
How Do Faculty Members React Towards the Use of Personal Mobile Devices by Students in the Classroom?

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Introduction

In recent years a growing number of students use mobile technologies in classes, e.g. laptops, tablets of all sorts or smartphones; these are used as substitutes to the traditional means of taking notes in class (Kurtz & Meishar-Tal, 2015). Usage of mobile technological means in class enables several advantages to students, such as immediate knowledge organization, access to online information that supports in-class learning, or student communication. These may empower and support the learning process altogether (Sharples, 2000).

This new situation is beneficial for the institute itself: the fact that students arrive with personal mobile devices to class saves a vast amount of resources as an alternative to expenses for the construction of computer labs and their maintenance. In fact, this new situation turns all spaces within the organization into potentially capable of becoming ICT-saturated zones (Emery, 2012; Hamza & Noordin, 2013; Nykvist, 2012).

For faculty, this may serve as an advantage, since students' accessibility to online information via mobile technologies enables lecturers' usage of these devices in their lessons, thereby creating interest and a variety of learning modes, as well as allowing constructivist pedagogy and active learning (Campbell & Pargas, 2003; Meisha-Tal, 2014).

The literature presents several examples for effective usage of mobile devices for in-class learning, e.g. active learning through interactive surveys (Kohen-Vacs et al., 2012), or using the built-in camera in some mobile devices as well as the microphone and recording devices for documenting learning processes (Benedict & Pence, 2012; Zadok & Meishar-Tal, 2014). Research shows that the implementation of mobile technologies within learning processes by faculty has positive influence on motivation

for learning (Rau, Gao & Wu, 2008), as well as on the level of active learning in the lessons (Barak et al. 2006; Melton & Kendall, 2012).

Aside of the advantages of using mobile technologies in class, some disadvantages can be identified as well. The main drawback is the distraction issue: mobile technologies distract the students by creating diversions from the main course of the lesson and creating temptations for students (Barkhuus, 2005; Gehlen Baum & Weinberger, 2012). In a study that examined uses of mobile technologies in lessons, findings suggest that these not only do not contribute to the learning process, but may also harm or hinder it (Fried, 2008). The reason for this finding is the possible difficulty in carrying out multiple cognitive tasks simultaneously (multi-tasking) (Kraushaar & Novak, 2010).

Hence, it is not surprising that many faculty members in higher education hold negative attitudes towards students using mobile devices in their lessons. They see students' uses of these devices as a nuisance, since they pose a competition for their students' attention. Students using mobile devices in the lesson are considered by their lecturers as rude and a distraction to themselves and to others (Baker et al. 2012). Several faculty members perceive usage of mobile technologies as contributing to superficial learning and damaging the teacher-student dynamics that is created within the lesson (Handal et al., 2013).

The goal of this study is to examine how teacher educators cope with students bringing mobile devices into lessons, in a situation that lacks an overt policy regarding this phenomenon (e.g. is bringing these devices allowed or forbidden, is using them in lessons allowed etc.). We were interested in whether teacher educators initiate incorporation of mobile devices in their lessons, if they forbid usage of these devices, or if they are indifferent regarding the phenomenon and do not interfere in their students' behaviour regarding the utilization of mobile technologies in their lessons.

Research questions

1. How do teacher educators perceive the usage of mobile devices by students in class?
2. How and to what extent do teacher educators react to the usage of mobile devices by students in class?
3. What is the connection between teacher educators' perception regarding students' usage of mobile devices and their reaction de facto to these uses?

4. What is the connection between teacher educators' perception regarding students' usage of mobile devices and their acquaintance with possible uses of these devices?

Method

The study was conducted using a quantitative method. A questionnaire was distributed among faculty members of two academic colleges of education. The questionnaire contained five parts: the first part included demographic information (e.g. gender, age); the second part focused on the usage frequency of mobile devices in classes (including laptops, smartphones and tablets); the third part focused on perceptions regarding uses of mobile technology in classes; the fourth part focused on the reactions of teacher educators towards uses of mobile technology in classes, and finally, respondents were requested to grade their acquaintance with implementing mobile technologies and applications to enhance their students' learning.

Respondents included 152 teacher educators from two academic colleges of education, 86 from one college and 66 from the other college; of these, 121 were female and 31 men. Age range was 33-70 (\bar{x} =50.4), average years of teaching \bar{x} =21.36, average years of teaching in the college \bar{x} =9.3. Respondents reported an average of ICT competencies of \bar{x} =4 on a 1-5 Likert scale. The questionnaire was analyzed statistically, and teacher educators' attitudes and reactions towards students' uses of mobile technologies in lessons were examined.

Results

Findings show that the most common device among students, according to faculty assessment, is the smartphone. Laptops and tablets were evaluated as less widespread among students, but still available to some students (Table 1).

Table 1: Students' inventory of mobile devices, according to faculty perceptions (N=141)

Type of device	Estimation of mobile devices available for students by faculty	SD
Smartphones	4.48	.81
Laptops	1.88	.78
Tablets/iPads	1.44	.72

Q1: How do teacher educators perceive the usage of mobile devices by students in classes?

The research tool included a question with 18 items referring to faculty attitudes towards usage of mobile technologies, divided into 4 categories: advantages for

students, disadvantages for students, advantages for faculty, disadvantages for faculty. The average of each category was computed, representing each category (Table 2).

Findings show that the average ranking of perceived advantages is significantly higher than that of the perceived disadvantages of using mobile technologies, regarding usage of mobile devices, with regards to faculty, with $t(151) = 9.801$ with $p < 0.001$, as well as students, with $t(151) = 12.798$ with $p < 0.001$. As for perceived disadvantages in using mobile technologies in classes, disadvantages for students were perceived as higher than disadvantages for faculty.

Table 2: Faculty perceptions regarding the advantages and disadvantages of using mobile technologies in classes (N=152)

Categories of perception	Average	SD
Advantages for students	3.50	.92
Advantages for teacher educators	3.49	.90
Disadvantages for students	2.89	.97
Disadvantages for teacher educators	2.30	.94

The complexity of faculty perceptions regarding student usage of mobile devices in classes was also evident in open-ended questions in which respondents were requested to explain their attitudes towards usage of mobile devices. One of the teacher educators wrote: "It's complicated. On one hand, I think that you should allow uses for learning purposes. On the other hand, students do not follow the rules, and enter social networking sites instead, and this interferes with the learning." Another lecturer wrote: "As you may have noticed, my responses supposedly contradict. I think that laptops can be used in classes and that they promote learning. On the other hand, they also pose a major diversion. A lot depends on the students' level of maturity, if the lesson is great; otherwise they will not be involved at all."

Q2: How and to what extent do teacher educators respond to usage of mobile devices in classes?

The research tools included a question containing 8 items describing possible reactions of faculty towards students' uses of mobile technologies in classes. These were divided into 3 categories: Proactive response, Preventive response, Indifference.

According to the highest average computed for each respondent, they were assigned to one of the three groups/categories. Findings show that most teacher educators (64%) do not exhibit an active response, but rather respond indifferently, about one third (30%) reported active and initiative responses that reflect encouragement of students

in using mobile devices and even initiating activities; the remaining 15% claimed that they prevent usage of mobile devices in classes.

Q3: What is the connection between faculty perceptions regarding usage of mobile devices by students in class and their responses to these uses?

Findings reveal a significant correlation between a preventive mode of reaction and perceptions of perceived disadvantages of mobile technologies usage in class, as well as a significant negative correlation between avoidance and perceptions of the advantages of using mobile technologies in classes, that is, the more the perceptions of disadvantages is higher, the more reactions of prevention are displayed, and the more the perceptions of advantages is higher, the less reactions of prevention are displayed (Table 3).

Table 3: Correlations between faculty perceptions regarding students' usage of mobile technologies in classes and their reaction towards usage de-facto (N=152)

	Preventive	Indifference	Proactive
Perceived disadvantages for teacher educators	.486**	-.301**	-.390**
Perceived disadvantages for students	.483**	-.284**	-.481**
Perceived advantages for teacher educators	-.379**	.287**	.612**
Perceived advantages for students	-.424**	.313**	.652**

Notwithstanding, as for proactive indifference and reactions, they are in direct relationship with perceptions of the advantages in using mobile devices in class, but in reverse relationship with the perceptions of disadvantages in using mobile devices in class. The strength of the correlation is especially strong between proactive reactions of teacher educators and perception of the possible advantages for students and teacher educators in using mobile technologies: $r=.652$ and $r=.612$ respectively.

Q4: What is the connection between faculty acquaintance with mobile technology usage in class and attitudes towards using mobile devices by students and their reaction to this usage?

We examined whether the degree of faculty knowledge of mobile technology usage in class is connected with their perceptions regarding usage of mobile devices by students. For this purpose, teacher educators were presented with several possibilities of usage, and were requested to grade their familiarity with each of them on a 1-5 Likert scale. Table 4 presents teacher educators' knowledge of possible uses of mobile devices.

Table 4: Level of teacher educators' knowledge of possible uses of mobile devices for learning (N=152)

	Average	SD
Information source	4.03	1.17
Computerized learning environments	3.23	1.35
Digital learning products/outcomes	3.05	1.46
Collaborative tools	2.95	1.44
Educational forums	2.91	1.48
Online surveys	2.49	1.42
Social networking sites	2.39	1.38
Documentation of learning processes	2.16	1.41
Location-based information	2.07	1.31
Writing and documenting apps	1.76	1.17
Augmented reality	1.63	1.12
Measurement and inquiry apps	1.62	1.09

The data highlights that the degree of faculty knowledge regarding possible uses of mobile technologies in class differs according to its utilization. Basic uses, e.g. searching for information and computerized learning environments are familiar to teacher educators to a greater extent, however, more advanced possibilities, e.g. collaborative tools, online surveys and documentation tools for the learning process (for example, Evernote) are less familiar.

Based on faculty grading of the possible uses of mobile technology in education, we computed a new measure: familiarity with uses of mobile technologies ($\alpha=.915$), which is the average grading of all uses per lecturer. In addition, Pearson's correlations were computed for between this measure and perceptions regarding uses of mobile technologies. Findings are presented in table 5.

Table 5: Correlation between level of acquaintance with mobile technology uses for learning and perception of advantages and disadvantages of its incorporation in class (N=152)

	Perception of advantages for teacher educators	Perception of disadvantages for teacher educators	Perception of advantages for students	Perception of disadvantages for students
level of acquaintance with mobile tech. uses	.418**	-.318**	.382**	-.346**

Data shows that positive attitudes towards mobile technologies (including advantages for faculty as well as students) are significantly correlated with the level of

acquaintance with mobile technology uses. Respectively, negative attitudes towards mobile technologies are significantly but negatively correlated with the level of acquaintance with mobile technology uses.

In addition, we examined the correlations between the level of acquaintance with mobile technology uses and faculty reactions to students' uses of these devices. Findings show that there are significant correlations between acquaintance with mobile technology uses and two reactions: the preventive and proactive modes (-.231** and .514** respectively); that is, a positive significant correlation between knowledge regarding uses of mobile technology in classes and the proactive response mode, and a negative significant correlation with the preventive reaction mode. As for the indifference reaction – no correlation was found. Therefore, we can state that the more teacher educators know what to do with mobile technologies in their classes, the more they display a proactive mode of response, and the less they display a preventive mode.

Discussion

The goal of the current study is to examine the perceptions and reactions of faculty to students' use of mobile technologies in classes. Findings show that in spite of the growing scope of mobile devices (mostly smartphones, but also laptops and tablets) the initiated usage by faculty is not as widespread respectively. Most teacher educators do not respond to the perceived change in the noticeable change in availability of mobile devices for students. They do not change the course of the lesson and do not adapt it to the new possibilities posed by these new technologies. However, most of them do not prevent the students from using these means in a spontaneous and informal mode. The possible reason for this may faculty's mixed attitudes towards mobile technologies: on one hand, they acknowledge the advantages in using these devices in the lessons, but on the other hand they are also aware of the disadvantages in using it.

Another reason that faculty do not respond to the change in their classes is the fact that most teacher educators lack the knowledge regarding the utilization of mobile technologies in effectively in class. They report that their knowledge of the different possible uses of mobile devices in class is mediocre at best in most categories. The only use familiar to most teacher educators is search of information on the Internet. This may explain why in spite of the fact that faculty acknowledge the advantages of using mobile technologies in class, they do not initiate these uses.

This explanation is supported by the finding that indicates a correlation between the rates of faculty exposure and the perceived benefits in using mobile technologies and the variety of its possible uses. Findings show that the more exposure rates of faculty are higher and the more they are knowledgeable regarding usage of mobile technologies in learning, the more they initiate its usage and the less resistance is exhibited in the form of preventing its use by students in classes. Hence, in order to promote faculty positive attitudes towards mobile technologies, they should be exposed to their various uses and trained to utilize them effectively in their classes (Zadok & Meishar-Tal, 2014).

As for the transferability of the current study, it was conducted in two colleges in which the current scope of mobile devices was relatively low. Hence, further large-scale studies in additional colleges may allow us to receive a larger perspective regarding informal usage of mobile devices in higher education altogether. It will also enable us to examine differences in faculty reaction based on the scope and availability of the devices in classes.

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Acknowledgement

This study was funded by the MOFET institute research fund.