Teachers' Resistance to Mobile Learning in Turkey and Spain: What Similarities? What Differences?

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Abstract. The aim of this paper is to present the data on secondary school teachers' resistant attitudes towards integrating digital technologies and literacies into their classrooms. The data was gathered through qualitative interviews in the frame of two distinct one-to-one technology programs that took place in distant socio-cultural and educational contexts: the FATIH Project of Turkey and the Escuela 2.0/EduCAT1x1 of Catalonia/Spain. This comparative analysis shows that teachers mainly resist educational change and the government, although they slightly differ in the underlying assumptions supporting their resistance. Their discourses on technology in schools have settled into "discourses of uncertainty" where negative attitudes are compensated with slightly positive comments about digital artefacts and literacies as tools for learning. Findings also indicate that teachers, regardless of the educational context they work in, have assumed the "discourse of inevitability" that dominates viewpoints concerning technology and digital literacy in education.

Keywords: Digital literacies · Teacher's resistance to technology · Technology-driven educational reforms

1 Introduction

During the last decades, governments around the world have been increasingly investing in learning technologies through national technology programmes, with the belief that teachers and students will eventually benefit from them. However, these investments have not yet resulted as desired, neither with the speed nor direction expected [1]. Although there are multiple factors that may explain this undesired complex situation, it seems that teachers' beliefs and negative attitude comprise one of the key barriers in integrating technology [2] and acknowledging digital literacies as valid resources for learning. Therefore, understanding the motives behind resistance is a crucial factor for technology acceptance. Teacher resistance has been studied from the psychological stance and through quantitative methodologies based on statistical analysis, cognition, beliefs or personality tests [e.g. 2, 3]. However, in this paper we attempt to tackle the topic through the data we obtained from qualitative interviews,

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where we delved into the intricacy of teachers' viewpoints on technology and digital literacies in education, grounded in multilayered beliefs, practices, experiences and educational trends. By looking at the teachers' perspectives, we claim that their opinions, reasonings and personal feelings need to be placed in the centre of the debate on the digitalization of education, since their actions and decisions have a crucial influence on educational change. This is because, following the views of Priestley, Biesta and Robinson [4], we see teachers as agents of the curriculum change that seeks to move from the 1.0 mindset to the 2.0 mindset [5].

The aim of this paper is to present and compare the data on teachers' resistance gathered through interviews in the frame of two distinct studies on the implementation of one-to-one technology programs in distant socio-cultural and educational contexts, in Turkey [6] and in Catalonia, North-West Spain [7]. Although the studies were designed separately, they shared a common goal: to understand what teachers as the agents of education really thought about the process of digitalization of the learning/teaching process, and how they make sense of this new educative reality where every child has a device, either a laptop or a tablet, connected to the Internet. In both cases, interviews were conducted with teachers who positioned themselves as resistant to the use of technology and digital literacies in education. In Turkey, tablets were introduced to secondary schools through the Movement of Enhancing Opportunities and Improving Technology (FATIH Project) as a part of the national program, while in Catalonia, small laptops were introduced in secondary education through the national program Escuela 2.0, locally named EduCAT1x1.

2 Teacher Resistance to Technology in Education

Since the successful integration of technology has become an important goal in education, teacher technology adoption has emerged as an important aspect to be carefully analysed. VanWyck [8], states that teacher resistance is the single most important factor that directly affects the fate of any innovation. Today, almost 40 years later, researchers still seek an answer to teacher resistance.

Several studies offer more detailed views of "resistance." Bohn [9] breaks it down into four main groups: resisting the administration, resisting out of lack of confidence, resisting change, and resisting out of apathy. Others describe it as resisting change in pedagogical beliefs, lack of knowledge, time or self-efficacy [10, 11]. On the other hand, Ertmer [12] takes on a more integrated approach to the issue and rather than naming the reasons, her Barrier to Technology Integration Model names definite barriers (first-order and second-order) obstructing technology integration that potentially create teacher resistance. First-order barriers are those that are external to the teacher, including resources (access to hardware and software), training (preparation in Initial Teacher Education and professional development programs with few applied examples) and school-wide administrative support (availability of technical support, lacking a unified vision for classroom technology integration in the school environment). Second-order barriers are intrinsic to teachers and comprise knowledge and skills (usage of specific devices and programs, evaluation and selection of digital resources, designing student activities with technology), and also attitudes and beliefs about the

role of technology in teaching. In this vein, Ertmer [12] identified the pattern that teachers with a strong constructivist pedagogical belief are more likely to make efforts for integration technology in classroom praxis. In another recent study, Vongkulluksn, Xie and Bowman [13] found that teachers that perceive technological tools as relevant and useful for achieving their instructional goals are more likely to restructure classroom routine in order to integrate these tools in the learning tasks.

3 Research Goals and Methodological Approach

3.1 Goals of this Comparative Study and Study Questions

This paper reports on two research projects on technology adoption in which teacher resistance to technology and digital literacies were prominent issues at the forefront of technological implementation. Thus, this paper aims to offer an explanation of underlying assumptions teachers hold to rationalise their resistance towards the educational uses of screen devices. It cross-culturally compares the characterisation of teacher resistance in a sample of interviews extracted from both studies, with the aim of identifying the differences and similarities in the discourses of teachers living in far away sociocultural realities and teaching in different educational contexts. The study questions enabling the comparison were the following:

1. How do teachers explain their resistance to the use of technology and integration of digital literacies for learning in formal education?
2. What are the common aspects (i.e. beliefs, assumptions, experiences) shared by teachers in Turkey and Spain regarding their resistant discourses towards technology use and integration of digital literacies in education?
3. What are the differences in teachers' resistant discourses towards technology and digital literacies in Turkey and Spain?

3.2 Methodological Approaches and Procedures for Enabling the Comparison

Methodologically, both studies relied primarily on qualitative data, mainly gathered through interviews. The first study [6], was conducted in 2014 and published as a PhD thesis under the sponsorship of the Turkish Ministry of National Education. The study took place in 3 participating secondary schools in Ankara - the second largest city in Turkey - where the FATIH project was ongoing as a government effort to improve the quality of secondary education by providing one tablet per student and teacher. Ankara was chosen due to its role as the capital of the country, which enabled access to schools that had taken part in the project longer than any other cities. This was one of the selection criteria in order to avoid the initial excitement during implementation and understand teachers' actual attitudes towards tablets. Within the scope of the study, teachers were interviewed in order to understand their attitude towards the implementation of tablets into classrooms and to explore the motives behind these attitudes, resulting in almost 12 h of recorded data. Interviews were semi-structured with initial questions to prepare the setting for conversation. All of the participating teachers turned

out to be against tablets, though slightly differed in their level of resistance. Also, classroom observations were conducted in order to monitor teachers' nonverbal-communication with the technology in their teaching. Thematic analysis was chosen to analyse the interview data due to its advantages in this particular context as it is a powerful way of "capturing the complexities of meaning within a textual dataset" [14, p. 11]. Teachers' discourses were categorised under main themes depending on the "emerging behaviours, meanings, states, relationships, conditions and so on" [6, p. 185]. After discussions and review of the literature, themes were re-organized into main categories depending on their relation. Later observation data were taken into account to interpret the main themes.

The second study [7, p. 15–17] developed as a multi-sited ethnography [18], was conducted during three years (2012–2015) in 18 schools in Catalonia, the second most densely populated autonomous regions in Spain out of 17, with 7.5 million inhabitants. One of its particularities is that two official main languages coexist, Catalan and Spanish, with Catalan as the vehicular language in the school system. This research study, funded by the Spanish Government, and with the participation of GRAEL's research group members, coordinated by Dr. Cassany, was aimed at understanding how the educative agents (headmasters, teachers, students and families) were dealing with the Escuela 2.0 national programme, locally named in Catalonia as EduCAT1x1, a digitally-focused educational reform which consisted of providing small laptops to secondary school students by giving vouchers to the families. Within the scope of the study, 72 teachers with a range of language, science and artistic areas were interviewed [see previous studies 15–17]. Here, we focus the analysis on a sample of 12 (those interviewed by the co-author of this paper) working in six different secondary schools, which amounts to almost 10 h. Interviews were semi-structured and had a predetermined agenda to focus on key aspects (i.e. personal and institutional positioning, personal beliefs, experiences in and out of the classroom). Data analysis developed in different stages. First, teachers were analysed individually and a summary of their trajectories and viewpoints was written for each one. Then, teachers were assembled in three main groups according to their attitudes toward the one-to-one initiative: enthusiastic (3), hesitant (5) and resistant (4). Second, a cross group analysis was developed through the coding of key aspects (i.e. arguments, counterarguments, beliefs, teaching practices).

Overall, both researchers were engaged in conversations about ICT and technology-based educational reforms with secondary school teachers. At a theoretical level, both studies built on a sociocultural understanding of education, literacy and technology. Moreover, both studies recognise the importance of understanding teachers' resistances in order to advance in the integration of technology in education.

In order to enable comparison, we have defined a list of main aspects that, according to the literature on teachers' barriers, obstruct the use of technology in classroom. We have based the comparison on Ertmer's [12] Barrier to Technology Integration Model using it as an analytical tool to guide us. Our main arguments are shaped around the issues of:

- understanding the rationale behind the implementation–need, usefulness
- hardware and software–access, complexity of the devices, usage of specific devices and software

- learning materials–digital textbooks, other resources for teaching
- issues with training and support–infrastructure, school-wide administrative and technical support, continuing teacher training
- teachers' identity formation
- personal beliefs about technology use in education–pedagogical beliefs
- personal techno-skills in digital literacy and information literacy.

Each researcher has analysed each point in its own sample as a previous step to identify common points and differences. A comparative grid has facilitated the comparison and oriented the analysis. Comparison of data took place after reading the already published works of each author and then deep discussions on the prominent points in each data set. Later discussions on the socio-cultural factors and understandings in each concept helped us pinpoint the similarities and differences.

3.3 Historical Background of the Educational Sites Being Researched

In order to add meaning to the comparison, brief sociocultural and historical details of both countries and educational systems are important. Even though both countries are located in the Mediterranean area, culturally they do not share much in common. Turkey is predominantly a secular Muslim country where Turkish is spoken as the official language. Spain, on the other hand, is a secular country, chiefly Catholic, where Spanish is the official language, along with some co-official languages such as Catalan in Catalonia or Galician in Galicia. These cultural differences play a major role in shaping everyday life, including education.

When looking at the history of ICT in education in both countries, it is interesting that they share the working lines and priorities of the investment from their governments. In Turkey, efforts to implement technology in classrooms first started in 1984 with the introduction of computers to schools. These efforts have been continuing through different projects and programs at various scopes. The Computer Experimental Schools (CES) Project (1992–1997) and the Basic Education Project (1994) were some of the projects that took place [19]. In 2010, the Turkish Ministry of National Education launched a countrywide ICT program called the "Movement of Enhancing Opportunities and Improving Technology", also known as the FATIH Project. The project included LCD Smartboards for classrooms and a tablet for each child and teacher. The project is still an ongoing effort to improve the quality of education and provide equal opportunities for every child.

Regarding Catalonia, according to Bosco, Sánchez-Valero and Sancho-Gil [20], the first political actions of the Catalan Ministry of Education goes back to 1986 with the Informatics Educational Program (PIE), to introduce informatics in primary and secondary schools. Later on, in 1992, the recognition of the concept of 'information technology' in the new law of the education system of Spain (LOGSE) led to the integration of ICT into the regulatory curriculum, and so teaching about technology became relevant. During the decade of 2000, the concept of 'digital competence' served to rethink the regulatory curriculum into a more competency-based one. However, recent studies claim that the role of technology in Initial Teacher Education has become an urgent need [21]. The one-to-one programme arrived in Catalonia in

2009, when The Catalan Government agreed to co-finance the national project Escuela 2.0. In Catalonia the programme, locally named EduCAT1x1, was aimed at providing infrastructure to the schools (interactive whiteboards, Internet Connection, development of the educative digital platform), homogeneously, without considering the sociocultural context nor the particular needs that may be relevant to secondary schools of all types. Globally, "the policies have focused much more on supplying technological equipment and its instrumental use than on the educational (learning) dimension of ICT" [20, p. 213].

4 Results

Here, we present the results from both studies and in doing so we seek to answer the research questions which had led us to compare two distinct educational contexts. As explained earlier, both studies were designed separately and conducted in different contexts, yet the basis for both studies was similar in nature. After comparing the findings of these two studies, we have extracted six main similarities which were categorised under different names in each study but essentially imply the same underlying reason for teacher resistance.

4.1 Similar Aspects in the Samples of Both Studies

Teachers' Skeptical Views of the Reasons Behind Implementation. The first point that came up from the comparative analysis is teachers' skeptical opinions of both one-to-one programs. In both contexts, resistant teachers were not sure that the main reason behind this expensive implementation was to improve the quality of education. In the case of Catalonia, teachers believed that the local government had taken a hurried decision in order to use the available fund from the Spanish Government while it was available and in doing so, they were not given enough time to digest the transformation.

> *I don't know if the 1x1 was a pedagogical project or a commercial pressure. It was a hasty and sudden decision. Money came from Madrid and it was a priority to use them. (…) I think a more progressive implementation was needed, giving more time to digest the change and entering slowly in the classroom and in our lives* (Pere, Teacher of Natural Sciences in Catalonia)

Likewise, teachers in Turkey had doubts that it was a real educational move. The general belief among Turkish teachers was that the distribution of tablets were used as a part of political propaganda before the upcoming elections.

> *I believe tablets only serve politicians. If, during the election campaign, the prime minister had said they improved the infrastructure and placed smartboards in classrooms, the public wouldn't have really cared much, but when he said they were going to distribute tablets to every student it suddenly became a big deal* (Kerem, Physics teacher in Turkey)

Issues with Training. Another mutual point articulated by the teachers was the lack or insufficiency of proper training. In both cases, the implementation of digital technologies took place before giving teachers enough time and training to prepare both mentally and pedagogically, and thus make sense of the change in their classroom.

Added to this, the scarce training put the emphasis on theories and basic common knowledge, and not on applied case examples for the distinct courses. Teachers in Catalonia mentioned the hardship of having to use tools, resources and digital textbooks with which they had not had time to explore. They also complained about being pushed to enroll in courses outside of their workweek.

> *We did not receive an appropriate training. Good training needs time and money. Training was quick and condensed, loading teachers' free time. A slow training during the course was needed.* (Marga, Teacher of History in Catalonia)

On the other hand, while facing the very same problems as their Catalan counterparts, Turkish teachers reported that their ICT skills fall behind that of students due to the low quality of trainings provided.

> *Training sessions are insufficient; teachers' ICT skills fall behind that of students* (Efe, Vice principal in Turkey)

> *Trainers recruited by the ministry are unqualified. I think the ministry underestimates us; they grab a random person from the street and send him/her as a trainer. My colleagues and I learned to use this technology on our own.* (Taha, teacher of History in Turkey)

Thus, lack of professional development in technological competence of teachers was fueling a technoskill gap in the classroom, relegating technology adoption to each teacher's decision and willingness.

Technical and Infrastructural Failure. Technical and infrastructure failure is not new to the literature on teacher resistance, as it has shown to be one of the main barriers to a successful transition from a traditional classroom to digitized one. In this regard, Ferneding [22] argues that poor infrastructure and inadequate training are not the ingredients of an educational revolution. In both contexts, teachers were frustrated with the fact that the technology in their classrooms did not function as effectively as they were advertised. They were tired of constantly changing conditions and having to think about backplans. Teachers in Catalonia frequently mentioned the constant technical problems with the devices or the poor wireless connection.

> *It was so distressing because every day you entered in the classroom and you didn't know what you would find, whether (the internet) worked or not. It was a daily lottery…if a child would be able or not to enter the (digital) platform.* (Pere, teacher of life sciences in Catalonia)

On the other hand, teachers in Turkey faced a different kind of problem. Their main complaint was about the overzealous internet filters imposed by the ministry, and the national ban on YouTube (which has since been lifted). Many teachers relied on YouTube or other external websites to use as resources in the classroom, however the majority of these sites were not accessible from the school network.

> *In the simplest case, I choose a picture related to the topic, click on it and it says 'access denied'. Students try to search information like Euclid Theorem for maths or another topic related to philosophy, but it is all blocked, so we can't use the Internet as a resource.* (Funda, IT teacher in Turkey)

In both cases, regardless of the kind of failure, access or technical-related failure left teachers feeling helpless.

Teachers' Identity and Issues with Authority in the Classroom. The fourth common point in both analyses has to do with teachers' identities in the classroom and the need to preserve control over their students. The fact that every student has a personal device has changed the traditional functioning of the lessons, and in a way threatened the teachers' authority in the classroom since they are no longer able to control what every student is doing. Catalan teachers reported problems getting students' attention from screens to the lectures and articulated their concerns for the students not being responsible enough to control technology.

> *You have to monitor constantly; it is exhausting* (Jordi, Teacher of Biology i n Catalonia)

> *About 15% or 20% of the students in the classroom aren't where they have to be: they are on Facebook. (…) It's impossible to fight against the screen* (Pere, Teacher of Natural Sciences in Catalonia)

While facing the very same problem, Turkish teachers took action to 'normalize' the classroom environment and collected tablets before each lessons began. However, this created a power struggle in the classroom as some students argued against this action and claimed that the tablets were given by the government, cannot be taken away by teachers.

> *Smartboards are under our control but each one of them (students) owns a tablet. It is impossible to control them* (Hande, teacher of Turkish Literature in Turkey)

> *We are unable to control all tablets, so we placed boxes in each classroom. Teachers collect the tablets into the boxes before each class begins* (Ayla, IT teacher in Turkey)

> *Tablets have caused problems between me and the students (…) If I ever try to collect the tablets, the students say that they were given by the government and I can't take them* (Esma, teacher of Music in Turkey)

Materiality and Authenticity of Learning Materials. Teachers in both contexts explicitly mentioned their views of how 'learning' should take place. For them, existence of physical artifacts - *pen and paper* - is the prerequisite for learning to happen: digitized forms of literacy were not acknowledged as authentic.

> *Everything is digitized, teaching and learning happens with teacher-student-pen and paper.* (Taha, teacher of History in Turkey)

A Turkish teacher, used the words above while another teacher, Hakan, mentioned his view of digital resources as:

> *... students should touch, feel and smell their books. You can't do these with a tablet…* (Hakan, teacher of English Language in Turkey)

On the other hand, teachers in Catalonia claimed that not only themselves but also their best students tend to resist technology and prefer pen-and-paper instead.

> *The best students are more resistant to technology. Good students do a lot of handwriting.* (Marga, teacher of History in Catalonia)

Regardless of their cultural backgrounds and differences, teachers in both educational contexts articulated the need for material artifacts, which could be held and felt, in order for learning to take place. Since digital note-taking tools are not *material,* they are in a way perceived to be the abstracted 'imitations' of the 'original' resources [23], thus not classified as *Authentic.*

Inevitability of and Uncertainty About Technology. This sixth point of comparison in both contexts was rather latent. Teachers, by the way of their articulation, displayed mixed emotions towards the existence of technology in their classrooms. In both cases, although they talked critically about the usage of technology for learning and gave definite reasons, situated their views in a larger frame where they felt that technology is a driving force in society that will inevitability change social practices including learning. In the context of Catalonia, even resistant teachers acknowledge the 'inevitability' of avoiding technology while their Turkish counterparts uttered 'uncertain' ideas about the existence of digital tools in classrooms. None of them claimed that technology was needlessness, but rather, they try to rationalise their resistance. The expression "I'm not against technology but …" came up in almost every interview in both set of interviews.

> *I'm not against technology, I believe it is important that we keep up with the world, but it is too early for tablets, we are not ready* (Hande, teacher of Turkish Literature)

> *I'm not against technology but this shirt (tablets) is too big for us* (Kerem, Physics teacher in Turkey)

> *I think we are wrong in the focus. I think that the computer is a good tool and we can't deny it: it is the future. But everything should be at its place: we need lectures and paperwork because previous experiences in Europe have pointed at the needed of combining screens and papers.* (Pere, teacher of Natural Sciences)

4.2 Distinct Aspects in the Samples of the Studies Being Compared

Both studies were planned, designed and conducted separately and unaware of each other. However, the similar nature of both studies created the need for us to compare and contrast teacher resistance in these distinct educational contexts. While similarities were fairly easily identified, differences in the findings of both studies were not that obvious. Small differences were more of a question of where the teachers put the stress, while big differences were more transversal aspects that orientated the teachers' discourse. We have identified two different aspects noteworthy to mention here.

In the case of Turkish teachers, when they were asked about tablets their concerns about the toxicity of the Wi-fi connection in their classrooms was a theme that came up differently from the context of Catalonia. They argued that being exposed to the Wi-fi for longer periods of time might lead to health problems. Moreover, Turkish teachers stated concerns over their students' wellbeing due to the longevity of time they spent in the virtual world rather than in the real one.

Moreover, Turkish teachers put the emphasis of their resistance in both educational change and the government while teachers in Catalonia focused their resistance on educational change. Critics of the government were indirect when complaining about the hasty implementation of the program but never explicit in the context of the

interviews with teachers in Catalonia while Turkish teachers openly and explicitly articulated their criticism of the government. In this regard, the conceptualization of the one-to-one program as a discoursal space of ideological confrontation and political struggle is an aspect that distinguishes the resistant discourse of the teachers. This distinct aspect highlights to what extent teachers' resistant discourse towards an educational reform is shaped locally.

Taken together, these differences were mainly rooted in socio-cultural factors. Their cultural, educational, and professional experiences blended with personal beliefs and connections shaped teachers' personal and professional identities. Constant changes in their work environment forced them to negotiate these identities which, in turn, created implicit and explicit tension, called resistance. Contrary to our expectations, cross-cultural differences were found to play a smaller part in teachers' behaviour.

5 Some Final Conclusions

This comparative study is a valuable addition to current knowledge as it offers a deeper understanding of teacher resistance from a socio-cultural point of view. The similarities in these distinct contexts, Turkey and Spain/Catalonia, may demonstrate the extent to which the profession of being a secondary school teacher has been impacted by the forces of globalization [24], or they would simply show the common beliefs or tendencies of teachers around the world. On the contrary, differences in the discourses may point at locally and culturally-shaped viewpoints/ideas.

Comparing two different programs in different countries revealed a larger picture of the nature of teachers' resistance. When the results of both studies regarding teachers' resistance are combined into a single line of argument it tells a larger story about resistances in a globalised world. That is, teachers resist technology because the way technology has been imposed on them, without reflection and scaffolding, made teachers the 'victim' of new implementation rather than including them in the process of transformation giving them more agency. This is reinforced by the interpretation that their resistant discourses, articulated around "first barriers" [12] could be concealing the centrality of "second barriers" dealing with personal skills. Coupled with the technical malfunctionings and pedagogical unreadiness, technology has been marginalized in the eye of teachers. To do their job, teachers draw on their 'funds of knowledge for teaching' or 'ways of teaching' learned during their trajectories and time spent in the classrooms. The eruption of technology puts them in a position where they feel they need to challenge themselves by developing more of these 'funds of knowledge for teaching'.

The old cliché 'teachers teach as they are taught' still seems to hold, especially for technology integration [25]. Teachers appropriate knowledge from their own experiences from a time when technology was not readily available. Those that have accumulated, as persons, digital funds of knowledge, are happier to integrate technology for teaching/learning. However, teachers cope with reforms regularly imposed by the state, which has increasingly put teachers in a position to face challenges in an ever-changing educational system. Thus, their resistant attitudes towards digital tools and the reasons they found to rationalize this resistance are understandable. Piecing the studies together

in this way raises awareness of the larger contexts affording and constraining teachers' work (for instance, the layer upon layer of educational reforms). It also points to the importance of teacher resistance to the use of technology in education, as teachers are gatekeepers of acknowledging that digital literacies and information literacy are valid resources for learning in and out of the classrooms.

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