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Mobile technology in second language classrooms: Insights into its uses, pedagogical implications, and teacher beliefs

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Abstract

Adopting a multiple-case, multiple-method design, this study investigates mobile technology use in the practices of three experienced second language teachers. The findings, based on an analysis of the teachers' rationales, stated beliefs and classroom actions, show that the teachers tend to prohibit or reluctantly tolerate mobile device usage, while they recognise some of its potential benefits to support their teaching and student learning. They also highlight the incentives and barriers which respectively facilitate and hinder the integration of mobile technology, including factors which are internal (e.g. beliefs) and external (e.g. contextual constraints) to the teachers. Implications for classroom practice and teacher education are drawn.

Keywords: mobile technology integration, second language teaching, teacher beliefs, teacher education

1 Introduction

Mobile devices are an ever increasing "must have" in modern society and therefore are finding their way into every aspect of our lives. In once sacrosanct places like cinemas, the dinner table, and now the classroom these devices were prohibited, but are now becoming omnipresent. As a result, it is important to attempt to understand what prevents their acceptance as well as what promotes it in the classroom.

The purpose of the study reported in this paper was to explore, from the perspective of teachers' rationales for classroom practices and their stated beliefs, mobile technology use in second language (L2) classrooms and its pedagogical implications. Although a substantial body of research exists regarding the use of mobile devices as learning tools, further insights are needed into their implementation in real classroom practices, teachers' pedagogical rationales, and the teacher beliefs impinging on classroom decisions.

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1.1 Incentives and barriers to the use of mobile devices in the classroom

Digital technology in education has been attributed many affordances such as adding authenticity to the learning process (Smeets, 2004) and promoting autonomous learning (Luzon & Gonzalez, 2006). In addition, mobile devices offer particular benefits like portability, social interactivity, context sensitivity, connectivity, and individuality (Klopfer, Squire & Jenkins, 2002). Despite these numerous advantages, certain factors, such as the technical capabilities of devices and the technical expertise of teachers, can act as deterrents to technology use in classroom contexts.

The major benefit attributed to mobile technologies is their accessibility "anytime" and "anywhere" (Derakhshan & Khodabakhshzadeh, 2011). This is particularly true when mobile device use involves applications, such as listening to podcasts, which do not require access to external sources. However, when the use of this technology concerns links to the internet, its accessibility depends highly on the reliability of the user's mobile network coverage. Further issues which may act as barriers to mobile device use include not only the fact that not all learners may have access to the same kind of technology but also its technical limitations, namely, the size of the screen, the lack of standardized software, and the limited number of web pages compatible with mobile devices (Wang & Higgins, 2006). Nevertheless, mobile technology has changed dramatically in recent years, and the aforementioned issues are being resolved with smart phones increasing in size and web pages becoming mobile friendly. Thus, factors which were previously perceived as barriers are gradually becoming obsolete.

Factors affecting and preventing the use of digital technology for the purpose of learning have been categorized as either *overt* or *covert* (Al-Kahtani, 2004). Overt deterrents include the lack of technology and suitable software as well as the lack of time, training, and information sharing. Thus, the absence of detailed instruction regarding the use of mobile technologies on teacher development courses may contribute to whether or not teachers make use of the devices as learning instruments. In addition, there are covert deterrents which are context-bound in nature and comprise cultural, religious, and social factors. For example, the cultural background of both learners and teachers perpetuating the attitude that mobile devices are unacceptable in the context of a language classroom would act as a significant barrier to usage and integration into that environment (Wang & Higgins, 2006). In relation to this, Campbell (2006) found that the classroom is one of the most unacceptable contexts for mobile phone use. Phones ringing in class are perceived as a serious distraction, as is, we believe, their use by students to arrange their social lives or constantly check emails and update their social media status.

Additionally, covert deterrents of technology use have been classified into *first order* and *second order* barriers (Ertmer, 1999). The former relate to environmental readiness and teacher knowledge, whereas the latter concern intrinsic factors such as teacher beliefs. Dividing these barriers into separate categories, however, may be problematic as these appear to interact in complex and dynamic ways. Thus, teacher beliefs about technology may be influenced by environmental factors; for example, a slow internet connection could be formulated into a belief that lessons involving its use are time-wasting. Therefore, studies which combine an interest in teacher beliefs and actual classroom practices may shed light on the intricate relationship of factors which may facilitate or hinder the use of mobile technology to aid teaching and student learning.

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1.2 Teacher beliefs about the use of technology for language learning

Teacher beliefs are used here to refer to "propositions about all aspects of their work which teachers hold to be true or false" (Phipps & Borg, 2009: 381). Beliefs are claimed to exert a powerful influence on teachers' decisions and behaviour (Pajares, 1992). Technology integration into the classroom will require, therefore, that teachers believe in its professional and pedagogical value. Ottenbriet-Leftwich, Glazewski, Newby and Ertmer (2010) found, for instance, that teachers use technology only if they believe it has value in ways that improve teacher efficiency and effectiveness or that support student learning (e.g. motivate students, enhance comprehension, and develop higher-order thinking).

Despite the influence of beliefs on practice, there is extensive research evidence which indicates that what teachers do in the classroom is not always aligned with their stated beliefs (Basturkmen, 2012). This lack of belief-practice correspondence has been attributed largely to contextual constraints. Ertmer, Gopalakrishnan, and Ross (2001) found that teachers' classroom technology use was at times inconsistent with their professed constructivist philosophies and that the teachers' rationale for this was curricular requirements and the pressure from others such as parents and peer colleagues. In addition, some studies suggest that a lack of proficiency in a particular technology or software with which teachers have been tasked to teach may account for the divergence between their beliefs and practices (Ertmer, 2005). For instance, teachers may believe that the internet is a valuable resource but, unsure of how to optimize its use for language learning, may not incorporate it into their lessons. A further attribution to the belief-practice discrepancy is the fact that teacher behaviour may sometimes be influenced by deeper and more powerful beliefs than those stated by the teacher (Phipps & Borg, 2009). Worth highlighting here is also the fact that studies reporting instances of belief-practice consistency all involved either the practices of experienced teachers or planned aspects of teaching (Basturkmen, 2012).

In considering belief/practice development in technology classroom integration, it is fundamental to recognise not only teachers' existing pedagogical beliefs (Ertmer, 2005) but also the sources which inform their beliefs about technology use. One major source of teacher beliefs is teachers' own educational experiences as learners (see Sanchez, 2013). Formed early in life, these beliefs are resistant to change (Pajares, 1992), filter the input which trainees receive in teacher education courses (Tillema, 1994), and help novice teachers make sense of classroom information (Lortie, 1975). Thus, it is expected that teachers' own experience of being educated with or without technology will impact on their attitudes towards technology integration into classrooms. Another powerful influence on teacher beliefs is exerted by teachers' teaching experiences in classrooms and institutions more generally. Associations of technology with negative classroom incidents (e.g. cheating, disruptions, and internet accessibility issues) may have a negative impact on teachers' beliefs regarding their integration into their lessons (Campbell, 2006). Moreover, beliefs may be shaped by teachers' institutional contexts, especially by their relationship with more senior colleagues (Richards & Pennington, 1998). It is natural that novice teachers look up to their more experienced colleagues and, if these are less apt in the use of technology or have negative attitudes towards it, they may end up believing that technology has no pedagogical value.

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1.3 Research aims and questions

The purpose of the study was to investigate teachers' attitudes towards mobile device use in actual L2 classrooms. Specifically, the main objectives of the project were to explore instances of mobile device use, identify the incentives and barriers to the implementation of mobile technology, and examine the pedagogical implications of mobile technology use for supporting L2 teaching. The following research questions formed the basis for this study:

1. To what extent do L2 teachers promote mobile device use in the classroom?
2. What factors facilitate or hinder the integration of mobile technology into L2 classrooms?
3. In what ways can mobile devices support L2 classroom teaching?

2 Context and methodology

The overall research design consisted of three case studies of individual English as a second language (ESL) teachers investigated within the same institutional context. The phenomenon of mobile technology use in L2 classrooms was examined within and across the cases.

2.1 Research context

The study was conducted in a private English language centre in the UK. The school ran a mobile learning programme developed to provide students with a blended learning experience. The programme involved an English text message being sent in the form of a grammar, register or lexis quiz to the students' mobile devices before they arrived at the institute. The students discussed the question(s) before the lesson and then checked their answers with the teacher. However, there was a policy prohibiting mobile device use during lesson time. This policy, requesting learners to switch off their mobile devices or turn them to silent, was strictly enforced by some teachers and loosely supported by others. Academic managers viewed the policy as a way of aiding classroom management, and, although they appeared to prefer the policy to be standardised throughout the school, they turned a "blind eye" when the rule was flouted.

Classes in the school were multilingual, multicultural, and mixed-ability with globally recruited adult students. These had differing goals and originated from different learning backgrounds. They had varying expectations about the use of mobile devices based on their previous educational experience and their perception of what was permissible in class. The majority of the students attending the classes observed owned a smart phone. Some of them followed the school's policy and did not use their mobile devices during the lesson; others insisted on keeping them switched on and close by.

The instructors were required to teach general English as well as exam preparation lessons. In line with the expectations of the institution, teachers adopted a communicative task-based language teaching methodology. They regularly ran and attended their own professional development sessions and occasionally joined relevant courses run externally.

2.2 Participants

The teacher participants were selected by convenience sampling. They were all qualified to the level required by accrediting bodies and had at least three years of teaching experience

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both in the UK and abroad. None of them had taken part in any professional development concerning the use of mobile devices in the classroom. For anonymity reasons, each participant was assigned a fictitious name.

Natasha, in her late twenties, held a degree in English Literature and had completed the Cambridge Certificate in Teaching English to Speakers of Other Languages (CELTA) and Diploma in Teaching English to Speakers of Other Languages (DELTA). She had taught multilingual classes and had seven years of teaching experience. *Steve*, in his early thirties, held a degree in Media Studies and a Master's degree in Educational Research. He had completed the Trinity Certificate and Diploma in Teaching English as a Foreign Language. He had taught monolingual and multilingual classes for more than ten years and had been responsible for teacher training programmes. *James*, in his mid-twenties, held a degree in Continental Philosophy and had completed a Cambridge CELTA. He had taught monolingual and multilingual classes for six years. He now taught a variety of classes, including exam classes.

The participants all made an informed decision before agreeing to participate. The characteristics of the study were explained to them and they were informed of their right to withdraw from the research at any point. An assurance of confidentiality and anonymity was provided.

2.3 Data collection

A multi-method approach to data collection was adopted, including background interviews, video-recorded class observation, and post-lesson stimulated recall interviews. First, semi-structured background interviews were conducted with each teacher in order to gather information about their professional education, language teaching experience, teaching beliefs, and their perceptions of the context in which they worked. Second, four and a half hours of non-participant observation per teacher were undertaken (nine 90-minute classes in total). This provided direct evidence of teaching behaviour and allowed extensive descriptive data to be collected. Video recording and field notes were used to keep a record of critical events (i.e. instances of mobile device application in the classroom that were considered relevant to the research). These critical events were then used as stimuli in post-lesson stimulated recall interviews in order to explore the rationales underlying the teachers' pedagogical decisions in relation to the implementation of mobile devices. The interviews were conducted soon after the observation (never longer than a week) to ensure that the teachers' memory of the critical events was as fresh as possible. All interviews were audio recorded and transcribed *verbatim*.

2.4 Data analysis procedures

The video data were preliminarily viewed to select the critical events. Each event was fully transcribed, and the verbal and visual data were analysed together to facilitate their interpretation. Field observation notes were used to remind the researchers of not only relevant incidents but also their immediate context of occurrence.

Transcripts of the stimulated recall interviews were printed and matched to each of the critical events used as stimuli. The data were codified and emerging codes were grouped into themes. Quotes from the background and stimulated recall interviews were interpreted

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and used to illustrate pedagogical practices and rationales regarding mobile technology use in the classroom.

In order to understand and provide thick description of relevant pedagogical practices, data from multiple sources (teachers and methods) were collected and analysed within and across the sources. The teachers were shown the description of their particular case and given the opportunity to make changes to it and express their opinion about the adequacy of the analysis. Data and methodological triangulation as well as respondent validation thus served to enhance the trustworthiness of the findings.

3 Findings

The findings resulting from the collective analysis of the data gathered are organised into four categories:

- Instances where mobile device use is prohibited or discouraged by the teacher;
- Instances where the teacher encourages mobile device use;
- Instances where there are possible opportunities for mobile devices to be used pedagogically, but are not taken; and
- Instances where mobile device usage is tolerated, ignored, or not noticed by the teacher.

The following conventions are used to identify the sources of the data quoted: background interviews (BI), class observation (CO), and stimulated recall interviews (SRI).

3.1 The prohibition of mobile devices in the classroom

A policy at the institution requested students to switch off mobile devices when they were in the classroom. Without exception, in all classes observed, this rule was flouted by the majority of the students, but was not referred to by any of the teachers when chastising students for mobile device use. In most cases, teachers expressed a preference for students not to use phones for translation, which the teachers viewed as a "shortcut" or a "survival" strategy:

> ... reaching for a smart phone to translate an isolated word, not a phrase, for example, that one strategy is a survival strategy, "crikey, get me out of here", "bring me to a familiar place where I can understand". (Steve, BI)

Although translation might help students cope with uncertainty when learning a second language, the participants believed that it was unhelpful, since it was a quick fix, a method of obtaining the meaning of a word or phrase without "working" for it. Instead, possibly influenced by their teaching experience in foreign exchange programmes, they favoured a language immersion methodology:

> I believe in terms of immersion really... I want students to be completely immersed in English while they're in the classroom and I don't want them to speak to each other in other languages. (Natasha, SRI)

Mobile devices were viewed as tools facilitating links to the learner's mother tongue. The teachers found mobile devices used for that purpose offensive; they felt that their presence as a teacher was pointless if the learners were going to use a bilingual dictionary accessed on

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the internet through a mobile device. This attitude may be grounded in the communicative language teaching approach promoted by the participants' teacher training courses which discouraged the use of the learners' first language (L1). Although not all the participants thought translation using a mobile device was always negative, their general attitude was that, in the classroom, learners should "use the resources that are in front of them [e.g. the teacher] before they take the one they're used to all the time [e.g. their mobile phones]" (Natasha, SRI). Mobile devices were regarded as a resource to be used in class only in exceptional cases when all else failed:

> I would prefer to explain it to them in English, I would prefer them to listen to that explanation *first* and then, if they don't understand, if it's still causing problems in the classroom, then, OK, they can translate it. (James, BI)

Mobile devices were perceived by the participants as a distraction and not only a link to the mother tongue, but also to the outside world. One of the teachers was particularly strong about this; she was vigilant when monitoring the class and questioned any use of mobile devices noticed. The following incident was one of a number of similar instances observed and recorded:

> The class is involved in a discussion using a set of questions on a worksheet. One student is doing something on her phone. The teacher spots the phone out, walks over and says: "Is there a problem?" The student glances at the teacher and puts her phone away. As the teacher walks away, the student says to a classmate "I am lost without my phone". (Natasha, CO)

When shown the clip, the teacher responded that the student should be able to manage without her phone or not be distracted by the "real" world outside of the classroom:

> She needs to learn to cope without a mobile phone; there are a lot of other resources in the classroom. She can use me, a dictionary, a classmate and she should be concentrating on the class. (Natasha, SRI)

This teacher held a rather negative view of mobile device use in the classroom. Her attitude was perhaps rooted in her own learning experience at secondary school where, she stated, her classmates were often distracted and disengaged from the class when using their mobile phones. Moreover, she had a fairly negative view of technology in general, repeatedly citing it as time consuming, unreliable, and distracting. She perceived the role of technology in her pre-training schooling experiences as "a bit of a joke" and "very *robotic* and *dull*" (Natasha, SRI).

The student involved in the class event above was younger than the majority of her classmates. The teacher believed that mobile devices are "quite an easy distraction to chat to your friend or … especially when you're quite young and immature" (Natasha, BI). The participant may have perceived the learner as immature, due to her age, and thought that the use of the mobile device would be only for socialising purposes. Other participants also felt that the use of mobiles was at times offensive and inappropriate. One of them mentioned a family member constantly checking his phone during conversation, a habit which he found particularly rude. Following the viewing of a critical incident during his SRI, in which a student asked to charge his mobile while the teacher was assisting him with his written work, the participant explicitly used the word "offended" to describe how he felt at that particular moment.

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Interestingly, although the teachers felt offended by the use of translation in class, this was, by far, the most frequent mobile device usage observed in the classroom. Some participants allowed it to happen or did not completely rule it out as a learning strategy. It was regarded by one participant as expedient and a way of maintaining a good pace. In contrast, another participant held strong views on the implementation of mobile devices and saw them as problematic, especially during communicative tasks. She felt that using a mobile device removed learners from the group: "When we are trying to do something as a class and somebody's on their own on their device, [they are] not part of that group" (Natasha, BI). In addition, this teacher referred to the time it took to look up a word on the device whilst a partner was "left hanging", unable to participate in the task.

Furthermore, the participants agreed that teacher and student expectations regarding mobile device use were different. Whereas learners thought they were able to use mobile devices freely in class, the teachers expected them to ask permission before using their phones so that they could judge whether their use would be beneficial or appropriate in such circumstances. This resulted in tensions, especially because teachers had not made these expectations or "rules" explicit to the students:

> The majority of the students I teach expect to be able to use their phones in class; they never ask permission to use them. But then, again, I don't tell them specifically that they can't use them either. (James, BI)

The above discussion suggests that clear guidelines on what was and was not acceptable regarding mobile device use were not provided. This, coupled with teachers in different classes having different rules or expectations, led to confusion amongst the learners. There also seemed to be some tension in what teachers and students perceived to be permissible in class. While the former appeared to promote more 'traditional" forms of classroom interaction and material resources, the latter expected the language classroom to reflect "uncontrolled" mobile device use in their everyday life. One participant commented: "You go out into the world and people are doing this without a second thought actually" (Steve, BI).

3.2 Mobile device use encouraged in the classroom

One application in most current mobile devices which students make use of is a digital camera. Students often request end-of-course class photos and, more significantly, are now beginning to use the cameras on their mobile device for pedagogical purposes. The participants saw value in this practice: "I don't object to students taking pictures of the board as long as it is useful for them" (James, SRI). They thought that using mobile devices for this purpose was beneficial for both parties involved. The learners had a record of board work which could be returned to and revised at a later time. This, in turn, enabled teachers to clear the board and maintain a steady pace to the lesson, rather than wait for slower writers to manually record what was on the board: "Taking a photo allows them to go back to the notes later and allows the class to move at a faster pace, potentially" (James, SRI).

However, the participants believed that taking a photo of the board work was not enough to support student learning. They presumed that, after taking a picture of the board, some students would view it as "job done". They argued that, in order for the students to thoroughly digest the language, there had to be a further process of reworking that information to ensure

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retention: "I just hope that they actually remember to look at those notes later and not just take them and forget about them" (Natasha, SRI).

Although, in general, the participants held a relatively negative view of mobile devices being used in the classroom, with that view extending to other forms of technology in some cases, all of them saw possible benefits for its integration and use. The internet, in particular, was perceived as a highly valued resource with all teachers citing it as a welcome and useful tool for purposes of teaching and learning: "Using the internet is obviously incredibly useful" (James, BI); "Fundamentally, they are accessing the internet and using a collection of websites" (Steve, BI); "The internet has got a wealth of information" (Natasha, BI).

With access to the internet is the possibility of links to the outside world. For many, a simultaneous online life is being led through the medium of social networking sites. These sites have a record of past events and are often the source of photographs and events digitally stored which are meaningful to students. One participant regarded access to these items as a valuable asset that could enhance communicative activities: "So something like looking up a photo that's important to them of something then that's a really nice use of it and very communicative" (Natasha, BI).

The other participants had similar views that access to the internet provides a link to what is happening in the moment or a record of memorable past events. One participant viewed mobile devices as indispensable tools in the classroom; he described one event about a group of students that had created an electric current using a potato:

> They were able to capture it; they could have captured it in words, but they captured it in a way that they were able to share it, share it online. (Steve, BI)

The field observations provided evidence of one such instance. The teacher had facilitated a discussion about first impressions, during which one of the students used his mobile device and showed a picture of himself dressed in a suit, looking very different to his current appearance. The participant, ever vigilant and monitoring for what she perceived as inappropriate mobile device usage, immediately noticed and went to investigate. When she discovered that it was being used to facilitate the discussion, she took the phone and showed it to the other members of the class:

> [I did that] so that they could see why he had a mobile phone and I thought I'd show them the picture, because it was funny, it was something that wasn't in a foreign language, I'm quite happy really that mobiles are used for some personal photos and things like that. (Natasha, SRI)

It was not only the personal information stored or accessed on a mobile device that the participants found useful and engaging, but the possibilities the internet offered in terms of accessing content relevant to the lesson. One participant recalled an incident in which the use of the internet, accessed through one of the students' mobile devices, had assisted the teacher and enabled the class to comprehend the meaning of a lexical item without the need for translation:

> Today I was trying to draw an oyster on the board, but it's not quite clear what it is; we used the phone to get a picture of an oyster. (James, SRI)

The participants appeared to be in favour of and encourage mobile device use for the purposes of recording information, giving personalised examples through pictures stored on

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mobile devices relevant to the class, and using the internet to access information and content provided it was in the target language.

3.3 Possibilities for mobile device usage in the classroom

The observational data provided evidence of incidents where mobile devices could have been utilised. The possibilities ranged from allowing students to access the internet to the use of applications incorporated into the majority of current mobile devices. In this section, two incidents will be discussed.

One participant had set up a speaking activity requiring the students to discuss who they thought was the most beautiful woman in the world. She had provided three pictures, downloaded from the internet and printed, for the students to discuss. One aim of the task was to teach the phrase "beauty is in the eye of the beholder". When asked about the possibility of using mobile devices in this task, the teacher responded that she had considered asking the students to find a picture on their phones, but worried that the activity would have taken too long or been distracting and that the technology or internet connectivity would have been unreliable:

> I was worried … if all the students would be able to see that and if they would all get a connection and how long that would take and I just thought it could get a bit bitty [i.e. fragmented] with everybody passing round a phone. (Natasha, SRI)

The participant appeared to consider the use of technology and mobile devices, but, based on previous negative experiences, she was concerned that technology might put her into a situation which she was unable to control.

Another possibility involved the use of a timer, an application standard on most mobile devices. Two participants were observed setting time limits. However, these were not exact but approximate time limits. When this issue was raised with them, they argued that the use of the timer on mobile devices did not allow them to be flexible with activity timings:

> I like to gauge how much time is needed … I don't need to keep to rigorous time limits, if more time is needed, I can judge and control that. (Steve, SRI)

However, it was noted in both cases that, when the teachers used their own methods of trying to politely stop the activity at the end of the time limit, it took time for the class to settle. The use of an electronic sounder signalling the end of an activity may have been more efficient. These two incidents provide evidence of mobile device applications which were readily available to the teachers to support their L2 teaching but which were not used.

3.4 Mobile device usage tolerated, not noticed, or ignored

There were a number of instances when students used mobile devices, sometimes covertly and at others overtly. The teachers appeared to choose, at times, not to comment or intervene, or simply did not notice. One participant was quite strict with the students, and would monitor and check what they were doing on their mobile devices but sometimes would not. When shown an incident and asked about this, he responded: "I didn't notice; it wasn't apparent to me" (James, SRI). Perhaps the limited size of mobile devices meant students could use them unnoticed, or the teachers were so used to seeing mobile devices in use that they tolerated it at particular points in the class when it was not disruptive.

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It was also observed that, using their knowledge of the learners, the teachers monitored particular students more vigilantly than others. They believed that certain students, or "repeat offenders", often used their phones for purposes other than learning. This occasionally led them to confiscate mobile devices: "I think I'd had some problems before with him, at that point I confiscated the phone" (James, SRI).

This teacher expressed discomfort at having to resort to such tactics. This resulted in other students feeling the need to explain their mobile use to the teacher. On one occasion, the newest member of the class spoke to the teacher at the end of the lesson to explain his mobile device usage. When asked about the student's behaviour, the participant explained: "he wanted to make sure that I didn't get a bad impression of him in class" (James, SRI). The participant thus suggested that the students presumed he had a negative view of mobile device use in the classroom. This, in conjunction with the fact that some students used the devices covertly, indicates that the participants projected the attitude of not allowing the use of mobile devices in the lesson. In contrast, some students seemed to be openly permitted to use their devices at certain points. These were perceived by the teachers as being able to judge when it was an appropriate time to do so, for example, at the end of an activity.

Whether or not mobile devices should be permitted in the classroom seemed to be a contentious issue within the context. One participant noted that this issue was part of staffroom discourse: "That's very common discussion in the staffroom among the teachers about dos and don'ts with mobile phones" (Steve, BI). Another participant felt annoyed with her colleagues having a different view or rules regarding the matter:

> There's a divide of the teaching team between people who, in all honesty, don't mind if students are on the phone in the class … they feel it is down to the student to manage their time and take the opportunities, and if they don't want to engage in the lesson and they want to text their friend and they're missing out and that's their fault. (Natasha, BI)

This lack of consistency in rules and expectations generated tensions not only among teachers but also between these and their learners, as illustrated above. Staffroom discussions and instances of tolerance of mobile devices in class might be perceived as efforts to reduce such tensions.

4 Discussion and implications

The variety of methods used in this study generated extensive data about the teachers' use (or lack thereof) of mobile devices in their L2 language classes and their rationales for their pedagogical decisions. Three main themes emerge from these data:

- Prohibition and reluctant tolerance of mobile devices in the classroom;
- Positive adoption and possibilities of mobile device use in the classroom; and
- The role of teacher beliefs in facilitating or hindering mobile technology use in the classroom.

4.1 Prohibition and reluctant tolerance of mobile devices

The findings suggest that teachers in this context perceive mobile device use in the classroom as an invasion of their territory. The use of technology is thought to impact on the

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traditional hierarchy in the classroom (Bayne & Ross, 2007). This may explain the participants' reluctance to allow the use of mobile technology, in particular, linking to outside sources. They also expressed strong views about mobile device use for translation purposes; this activity was interpreted by the teachers as having their subject knowledge and practice questioned and, therefore, was found offensive. However, it was recognised by two participants as expedient and acceptable in certain cases.

Additionally, much of the literature supports the findings that classrooms are considered an inappropriate context for mobile device usage, particularly if used for non-pedagogical purposes (Campbell, 2006). As a result, enactment of strict policies preventing mobile device implementation has been put into place, a factor noted in the research context. Campbell (2006) reports that practitioners tend to support policies restricting mobile phone use in class, although, as the present study indicates, in practice these are flouted by the students and unenforced by teachers. This is possibly due to a belief that, although mobile devices are a distraction, they have some pedagogical benefit that cannot be ignored and, therefore, a degree of tolerance is exhibited.

Furthermore, the data show that certain factors played a role in tolerance or prohibition of mobile device use. The participants' relationship with the students was important in that if the student was a known mobile-device "offender", then usage was carefully monitored and policed by the teachers. Moreover, the data indicate the existence of covert deterrents (e.g. social and cultural) to technology integration into the classroom (Al-Kahtani, 2004). The cultural factor of the perceived rudeness of using a mobile device in class was highlighted by Steve when a student asked to charge his mobile phone while he provided feedback on his written work.

The participants acknowledged, however, that mobile technology is becoming more ingrained in our daily routine. Steve noted that people use mobile devices outside the context of the classroom without thinking about it, while James spoke of how he believed the students expected to be able to use their mobile devices within lesson time and how, although he did not like it, he did not tell them otherwise. Likewise, Pettit and Kukulska-Hulme (2007) argued that mobile devices are "near-ubiquitous" and "a significant part of the grain of daily life" (p. 17). This acknowledgement is perhaps one of the reasons why mobile devices are tolerated within the classroom.

The presence of mobile devices and flouting of rules concerning their usage imply that relevant policies require review. Pedagogically beneficial usage should be encouraged with measures put into place to aid teachers and reduce distraction. This can be made possible by examining student expectations and teacher beliefs regarding the use of the internet, accessed through mobile devices, to create a more realistic and up-to-date policy document that practitioners could refer to and feel supported by.

4.2 Positive adoption and possibilities of mobile device use

Even though the participants' attitude towards the use of mobile devices in the classroom was negative overall, the presence of them meant that they were, at times, used for pedagogical purposes. Some uses were not only tolerated by the participants but also approved of.

The link to the outside world, for instance, was sometimes perceived as valuable since it helped to make tasks more authentic. However, participants also viewed the presence of

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mobile devices that link to the outside world as negative when used to circumnavigate language items, or distracting when used to update social media sites. Pre-service and in-service teacher education programmes could address this issue by preparing teachers for likely scenarios involving mobile device implementation in the classroom and providing them with effective ways to manage its usage.

The use of digital cameras to record board work was an interesting phenomenon observed. Houser and Thornton (2004) measured the speed at which students are capable of inputting text into mobile devices for the purpose of taking notes and found that students were capable of inputting text expertly in their own language, but were novices when attempting to do so in a second language. The use of a camera to record notes that can be viewed, edited, and reorganised outside of the classroom at the students' own pace must certainly be advantageous. In addition, the use of mobile devices as an expedient way to record notes implies that classes can move at a faster pace with more "ground" covered in the lesson. Moreover, teachers could be explicit on when students may take a photo and how they may review their "notes" post-lesson. Furthermore, teachers may adopt this practice in order to refer back to previously taught content, thus facilitating their reflective practice and providing a permanent record of work that is usually ephemeral.

Also observed and discussed with the participants were the possible timing capabilities on mobile devices. Although possibly perceived as a petty issue, it provides evidence of simple effective tools available to practitioners being unused. Teachers, therefore, need to become aware of other basic features of mobile devices able to support learning and teaching. Experimental practice is required to explore possibilities of, for example, the voice recorder capabilities installed on many mobile devices. Moreover, regardless of the practical value of mobile technology to aid teachers' practices, what is important here is the message that teachers may potentially communicate to learners by adopting resources meaningful to them.

In addition, the use of the internet to access content was recognised as beneficial by all the participants. However, there were no actual observations of this behaviour within the lessons. Previous negative experiences, such as connectivity issues, may act as a deterrent (see 3.3 above). This suggests that prior experiences with technology play a key role in shaping teachers' perceptions of its efficiency and that any negative experience may generate some anxiety which then acts as a barrier to technology use, even in the light of evidence of its potential benefits. Baek, Jung, and Kim (2008) claim that experienced teachers, like the teachers in the present study, are less likely to use technological features in their teaching and that, although they intend to use technology to enhance the learning experience, the tendency is to do so only when "forced" by facilitators. As this context generally discourages the use of mobile devices, both as an institute and as a community of practice, there appears to be little incentive or pressure to explore the benefits offered by their use.

4.3 The role of teacher beliefs in facilitating or hindering mobile technology use

The collective analysis of findings indicates a close correspondence between the teachers' stated beliefs and their pedagogical practices regarding mobile technology use. This is aligned with the results from previous studies which highlight belief-practice consistency in the practices of experienced language teachers (Basturkmen, 2012).

In terms of influence, the data provide evidence of a range of teacher beliefs which impacted on teachers' classroom decisions and actions concerning their use of mobile devices.

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Four main types of teacher beliefs have been found to hinder the integration of mobile technology:

a. *Beliefs about language learning* (e.g. discouraging the use of translation as it supports a practice which does not promote cognitive effort);
b. *Beliefs about the teacher's role in the classroom* (e.g. acting as a major resource when students have difficulties dealing with unknown vocabulary);
c. *Beliefs about the impact of mobile technology on student learning experience* (e.g. mobile phones perceived as distractive or disengaging); and
d. *Beliefs about the efficiency of technology* (e.g. technology seen as time consuming and unreliable).

These beliefs, referred to in the literature as second-order barriers (Ertmer, 1999), acted as deterrents to mobile device use, particularly mobile phones. On the other hand, there were some beliefs which, albeit occasionally, facilitated the use of mobile technology:

a. *Beliefs about the pedagogical value of mobile devices* (e.g. recording board work and accessing relevant online information)
b. *Beliefs about the professional value of mobile devices* (i.e. the use of applications which supported their teaching by, for instance, helping them maintain a steady pace to the lesson, set up meaningful discussions, or explain complex lexical items).

These beliefs were largely experientially ingrained, rooted either in the teachers' prior educational experiences or professional practice. In addition, their language teaching and learning beliefs were aligned with the principles promoted in the teachers' pre-service professional education. Niederhauser and Perkmen (2010) point out that the focus of teacher training should be on the teachers' expectations of outcomes resulting in the use of technology. Teacher education courses should, therefore, encourage pre-service and in-service teachers to reflect on the pedagogical benefits of mobile device usage in the classroom. If they demonstrate that mobile devices have pedagogical benefits and can be used to produce satisfactory learning outcomes, then they may help to redefine teacher beliefs and attitudes towards technology use and support teachers in making the most of the technological resources available to them, thus resulting in an attitude shift from toleration to acceptance and enthusiasm.

5 Conclusion

The data suggest that practitioners in this context do not utilise their own mobile devices to any real extent, not even functions that are free and available and could possibly aid their practice. They do, however, recognise and permit limited use of mobile devices by the students in their classrooms, for instance, for the purpose of expedient recording of notes. Further evidence points to the reasons why the participants in this study do not use mobile devices. These reasons indicate that the classroom is viewed as an isolated context where links to the outside world are out of the control of the practitioners and, therefore, seen as a challenge to the teachers' knowledge and expertise. Moreover, mobile devices are viewed as a nuisance and distraction. There are also cultural implications regarding the use of mobile devices in the classroom; teachers do not view their presence as acceptable, but expect the students to understand this. However, the context allows for a melting pot of

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cultures and this, in turn, results in a variety of differing expectations about mobile device use for the purpose of learning a second language in the classroom. As shown above, these findings carry clear implications for classroom practice and teacher education. To aid teachers' knowledge of learners and contribute to a shift in the attitude of language teachers towards the benefits of mobile device usage, further research of learner perspectives and beliefs regarding their use of mobile devices in the language classroom is recommended.

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