's reliability coefficient. Calculations showed that it was (0.93) indicating that results of such a test is fit for the study purpose and results will trustful which is also referred to as excellent as shown in table 2 .

Table 2: Cronbach's alpha and internal consistency (Prabhala, 2011)

Cronbach's alpha	Internal consistency
$\alpha \geq 0.9$	Excellent
$0.9 > \alpha \geq 0.8$	Good
$0.8 > \alpha \geq 0.7$	Acceptable
$0.7 > \alpha \geq 0.6$	Questionable
$0.6 > \alpha \geq 0.5$	Poor
$0.5 > \alpha$	Unacceptable

VI. Methods of Presentation of the Analysis

The questionnaire quantitative statistical analysis was done by using Statistical Package for Social Sciences (SPSS) version 22 and Excel sheet. The analysis of data was done to rank Student Attitudes about Learning on Mobile Devices. The following statistical tests were done:

1. Cronbach's coefficient alpha for questionnaire reliability
2. The relative importance index (RII) and ANoVA
3. Independent sample t test

VII. Results

Table 3.1: Demographic Characteristics of the Respondents

Characteristics	Frequency	Percentage
Gender		
Male	16	38.01
Female	26	61.9
Total	42	100.0
Type of Smartphone Owned		
Android	24	57.1
Apple	3	7.1
Windows	10	23.8
Blackberry	5	11.9
Total	42	100.0
Hours used on Mobile Device Per day		
Less than 1	1	2.4
1–3	4	9.5
4–5	9	21.4
6–7	13	31.0
more than 7	15	35.7
Total	42	100.0
Has lecturer sent classroom information, alerts, and announcements to your mobile device?		
Yes	41	97.6
No	1	2.4
Total	42	100.0
Do you use a mobile device to support learning during class?		
Yes	42	100.0
No	0	0.0
Total	42	

Table 3.1 shows that 38.01% of the participants were male while 61.9% were female. The table also indicates a pre-instruction survey of the students on ownership and usage of personal mobile devices. The students affirmed that they all have a Smartphone with majority of them 57.1% owned an Android phone, 23.8% to Windows phone, 11.9% and 7.1% to the ownership of Blackberry and Apple phones. The table further reveals that 97.6% and 100.0% of the students had received classroom information, alerts, and announcements to your mobile device and also use mobile device to support learning during class.

Table 3.2: Students Attitudes about Learning on Mobile Devices

	Response					RII(%)	Ranking
	5	4	3	2	1		
I think my fellow students would be in favor of utilizing mobile learning in their coursework.	16	13	6	5	2	97.1	1
It is acceptable for lecturers to contact me with class-related information, announcements, alerts and reminders about assignments on my personal mobile device.	20	10	4	5	1	96.7	2
I think mobile devices can help me stay on top of assignments and instruction	19	13	3	3	1	96.2	3
Using mobile learning in my coursework would be a pleasant experience.	14	13	9	3	3	95.2	4
I think I can use my mobile device to learn all my course content.	14	16	5	2	5	95.2	5

I think my lecturers believe that a mobile device could be a useful educational tool in their coursework	13	9	14	3	3	92.4	6
I would be interested in receiving educational content on my mobile device	15	10	9	5	1	91.9	7
Including mobile learning in coursework is a good idea.	13	13	9	3	2	91.4	8
I think my lecturers possess adequate technical skills to use mobile devices effectively in the presentation and preparation of course content.	10	14	9	5	4	90.0	9
I think mobile devices could improve my ability to learn.	14	15	4	4	1	90.0	10
I think learning on a mobile device can meet the needs of my current instruction.	9	14	8	9	2	89.0	11
I think my instructors possess adequate technical skills to use mobile devices effectively for quizzes and creating homework & assignment	10	12	11	5	4	89.0	12
I think my lecturers would be in favor of utilizing mobile learning in their courses.	9	11	11	8	3	87.1	13
I would like my coursework more if it included more mobile learning.	12	7	10	8	5	86.2	14
I think mobile devices could help me get my assignments completed more quickly.	0	0	9	13	20	54.8	15
Pooled						89.48	

Table 3.2 shows that student attitudes about using personal mobile phone for learning were moderately positive with a pooled RII of 89.48%)using Likert scale of1 = Not at all well, to 5 = Extremely well. However with an RII of 97.1%, the students affirmed that their fellow students would be in favor of utilizing mobile learning in their coursework. So also 96.7% contends that it is acceptable for lecturers to contact them with class-related information, announcements, alerts and reminders about assignments on their personal mobile device. This is closely followed by those who taught mobile devices can help them stay on top of assignments and instruction with an RII of 96.2%.

Similarly, with an equal RII of 95.2% the students affirmed that Using mobile learning in their coursework would be a pleasant experience as well as using mobile device to learn all their course content in the classroom.

Table 3.3: Analysis of Variance between experimental and control groups' means regarding achievement pre-test

	Sum of Squares	df	Mean of Square	F. ratio	Sig.
Between Groups	1.975	1	.329	2.128	.081
Within Groups	4.332	38	.155		
Total	6.307	39			

Table 3.3 indicates that calculated F. ratio (2.128) was statistically insignificant at (α=0.05). This analysis implies that there were no statistically significant differences between both groups in the academic pre-test achievement. That is students' academic achievement levels were homogeneous before the exposure to the treatment.

Table 3.4: Paired sampled t-test analysis showing the mean difference between experimental and Control Groupregarding participants' achievement post-test

Group	N	$\bar{X}$ (Mean)	MeanDifference	Df	t-cal	Sig Prob
Experimental	20	64.222	9.077	19	1.782	0.0180
Control	20	55.145				

Table 3.4 revealed that, the value for the difference between participants' gain ratio in the control group (M= 55.145) and the experimental group (M=64.222) regarding the academic achievement post-test was (9.077). However, the table also show that the difference between both groups' mean scores was statistically significant at (α=0.05) between the academic achievement of both participant groups in favor of the experimental group that was taught by the use of Mobile Learning.

VIII. Discussion of Findings

This study found that student attitudes about using mobile phone for learning were moderately positive with a pooled RII of 89.48% on a likert scale of 1 = Not at all well, to 5 = Extremely well. This is in line with findings concluded by Dos (2014) as well as Elaine (2017) regarding the development of students' achievement and met cognition as a result of Mobile Learning. They also assert the findings of Jabbour (2013) with regard to students' positive attitudes towards Mobile Learning, the enjoyment they had, and the positive learning experience they went through.

The study also revealed that Mobile learning was more effective than the use of traditional teaching methods in helping students enrolled in "Strategies of Teaching and Learning" course to achieve better with achievement test score of m= 64.222 for mobile learning (experimental group) and m =55.145 for traditional teaching methods (control group). This implies that, students' understanding and comprehension of the course's learning content provided by the use of Mobile Learning was much better than their peers' understanding and comprehension of the same content through the use of traditional ways of teaching, i.e. Face-to-Face learning. Such success and effect can be referred to a set of elements related to mobile phones' characteristics and technology. One of these factors is the fact that mobile phones could make learning easier and fast without time and place constraints. On the other part, the mobility that Mobile Learning depends upon could allow students to easily interact and discuss the learning topics with colleagues or instructor anytime and anywhere. Their leisure was effectively used and changed into precious time full of useful activities. Besides, mobile learning contributed to the support of the interactive characteristics of learning and teaching environment making students' role more effective through the active interaction with the teaching/ learning materials via mobile sets. Furthermore, Mobile Learning spontaneity and contextualization could make the teaching process student-centered going along with the philosophy of Constructivist Approach resulting in making them willingly able to access the teaching content and interact with it. Another important element in the success of students learning via Mobile Learning was the various opportunities and occasions through which learners were allowed to access and make use of the large amount of information available on Internet for the sake of educational aims and assignments.

Findings of this study are in accordance with Wang, *et.al*. (2009) and Abdellah*et.al*, (2016)in relation to the ability of Mobile Learning to convert learners from passive into active ones who were behaviorally, intellectually, and emotionally involved in their learning tasks. However, findings of the present study do not go along with or support the findings of some studies, i.e. Kuzne koff & Tits worth (2013) and Chu (2012) Which found that Mobile Learning was not an effective learning style and consequently could not affect learners" academic achievement.

IX. Conclusion

Mobile phones devices of today are more powerful than many computers of the previous decade. Using a Smart Phone Platform, the system broadcasts real-time classroom activities including video, audio, lecture notes and hand writing, to students' mobile phones via the GPRS network.

This study indicates that students are skilled with their mobile devices and are receptive to using them for higher education or are already using them to capture lecture notes, images of instruction written on black and white boards, and reminders for class. Some students responded positively to receiving instructional content on their mobile devices. Teachers, on the other hand, can monitor all online students' mobile phone screens without too much delay, so as to facilitate instructor supervision of students' learning activities and to provide guidance when necessary.

It is now up to educationists as well as educational institutions to take the next step in effectively integrating mobile devices and instruction optimized for mobile devices in education in order to improve teaching and learning.

References Références Referencias

1. Abdellah, I.,& Thouqan., S (2016). The Effect of Mobile Learning on Students' Achievement and Conversational Skills. International Journal of Higher Education. Vol. 5, No. 3; 2016
2. Chen, B., & de Noyelles, A. (2013). Exploring students' mobile learning practices in higher education. *Educause Review. Retrieved from http://www.Educause.Edu/ero/article/exploring-Students-Mobile-Learning-Practices-Higher-Education*
3. Crompton, H. 2013a. A Historical Overview of M-learning. Toward Learner-Centered Education.In Z. Berge & L. Muilenburg (Eds.) Handbook of Mobile Learning. New York: Routledge, 3–14.
4. Dos, B. (2014). The Relationship Between Mobile Phone Use, Met cognitive Awareness and Academic Achievement. *European Journal of Educational research, 3*(4), 192-200. Retrieved from http://files.eric.ed.gov/fulltext/EJ1085990.pdf
5. Edge, D.; Searle, E.; Chiu, K.; Zhao, J.; & Landay, J. (2011).*Micro Mandarin: Mobile Language Learning in Context,* CHI '11 Proceedings of the SIGCHI Conference on Human Factors in Computing Systems Pages 3169-3178. Retrieved from http://dl.acm.org/citation.cfm?id=1979413

6. El- Hussein, M. O. M., & Cronje, J. C. (2010).Defining Mobile Learning in the Higher Education Landscape. *Educational Technology & Society, 13*(3), 12–21.
7. Elaine, R .(2017). Effects of Distributed Presentation Learning and the Testing Effect on Mobile Devices. A Dissertation Presented in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy. Arizona State University
8. Ericsson Mobility Report - On the Pulse of the Networked Society. 2014.Available in: http://www.ericsson.com/res/docs/2014/ericsson-mobilityreport-november-2014.pdf.
9. International Data Corporation (IDC). 2013. Tablet Shipments Forecast to Top Total PC Shipments in the Fourth Quarter of 2013 and Annually by 2015, According to IDC. Available in: http://www.idc.com/getdoc.jsp?containerId=prUS24314413..
10. International Data Corporation (IDC). (2014. Worldwide Smartphone Shipments Top One Billion Units for the First Time, According to IDC
11. Jabbour, K. K. (2013). An Analysis of the Effect of Mobile Learning on Lebanese Higher Education. *Bulgarian Journal of Science and Education Policy (BJSEP), 7(*2), 280-301.
12. Kim, D., Rueckert, D., Kim, D. J. &Seo, D. (2013).Student' Perceptions and Experiences of Mobile learning. *Language Learning & Technology, 17*(3), pp. 52–73. Kuznekoff, J. & Titsworth, S. (2013). The Impact of Mobile Phone Usage on Student Learning. *Communication Education, 62(*3), 223-252.
13. Lam, J., Yau, J., & Cheung, S. 2010. A Review of Mobile Learning in the Mobile Age. Hybrid Learning. In Proceedings of the Third international conference on Hybrid learning (ICHL'10), P. Tsang, S. K. Cheung, V. S. K. Lee, and R. Huang (Eds.) Springer-Verlag, Berling, Heidelberg, 306-315.
14. Lan, Y. F., & Huang, S.-M. (2012). Using Mobile Learning to Improve the Reflection: A Case Study of Traffic Violation. *Educational Technology & Society, 15(2),* 179–193.
15. Little, B. (2012). Effective and Efficient Mobile Learning: Issues and Tips for Developers. *Industrial and Commercial Training*, 44(7), 402-407. http://dx.doi.org/10.1108/00197851211267983
16. López, G. J. L, Royo, T. M., Laborda, J. G., & Calvo, F. G. (2009).Methods of Adapting Digital Content for the Learning Process via Mobile Devices. *Procedia Social and Behavioural Sciences, 1(1),* 2673–2677.
17. Miller, C., & Doering, A. (2014).*The new landscape of mobile learning: Redesigning education in an app-based world*. Routledge
18. Peters, K. 2005. Learning On The Move: Mobile Technologies in Business and Education, Australian. Flexible Learning Framework.
19. Prabhala A., Cronbach's alpha, << http://en.wikipedia.org/wiki/Cronbach%27s_alpha>>, Accessed on August 2018
20. Rekkedal, T. & Dye, A. (2007). Mobile distance learning with PDAs: Development and testing of pedagogical and system solutions supporting mobile distance learners. *International Review of Research in Open and Distance Learning*, *8*, 2, 1–21.
21. Shih, J.-L., Chu, H.-C., Hwang, G-J., & Kinshuk. 2011. An investigation of attitudes of students and teachers about participating in a context-aware ubiquitous learning activity. British Journal of Educational Technology 42(3), 373–394.
22. Shuell, T. (1986).Cognitive Conceptions of Learning. Review *of Educational Research 56*, 411-436. Retrieved from http://rer.sagepub.com/content/56/4/411.short
23. Shuler, C. 2009. Pockets of Potential: Using Mobile Technologies to Promote Children's Learning, New York: The Joan Ganz Cooney Center at Sesame Workshop.
24. Suoninen, A. 2010. Children's Media Use as Described By Their Parents. In S. Kotilainen (Ed.) Children's media barometer 2010: the Use of Media among 0-8-year olds in Finland. Helsinki: Finnish Society on Media Education, 9–14.
25. Traxler, J. 2007. Defining, Discussing and Evaluating Mobile Learning: The moving finger writes and having writ . . . . The International Review of Research in Open and Distance Learning 8 (2).
26. UNESCO. 2011. Mobile Learning Week Report. 12-16 December 2011, UNESCO
27. HQ Paris. Available in: http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/ED/ICT/pdf/UNESCO%20MLW%20report%20final%2019jan.pdf.
28. UNISCO. (2013). *Policy Guidelines for Mobile Learning*, Kraut, R (editor), France: The United Nations Educational, Scientific and Cultural Organization (UNISCO), Retrieved from http://unesdoc.unesco.org/images/0021/002196/219641e.pdf
29. Wang, M.; Shen, R.; Novak, D.; & Pan, X., (2009). The Impact of Mobile Learning on Students' Learning Behaviours and Performance: Report from a large blended classroom. *British Journal of Educational Technology (BJET), 40 (4)*, 673–695. http://dx.doi.org/10.1111/j.1467-8535.2008.00846.x
30. West, D. M. (2013). Mobile Learning: Transforming Education, Engaging Students, and Improving Outcomes, Centre for Technology Innovation at Brooking. Retrieved from http://www.brookings.edu/~/media/research/files/papers/2013/09/17-mobile-learning-education-engaging-studentswest/brooking smobilelearning_final.pdf

This page is intentionally left blank