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ORIGINAL RESEARCH

Factors Influencing Teachers' Attitudes Toward Mobile Technology Integration in K-12

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Abstract The purpose of the present study was to explore, in depth, the factors influencing teachers' attitudes towards the integration of tablets into their classroom for teaching purposes. In order to achieve the purpose of the study, semi-structured interviews were conducted with 15 teachers from five rural middle schools in Palestine. A thematic analysis approach was used to analyze the interview data. The findings of the study revealed that teachers use tablets because it facilitates their teaching as well as provides equality of access to the Internet and educational technology for students in rural schools. Furthermore, there was diversity in teachers' attitudes towards tablets based on a variety of factors such as technical support and the availability of suitable educational resources. Further research is needed to conduct a comparative study between schools and different topics.

Keywords Mobile technology · Tablet PCs integration · Teachers' attitudes · Teacher role · Technology integration

1 Introduction

For the purpose of the study, mobile technology is defined as any small device with an Internet connection and edit functionality that can connect to Internet. In this case study, tablets are an excellent example of mobile technology because they are relatively new to the Palestinian educational system. Many researchers have examined the impact of technologies and the development of communication technologies on teaching (Eristi et al. 2011; Martin et al. 2011; Suki and Suki 2011). Educators are motivated to use technological innovations in their teaching practice as a way to improve learning outcomes (Vu

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et al. 2014). As a result, various types of advanced technologies have been introduced into education including wearable technology (Vallurupalli et al. 2013), smart boards (Al-Qirim 2011; Gursul and Tozmaz 2010), mobile devices (Williams and Pence 2011; El-Gayar et al. 2011; Eristi et al. 2011), and smart classrooms (Şimşek et al. 2010). This trend continues to grow among many educational systems around the world (Dündar and Akçayır 2014; Hsu 2016; Vu et al. 2014). However, previous studies have suggested that while technology use has increased, technology integrated into classroom instruction has decreased due to teachers' attitudes and beliefs (Hew and Brush 2007; Ertmer 2005; Groff and Mouza 2008; Levin and Wadmany 2008). Likewise, researchers have noted the need for more research on teachers' technology integration in grades K-12 in order to understand teachers' attitudes towards technology (Vu et al. 2014; Ifenthaler and Schweinbenz 2013a, b).

Many studies have indicated the importance of using tablets during classroom instruction as a way to facilitate student learning (Ifenthaler and Schweinbenz 2013a, b, 2016; Banister 2010). Furthermore, some have argued that the use of mobile devices with multiple applications allow students to access information, interact with peers and teachers, and collaborate in order to construct knowledge (Gikas and Grant 2013; Moran and Gayar 2010).

Although mobile technologies are prevalent in social and business contexts, they continue to gain popularity in educational contexts (Gikas and Grant 2013). The integration of mobile technologies into learning and teaching is expected to have a great influence on the experience and performance of both educators and learners (Alvarez et al. 2011). Consequently, the purpose of the present research is to explore in depth the factors affecting teachers' attitudes towards the integration of mobile technology in their classroom for teaching purposes.

Due to the conflict situation and mobility restrictions in Palestine, the Ministry of Education introduced the one-to-one tablet initiative in ten rural middle schools as a way to reduce the difficulties that teachers and students in rural areas confront as a result of the instability. These ten schools are the first stage of a national plan to distribute tablets to all schools in the country (Ministry of Education 2014). The additional goal of this project is to improve learning outcomes in four topic areas: the English and Arabic languages, math, and science (Ministry of Education 2014). But initially there is a need to explore teachers' attitudes on the integration of tablets into their teaching and the factors affecting these attitudes, which is the main contribution of this study. This, in turn, will help the decision makers in Ministry of Education in Palestine design their initiative for implementing the tablets along with suitable infrastructure, which is an important first step toward insuring their use. Also, without any prior investigation or exploratory study, it is difficult to be certain that the tablets will be used, as the teachers' attitudes are unknown. The study indicated that these attitudes, and the factors influencing them, have not yet been sufficiently investigated within the Palestinian context. This is the main reason that this researcher is motivated to focus on this area and attempt to explore the gaps not covered. Furthermore, the findings of this study might help decision makers in other countries with similar conflicts and instabilities to understand how to more effectively integrate tablets into their educational system.

2 Theoretical Background

2.1 Using of Mobile Technology in Education

Mobile technologies are being used in many areas such as health (Mansar et al. 2012), government operations (Aloudat et al. 2014), advertising (Liu et al. 2012), commerce (Chen et al. 2011; Gerpott 2011), and robotics (Quintia et al. 2010). More importantly, many mobile development projects support instruction both within and outside the classroom through activities such as sharing information, classroom management, grading, taking attendance, and collaboration. Furthermore, scholars have investigated how mobile devices are being used in particular content areas and contexts such as technology and engineering practices (White and Martin 2012), math (Carr 2012; Bannon et al. 2012), science (Hesser and Schwartz 2013), music (Riley 2013), reading (McClanahan et al. 2012), and writing (Sullivan 2013).

In terms of the benefits of using tablets in classroom instruction, Bannon, Martin, and Nunes-Bufford (2012) explored pre-service and in-service teachers' usage of tablets in math education as a tool to promote student learning through math game applications targeted at specific concepts. Pegrum et al. (2013) interviewed and observed eight pre-service teachers to determine how they used tablets and iPads in their learning. Furthermore, they conducted focus group interviews of large cohorts to support their findings. The findings of their study showed that iPads supported pre-service teachers' learning in four ways; helping them to stay organized, develop an understanding of pedagogy, develop an understanding of content, and helping them stay connected. Furthermore, iPads helped pre-service teachers develop a new awareness of learning spaces and networks. In addition, the findings revealed three limitations teachers faced when using tablets and iPads which were time limitations, attitudinal limitations, and device limitations.

Conn (2012) conducted a study using a class set of iPads in elementary school classrooms. Conn determined that the use of iPads had positive results and was highly recommended by teachers. The study also found it beneficial to assign one iPad to each student and establish a care and use agreement that helped foster a feeling of ownership in the student, and helped teachers keep track of the iPads and inspect them for misuse. Bennett (2012) also wrote about iPad implementation by pre-service teachers at the elementary school level, which used five devices per classroom. She argued that even with a limited number of devices, iPads could be integrated into the classroom at a fundamental level.

2.2 Teachers' Attitudes Towards Technology

Many factors influence integration of mobile technology in education. One factor is the teacher's attitude toward the use of technology in the teaching and learning process (Al-Emran et al. 2016). The successful use of technology in the learning environment deeply depends on the teacher's attitude toward technology (Chiu and Churchill 2015; Demirbilek and Demirel 2010; Şad and Göktaş 2014). Thus, teachers' attitudes toward technology can play an important role in the actual use of technology in classroom instruction (Ertmer 2005; Ertmer et al. 2012).

Teachers' attitudes towards technology can be a major barrier to the integration of technology (Ertmer et al. 2012; Hew and Brush 2007). Ertmer (2005) mentioned that the decision to integrate technology depends on the teachers and their pre-existing attitudes

toward technology. Likewise, many researchers have examined the same relationship between attitudes and technology integration. For example, Naaz (2012) found a positive relationship between the attitudes of teachers and their use of technology. Likewise, Blackwell et al. (2014) surveyed data from 1234 early childhood educators, which indicated that attitudes toward the value of technology to aid children's learning have the strongest effect on technology use in the classroom. In addition, Akbaba (2013) investigated History teachers' attitudes toward technology and discovered a positive relationship between attitudes and technology integration. Al-Zaidiyeen et al. (2010) indicated that teachers' attitudes towards the use of Information and Communication Technologies (ICTs) had a direct relation to their use of ICTs for educational purposes.

2.3 Factors Affecting Teachers' Attitudes

Ifenthaler and Schweinbenz (2013a, b) found diversity in the teachers' attitudes toward tablet integration in classroom instruction as did Ng and Nicholas (2009). Moreover, researchers have found that teacher characteristics (Ogott and Odera 2012), teacher experience (Dündar and Akçayır 2014; Ifenthaler and Schweinbenz 2013a, b), support from schools (Blackwell et al. 2014), self-efficacy (Kao and Tsai 2009), and ease of use and increase in Internet use (Morris et al. 2009; Teo and Noyes 2008) all generally influence the attitudes of teachers towards technology use. Furthermore, teachers' attitudes towards, and confidence in, using technology plays a critical role in their use of technology in the classroom (Blackwell et al. 2014; Ertmer and Ottenbreit-Leftwich 2013; Karaca et al. 2013).

As described in the literature review, there were different factors influencing teachers' attitudes towards tablet integration in education but these studies were conducted in stable countries. Moreover, the majority of these studies were conducted in Western educational systems while this study has been carried out in a conflict situation with restrictions on the mobility of teachers and students. Therefore, this study hopes to contribute to a deeper understanding of these factors by looking at what influences teachers' attitudes on using tablets for teaching purposes.

2.4 Research Questions

1. What are teachers' attitudes towards mobile technology, specifically tablets, being integrated into their classroom for teaching purposes?
2. What are the factors affecting teachers' attitudes towards tablet integration into their practice for teaching purposes?

2.5 Research Design

2.5.1 Setting and Context

In order to reduce the need for students to travel to other schools, the Ministry of Education in Palestine distributed tablets (Galaxy) to ten schools in Palestine. The criteria for distributing these devices were that the schools needed to be located in a rural area and also to be a middle school (Ministry of Education 2014). The main purpose of the project was to facilitate the learning process and improve the learning outcomes for teaching the Arabic language, the English language and science, and math. The number of students in each

school was between 220 and 350; whereas the number of students in the seventh and eighth grades was between 50 and 80.

After obtaining permission from the Ministry of Education to conduct the study in these schools, the researcher visited all of the schools involved in the project and met with the principals to describe the study and its purpose, and invite them to participate. Five out of ten schools agreed. Therefore, the study was conducted in five rural middle schools from different regions in Palestine that introduced tablets on a 1:1 basis to two classes (seventh and eighth grades). This study was conducted as a descriptive case research study (Yin 2003) to develop qualitative understandings related to the research questions. A descriptive case study is used to describe an intervention or phenomenon and the real-life context in which it occurred (Yin 2003). This descriptive case study focuses on the middle school teachers in order to explore teachers' attitudes towards the integration of tablets into their practices and the factors affecting these attitudes. The study was conducted after the teachers had used the tablets for one year.

2.5.2 Participants

Participants of this study were 15 teachers (6 males, 9 females) from five middle rural schools from different regions teaching different subjects. The number of teachers from each school varies. In some schools 5 teachers participated, in others it was two teachers. The teachers themselves decided whether to participate in the study or not. The main criteria for recruiting participants was that the teachers had been using tablets in their classrooms for at least for one year, that they were teaching seventh or eighth grade, and that the school received the tablets from the Ministry of Education. All participants participated in the interviews on a voluntary basis, and had different levels of experience relating to the use of technology in their teaching practice.

2.5.3 Data Collection

This study adopted two methods for data collection. The first source of data was weekly teachers' lesson plans to ensure that teachers used tablets in their classroom practice. The second source of data included interviews as a major data collection method because it enabled the researcher to collect the participants' stories. According to Seidman (1998), stories are a way of knowing, and telling a story is essentially a meaning-making process in a study.

Individual interviews provided an understanding of the lived experiences of 15 participants. These interviews were held in June, July, and August of 2015. The interviews were located at the schools with exception of two respondents who chose different locations (An Najah University and the Public Library in Nablus). After obtaining permission from the Ministry of Education, the researcher contacted the Directorate of Education in each district and gathered the principal's contact information to schedule interviews and obtain teacher participation. The researcher sent emails to all participants who then chose the best time and location for their interview. The researcher informed all participants about the purpose of the study and obtained their informed consent for making audio recordings of the interviews. In total, 18 separate questions were asked. Furthermore, two follow-up questions were sent via email for clarification. The duration of the interviews varied from 25 to 35 min in length.

2.5.4 Data Analysis

The interview data was analyzed by using the procedures from Marshall and Rossman (2011). The recorded interviews were transcribed manually. The research used thematic analysis which is defined as a qualitative analytic method for categorizing, analyzing, and reporting patterns (themes) within data (Braun and Clarke 2006). This definition helps the researcher to organize and describe the data sets in detail. In order to produce the themes and subthemes from the interview data, the following procedures were used: (1) each response was read carefully and divided it into small segments according to the ideas and tentatively labelled; (2) tentative labels were examined to find common themes that could be designed; (3) all interview data was assigned into tentative themes; (4) all the themes were double checked for accuracy; (5) after the final themes were decided upon, each theme was divided into subthemes based on the idea in each unit. After the final themes and subthemes were established, a professor of educational technology was asked to take a small portion of the data and apply the codes of the themes and subthemes to verify the reliability and accuracy of the coding.

3 Results

In this section, the results are presented according to the research questions.

Research Question 1 What are teachers' attitudes towards mobile technology, specifically tablets, being integrated into their classroom for teaching purposes?

Teachers' attitudes towards the tablets fell into two themes which included positive and negative attitudes. It was immediately clear to the researcher that the attitudes varied a lot among the participants.

3.1 Positive Attitudes Towards the Use of Tablets in the Classroom

Of those interviewed, 60% asserted that their prior experiences with ICT and tablets had a positive influence on their current attitudes on using the tablets in the classroom.

> Using ICT tools in my classes helps me a lot to use it [tablet] in- class activities…Tablets are a type of ICT tool. [SS]
> When I used the LCD projector with my laptop, I faced many technical difficulties…I was able to cope these difficulties…This helps me to use TPC to display video on the screen by using LCD projector. [JM]

3.2 Negative Attitudes Towards the Use of Tablets in the Classroom

A minority of interviewees (less than one-third) reported that they confronted various challenges while using tablets in their classroom activities. According to their experience, these challenges negatively influenced these teachers' adoption and acceptance of tablets in classroom instruction.

> Tablet is like a toy…I do not believe that it will improve implementing my class activities [QP]

Research Question 2 What are the factors that affecting teachers' attitudes towards tablet integration into their practice for teaching purposes?

The interview results indicated that participants have various attitudes towards the use of tablets in classroom instruction based on different factors. It was obvious to the researchers that these attitudes varied among participants.

The majority of the respondents (11 participants or 73%) expressed a positive attitude towards tablets and voiced various factors that influenced their attitude. Less than one-third reported a negative attitude towards the use of tablets in the classroom for academic purposes. Their attitudes were influenced by their previous experience.

Four main categories emerged which directly affected teachers' attitudes towards the use of tablets in classroom instruction: personal characteristics, technical features of the mobile technology, environmental learning factors, and intervention design factors. *(See Table 5 to read teachers comments on the factors).*

3.3 Personal Characteristics

3.3.1 Previous Experience with Tablets

Of the participants interviewed, 60% indicated their previous experience with tablets had a positive influence on their current attitudes towards the integration of tablets in their teaching practice.

> Using tablet PCs in class activities is a good idea…From my experience with ICT my students were excited when I used in the class activities. [NS]…I used it [TPC] many times for personal purposes…I enthusiasm to use it in my class activities…It is easy to integrate it in my class. [SM]

3.3.2 Knowing the Benefits of Using Tablets

Participants had a positive attitude towards tablets used in their classrooms when they knew the benefits of using tablets (mentioned by 40%). In follow-up questions about the benefits and how teachers knew the benefits, participants mentioned that they knew from training sessions (mentioned by 30% of teachers) while 70% of the teachers knew about the benefits from their advisors. Sixty percent mentioned that using tablets in the classroom saved teacher's time; 40% said it saved time and effort needed to design activities.

> Using it [tablets] in class activities helped to visualize the content…I have to use it because my professional promotes depends on using technology in classroom…It saves my time and my efforts in the classroom [QS]

Another benefit mentioned by one-third of the participants was that using tablets in the classrooms provided rural students with equal access to the Internet and classroom technologies similar to that of students in big cities.

> You know our school is a poor area… Not all students have computers or mobile devices in their houses…When I use the devices(tablets) in my class students are able to access to information and use technology…I saw them happy in the class. [JS)
>
> A student told me in the class "I am happy because I have a tablet like my cousin in Nablus" (this is a big city in the middle of Palestine [NM].

Based on their previous experiences, 60% of the interviewees defined themselves as open to the use of new technology in their classroom instruction and in their daily lives. In contrast, less than one-third of all participants were reluctant to change their traditional teaching strategies. One-third said they misunderstood the use of technology and tablets in their classroom instruction. Moreover, one participant said that he saw little benefit of using a tablet for classroom activities.

> I would like to use and try new technology… and you know TPC is a new technology…As father and teacher; I cannot stay far away from new technology…When I bought this device [TPC], I started exploring its features. [JM] I am not satisfying with converting the lesson into PowerPoint, and then using the device to present it…This is consuming my time…What are the benefits of that? [TS]

3.3.3 Technical Features of Mobile Technologies

Three factors emerged which directly formed the participants' positive attitudes toward tablets: portability, accessibility, and multimedia features of the devices. About half of the participants (8 out of 15) mentioned that the tablet's lightweight and small size played an important role in their positive view of the use of tablets as compared to other devices *(See Table 5 to read teachers comments on the factors).*

3.3.4 Ease of Use

The complexity of using the devices had a negative impact on teachers' attitudes. About 30% of the participants changed their attitude when they realized it was difficult to download some applications from the app store. One-third of the teachers pointed out how difficult it was to integrate the devices into classroom instruction, while two-thirds mentioned that it was easy to use the device.

> Yes, it is a good idea to integrate it in class activities… I can run it without any problem… just press on the power button, it will work—That's it… the application is easy to use… it depends on the activities in my class. [JM]

3.3.5 Internet Access

There was agreement among interviewees as to the importance of having wireless Internet access and they considered it a prerequisite to having a positive attitude toward using tablets in education. Teachers often used the Internet to access educational websites that enriched their in-class activities with educational resources (mentioned by 73% of participants). About one-third of the teachers used the devices to create collaborative learning environments among students by using Google documents and Google presentations.

> Internet access is important to find whatever I want to support my activities in the class, it is a great job…I feel comfortable when I take it [TPC] to my class because I have no worries about any educational resources. [SM]

3.3.6 Portability

The portability of the tablets was a benefit to participants with wireless Internet access, which allowed them to check emails, communicate via social media, and play games

anywhere and at any time. Participants who used wireless Internet were satisfied because the device provided them with a greater opportunity to support their in class activities and they felt better prepared (mentioned by 80% of the participants).

> It is difficult to take my laptop with me when I go outdoors for a picnic or for a short trip—but TPC is small and easy to carry it with me anywhere anytime…. I used it to take pictures and record video for my class activity especially Biological Diversity of Plants topic". [JS]…Yeah, sometimes I can access to Internet from the school, but most of the time I cannot access to Internet because it is weak…Usually, I prepare the activities by using Internet in my house…When I come to class I shared the activities with students. [NS]

3.3.7 Multimedia Features

Multimedia features directly affected the participants' positive views toward the use of tablets in classroom instruction. Sixty percent of the participants interviewed used tablets to take pictures, listen to music, watch videos, and record videos in different places and at different times. Portability and Internet access positively affected this factor because teachers were able to share pictures and videos on social media websites and stay connected with their friends (mentioned by 40% of participants). Of those interviewed, 80% of participants stressed that taking pictures, watching movies, and listening to music was much easier when using the tablets and without the constraints of place and time. Two-thirds of all interviewees stated that they used the Internet access to upload pictures and videos onto their social media accounts.

> Once I took a picture, a menu on the right top of the device appear, I can choose from the menu Facebook, Twitter, send email to share it with friends. I enjoyed my time through taking pictures or recording video for my kids by using it [TPC] in anytime and anywhere… I am happy to have a TPC in my house. [QS]

3.3.8 Hardware Challenges

In terms of hardware challenges, only a few respondents (20% or 3 participants) stressed having difficulty connecting the devices to their LCD projectors in order to present classroom content. Forty percent of all participants interviewed indicated that they were unable to transfer files from their USB to the device. As a result they had to use additional procedures which made their tasks more difficult, such as uploading files to Google drive and sharing the content to their students' devices or sending content via email. These challenges impacted their attitude towards tablet use in a negative way (mentioned by 40% of participants). A lack of physical keyboards also impacted teachers' attitudes towards the tablets in a negative way (mentioned by one-third of teachers).

> I do not know how to connect it with the LCD projector…There is no USB port on the device…these difficulties make my job more difficult than using desktop or even laptop methods. [NM]

3.3.9 Software Challenges

Failure to manage apps (mentioned by 73% of participants) and the shift to handwriting mode (20%) were the primary challenges when tablets were used in the classroom

instruction. A lack of applications on the devices to edit video files was a secondary complaint (mentioned by two teachers).

> These devices are good to read electronic book related to class activities…It is difficult to open more than one application in the same time… I do not know how to manage the applications on the device [QM]

3.3.10 Environmental Learning Factors

The environmental learning factors included technical infrastructure, instructional assistance, and technical support (mentioned by 85% of the participants). These factors could have a positive or negative influence on teachers' attitudes towards tablets. Having technical and instructional assistance services in the school improved teachers' attitude towards tablets (mentioned by about one-third of the participants).

3.3.11 Technical Infrastructure

All respondents considered the availability of technical infrastructure in schools as a prerequisite to positive attitudes toward the integration of tablets. The technical infrastructure factors included technical support, Wi-Fi Internet access, a local network, and recharge stations. These factors are important because they have the potential to change a teacher's attitude. Also their availability has a positive impact on teachers' attitudes toward tablets because they support teachers' use of the devices for in class activities (mentioned by 73% of the participants).

> We have Internet in the school… I got technical support to use it, but I do not have suitable learning material to use it…It is time consuming when I use TPC without suitable content [SS]

3.3.12 Instructional Assistance

The foremost obstacles listed are lack of appropriate applications to support the Palestinian curriculum (mentioned by 60% of participants) as well as language barriers (mentioned by 73% of the participants) since a majority of the educational applications are written in English. 20% participants interviewed mentioned that they did not know how to integrate the tablets into their in-class activities.

Less than one-third of respondents were not familiar with the educational value of the applications. They expressed a need for instructional assistance to help them choose the appropriate applications for the curriculum. In contrast, two of the respondents said that the Ministry of Education provided them with a list of applications for math, but they couldn't buy the license for these applications due to cost.

3.3.13 Technical Support

About one-third of the participants said a lack of technical support in schools hindered them from continuing to use tablets in their classes. Half of the interviewees reported that if the Internet signal was weak, they could not explore educational websites.

> Yes, when I have a technical issue such as connecting with Internet or setting the device [TPC] with the projector, I report the problem to the school

> administrator…Maybe it took one day or two days to solve the problem…it depends on the technical support in the directorate of education. [TM]

3.3.14 Intervention Design Factors

In terms of intervention design factors, several factors emerged which influenced attitudes, and all of the interviewees emphasized the impact of intervention design factors on their attitudes towards tablets in a positive or negative way. The factors that emerged are related to teacher training and the availability of appropriate learning resources.

3.3.15 Teacher Training

All respondents mentioned that they were involved in different training sessions for using the tablets in their teaching. The majority of participants (73%) reported that their attitudes towards tablets did not change because the training sessions were more theoretical than practical. Most of the interviewees (60%) underscored the positive effect of teacher training on the use of these devices in class instruction. However, the majority of the participants (73%) ascertained that the content of the training sessions did not focus on integrating tablets in classrooms. Some participants (40%) denied that the training sessions had any impact on their attitudes towards the tablets because they did not fit their needs.

> The training session were for three days, it was helpful…. Honestly, they did not give us printed material or job aids about the devices to go back when I have challenges. [JM]

3.3.16 The lack of suitable educational resources has negative impact on teachers' attitudes

All of the respondents emphasized that the lack of educational resources had a negative impact on their attitude on the use of tablets in classroom instruction.

4 Discussion

Teachers reported both positive and negative attitudes on the integration of tablets in their practice. Even though using technology in classroom instruction was mandatory, teachers reported that their attitudes were an important factor in adopting the use of tablets in the classroom which is congruent with the studies of Brown et al. (2002) and Bagchi and Skjoett-Larsen (2003). This finding is also inconsistent with Soeprapto's study (2011) which mentioned that using tablets mandatory can potentially cause disagreement between employees' expectations and the reality of the system, leading to negative attitudes towards using it. Use of mobile technologies in Palestinian schools is a government-mandated program that requires teachers to use technology in their classrooms. Therefore, teacher integration of technology into their practice in Palestine was due to a top-down level decision. The evaluation of teachers in Palestine was based on different items in their annual performance report, including the integration of technology into their teaching. As a result, making the use of technology in teaching practices mandatory can cause gaps between the teachers' integration of technology and the decisions made by authority (Yeung et al. 2012).

In the context of this study teachers have different attitudes on using tablets in the classroom, which is congruent with Ifenthaler and Schweinbenz (2013a, b). Moreover, teachers reported some evidence on the factors influencing their attitudes. Palestinian teachers have a positive attitude towards using tablets in their classrooms because they think that this technology improves the quality and equity of education in rural areas. However, this cannot be generalized in regards to tablets because of the lack of information from other subject areas and other schools on their use, even though the majority of participants believed that tablets should be part of teaching activities. Knowing how using mobile technologies benefits teachers and students has a positive impact on teacher attitudes. In addition, the ease of use of the technology enhanced teachers' attitudes on integrating tablets in their classrooms.

Congruent with previous studies (Dündar and Akçayır 2014; Ifenthaler and Schweinbenz 2013a, b; Morris et al. 2009; Ogott and Odera 2012; Teo and Noyes 2008), the findings of the study revealed various factors which influence teachers' attitudes toward tablets. These factors can be categorized into previous experience, technical features of the mobile technology, environmental learning factors, and intervention design factors. The availability of technical support and educational resources had a positive impact on teachers' attitudes (Ifenthaler and Schweinbenz 2013a, b).

5 Conclusion

Using tablets in classroom instruction is mandatory for teachers and something they are evaluated on during their annual performance reports. The Ministry of Education in Palestine distributes these devices to selected schools in rural areas to facilitate teaching and to improve the learning outcomes in the four subject areas of math, science, and the English and Arabic languages.

Teachers reported different attitudes on the use of tablets. Teacher's attitudes fell into two categories: positive and negative. The results of the study showed that teachers integrated mobile technologies into their classes when they had a positive attitude towards the devices. Different factors that impacted teachers' attitudes included their prior experience, the technical features of the mobile technology, environmental learning factors, and intervention design factors.

6 Implications and Future Research

This study aimed to explore teachers' attitudes towards mobile technology as an innovation in the Palestinian Educational System to help decision makers understand the factors that influence teachers' attitudes on using mobile technologies. There are several approaches to help teachers feel more positive such as providing continuous support and training, improving the infrastructure in schools, and providing schools with appropriate resources. As a result of this study, training in technology integration is needed. Initiatives like help desks, instructional assistance, and dedicated technology support services are recommended as methods to facilitate the use of tablets in classroom activities.

The contribution of this study is confirm a persistent tendency to not seeing teachers as legitimate actors that want to share their opinions on mandated programs, even if they are at the core of the integration.

Future research would be a comparative study between schools and subjects in order to understand teachers' attitudes more deeply through using mixed methods for data collection and a large sample size.

7 Limitations of the Study

The current study examined only specific schools that have benefited from the project. Teachers from other schools using their own tablets might generate different results on the use of mobile technologies. Furthermore, the findings of the study depended on a small group of 15 participants which can be a cause of critique for our qualitative approach (Yin 2003).

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