HOW AND WHY DO LANGUAGE TEACHERS USE ICT IN A UNIVERSITY IN SAUDI ARABIA?

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ABSTRACT:

This paper describes and evaluates the reported use of Information Communication Technology (ICT) by teachers of English as a Foreign Language (EFL) at a university in Saudi Arabia. The overriding aim of the study was to understand how ICT was being used and to discover what encourages and discourages teachers to use ICT. This was a mixed methods study using both quantitative and qualitative methods. Variable use of ICT was discovered and three types of teachers were identified according to their use of ICT: extended users; restricted users; and non-users of ICT. Perceived impact on teaching and learning was a key motivator for using ICT but there were several constraints on teachers including lack of access and limited encouragement and support in the wider environment. The research made a contribution to an under researched area by reporting on the use of ICT in EFL teaching in the Arab world. Findings are discussed in the context of the more traditional 'factors' approach to understanding the take-up of ICT as well as a less familiar three zones framework.

INTRODUCTION

This is a study of the take-up of ICT in the teaching of English language in an Institute for English teaching in a university in Saudi Arabia. Computer technology has been used in language teaching since the 1980s although technology in a broader sense goes back further, for example analogue tapes were an important phase in laboratory teaching in the 1960's. ICT has made it possible for language learners and teachers to better authentic material and resources; interact beyond the classroom; and carry out controlled practice with automatic feedback (Meurant, 2011; Vi, 2005). Computer networks enable learners to communicate at

a distance, for example with speakers of English around the world (Warschauer & Healy, 1998). Stepp-Greany (2002) argues that students are often proactive in using technology for example to find electronic pen pals and engaging in threaded discussion. Modern Foreign Language (MFL) teachers can take advantage of a vast body of ICT resources, which help expose the learner to the real world of the target language and its applications in the target language community (Kilickaya, 2004; McKinnon, 2013). ICT can also be used in a physical classroom, at a distance or within a blended approach (e.g. Banados, 2006). At the time of writing there is a strong focus on the benefit(s) and role(s) of MOOCs (Massive Open Online Courses) in language teaching and learning (see for example Godwin-Jones, 2014) and MOOCs may be particularly valuable for students who would not otherwise be able to access learning.

Many writers have strongly associated the use of computers with communicative and socio-cultural perspectives on teaching and learning, as, for example Blin et al. (2013), when describing collaborative writing practices. The use of ICT often encourages and even requires teachers to take on new roles, something which Hourigan and Murray (2010) discuss in relation to integration of blogs into language teaching. However, ICT need not be associated with one particular pedagogy and its use in drill and practice and in direct support of teaching instructional practice, through the Interactive Whiteboard, has been well documented (e.g. Glover et al. 2007). Although there has been a 'communicative' revolution in language teaching many EFL students, and their teachers, still favour traditional modes of teaching (e.g. Fogal, 2010).

In spite of the opportunities which ICT offers across a range of contexts and countries the use of ICT is restricted. In Saudi Arabia, the location of this study, this appears to be so in both schools and higher education, for example Oyaid (2010) in the former and Hakeem (2007) in the latter. There is a more general literature which has examined the take up of ICT in relation to barriers and constraints including Becker (1994), Ertmer et al. (2010) Hamzah et al. (2009), Larner and Timberlake (1995), Lee (1997), Mumtaz (2000), Pelgrum (2001) and Schifter (2000). Here issues such as access, confidence, belief in the value of ICT, time, curriculum and training dominate (these are briefly set out in table 1). These factors frequently point two ways: lack of access is a discourager, provision of access is an encourager. While most of the literature concerns ICT in general, accounts of computer use in language teaching tends to fit a similar picture (e.g. Slaouti and Barton, 2007).

Factor	As an encourager	As a discourager
Access	Available machines Easy access to machines Reliable up to date machines Good Internet connections	Few machines Slow machines Slow access
Technical support	Relevant hardware and software Onsite support	Infrequent /ineffective technical support
Time	Good personal time management Protected time for lesson planning Not overburdened by number of teaching hours	Content heavy curriculum Overburdened by teaching load
Curriculum	Availability of relevant software Assessment fits the use of ICT	Assessment ignores use of ICT Relevant software not available
Training	Training is personalised and addresses the needs and interests of teachers; trainers show awareness of teachers' different backgrounds Training covers pedagogy as well as technical issues Training is valued and rewarded by the institution	Training is one size fits all Training is focused on skills Training is not valued by the institution
Teacher confidence	Teachers are confident about using ICT and will continually develop ICT skills through practice	Teachers are anxious about using ICT and lack self-efficacy; teachers do not develop skills through practice
Teacher competence	Teachers have the pedagogical and technological knowledge needed to use ICT	Teachers lack sufficient pedagogical and technological knowledge
Change and attitude	Teachers view ICT positively Teachers open to new ways of teaching; teachers may have more learner centred approaches; teachers are entrepreneurial in developing expertise	Teachers sceptical about value of ICT Teachers reactive in use; teachers may have 'traditional' teaching approaches and may wish to 'control' learning

Table 1: Factors which encourage and discourage the take up of ICT

For Ertmer (2012) these factors can be broken down into first-order barriers (for example access, technical support and training) and second order ones (teachers' knowledge, attitudes and beliefs). The former are more easily overcome. The Technology Acceptance Model (Davis et al., 1989) is a further popular frame of reference for understanding use of ICT. It suggests that the way in which users perceive the usefulness of technology, and their perception of ease of use, are the two main factors behind users' attitudes to technology and consequently on computer acceptance behaviour intention. Factors may also be described as operating at different levels, for example at the micro or school level; the meso or more regional level; the macro or policy level (e.g. Younie, 2006) – an approach that helps draw attention to the existence of factors which are beyond an institution's control. Explaining take up of ICT in terms of factors enables an understanding as to why take-up is often patchy and identifies what needs to be changed. However, as discussed later, it provides a fairly static view of the process of ICT adoption.

THE CONTEXT OF THE STUDY

This study set out to investigate how and why EFL teachers at an institute in Saudi Arabia used ICT and what use teachers make of ICT. As such the study was exploring an under-researched area and testing the transferability of the factors model to a new context. The study took a critical view of the factors approach and explored whether it was the most suitable way of understanding the take up of ICT. Three particular questions were being asked: How did teachers use ICT?; What did they see as valuable in using ICT?; What encouraged / constrained their use of ICT?

The study concerned an institute in which general English is taught to more than 12,000 male and female full time foundation year students. Teachers were expected to make as much use as possible of the technological resources at their disposal. In most classrooms there were data projections attached to single computers, and mp3 devices were provided to give listening instructions and for assessment purposes. Nearly all students had their own computers. Some parts of the campus had a wireless connection to the Internet but access in general was unreliable.

This was a mixed-methods study that aimed to describe behaviour (how teachers use ICT); arrive at an understanding of why people behave in the way they do (their perception of opportunities and constraints within an environment); highlight some consequences of actions (the perceived impact of using ICT). Data were collected from September 2010 to 2012 and the research written up during 2013 – 2014. Three methods were used:

A questionnaire survey: this was divided into sections with a total of 38 items covering: demographic factors (including gender, age, qualifications, teaching experience); reported use; perception of enablers, constraints and benefits of ICT use. A total of 152 questionnaires were completed out of an estimated population of 250, an overall response rate of 61%. Simple descriptive findings were presented. Data covering use of ICT were aggregated so as to provide a picture of high, middle, low and non-users of ICT. This enabled a break down of use of ICT against variables such as gender, educational background and age as well as more exploratory analysis of the top and bottom decile of users and those within the upper and lower quartiles.

Interviews: These were carried out face to face with eight female teachers and by telephone with eight male teachers. Interviews enabled a more in-depth examination of beliefs, values, concerns and perceptions of teaching with ICT and its value in terms of teaching and learning outcomes. The interviews were open coded and then grouped under themes including: experience of teaching, qualifications, reasons for teaching, satisfactions, dissatisfactions, curriculum, professional development, personal views of teaching, ICT use encouragement, ICT use discouragement, value of using ICT and teachers' use of ICT.

Observation: Five non-participant lesson observations were carried out in February 2012. Each lesson was observed once for 60 to180 minutes, depending on the scheduled class time.

THE FINDINGS

The findings are organised around the key research questions and cover: the reported use of ICT; the perceptions of ICT and the constraints and encouragers for using ICT. The key points are summarised overleaf.

What was EFL teachers' reported use of ICT?

Findings from all three sets of data suggest that for the most part the use of ICT in the classroom was limited. However the survey data showed that the use of data projection was widespread, with both male and female teachers often projecting materials from the textbook CD, using PowerPoint or other presentation software in their lessons. Presentations were used to cover a range of teaching contexts including grammatical explanation, vocabulary items and revision topics. A further use of projection involved the display of students' writing, shown with errors corrected interactively using a colour-coded system. In interviews, two teachers explained in more detail how they had prepared tailored, animated PowerPoint presentations, supported lesson with moving images, and used these

resources to aid the transition from explanation of grammatical structures to controlled practice.

The most obvious explanation of the wide use of data projection was access; all classrooms were equipped with a data projector attached to a computer. Furthermore, as part of teachers' professional development, teachers were trained to use data projection and to create materials for teaching. Teachers were also expected to use data projection in their teaching. In many ways, the use of projection allowed innovation but was not disruptive to teachers' 'normal teaching' or to the routines they had developed over the course of their career. Projection could be adapted to support the traditional role of instructor and explainer, which was important from teachers' view of pedagogy.

In addition, and often complementary to the use of projection, a highly used aspect of ICT in both the survey and the interviews involved the preparation of learning materials. Female teachers tended to do this more often than male teachers and provided examples of searching for advice on teaching, accessing resources for direct use in teaching and providing links for students. Some teachers searched YouTube specifically for video clips and online material relating to TESL and ESL, or went directly to resources offered by English Club, BBC and the British Council. Nearly all teachers interviewed used home or office computers for lesson preparation. In class some teachers used their own laptops, a few preferred to use an iPad. The use of ICT for preparation rested on the belief that it would result in more engaging recourse and a smoother lesson delivery and that there were appropriate sites for both teachers and learning and fitted with the general literature on motivation to use ICT described earlier.

Differentiating ICT Users

Non-users were rare, these were teachers who believed they had neither the time nor access to reliable equipment. Instead most use was restricted, and here ICT was routinely used for teaching (projecting slides, completing online portfolios) when its use was expected and so long as equipment was provided. Some restricted users prepared their own materials at home but complained that there was insufficient time to use ICT very often in class, teaching loads were too heavy, schemes of work too 'crowded', modules were too short. Extended users of ICT were a minority (about a third of the teachers). They pushed the use of ICT, for example a few created blogs to support learning outside the classroom, for example to provide opportunities for collaboration amongst students and to archive discussions and resources. ICT could help students become more independent. Some teachers created their own websites with contact details, teaching schedules, instructions for students, activities and presentations.

In many cases extended users of ICT were feeling their way. For example, they were experimenting with online groups but had not developed the use of groups as routine practice. They welcomed the use of mobile phones in the classroom, for example to allow lesson recording or capturing pictures of the projected slides. Extended users were more likely to create online groups and to invite students to Yahoo! or Windows Live Messenger and invited students to chat about learning issues.

One of the most striking findings, and a recurrent theme of the research, was that female teachers tended to be keener on, and showed more initiative in, the use of ICT. Survey and interview data suggested that female teachers had greater confidence and were more competent in the use of ICT, both of which enabled greater use of ICT. Female teachers tended to take more time to learn how to use ICT and found it easier to access relevant material online, whereas male teachers were more ambivalent. This was unexpected as the literature tended to report no significant difference between males and female teachers' use of ICT (for example Markauskaite, 2006) while earlier research tended to see females as less likely to use ICT (e.g. Bradley & Russell, 1997; Marcinkiewicz, 1993). An explanation for the finding in this study was that female teachers tended to see technology as supporting communication, rather than instruction, which matched the greater importance they put on developing relationships with students.

There was too some evidence of an association between age and ICT use, although this finding should be interpreted with caution. In relation to teaching experience, it was found that the very top users were much more likely to be the relatively new teachers (those with one to six years' experience) compared to the mid-career teachers (seven to ten years' experience) and longer established teachers. The upper quartile users were more likely to be mid-career (seven to ten years). The survey showed that there was no significant difference within the top and bottom decile of users in relation to teachers' qualifications. However, the upper-quartile users of ICT were more likely to be MA holders than Bachelors and PhD holders.

What did teachers perceive as the benefits of using ICT for learning and teaching?

The majority of teachers agreed that ICT was helpful for them as teachers. Even if ICT consumed time during lesson preparation, it saved a great deal of class time as teachers were able to prepare teaching material in advance. They could cover more in class and possibly have time for extra reinforcement activities. Material could be reused, meaning that less time needed be spent in creating resources in the future. This is in line with the literature for example on IWBs and its contribution to lesson pace both generally (e.g. Smith et al., 2005), and in the context of language teachers (e.g. Gray et al. 2007).

The second most cited reason for the belief that ICT was an aid to teaching was that it provided a greater variety of teaching and learning strategies. This was seen in the examples provided by interviewees, for example creating blogs to teach cooperative writing, playing video clips in the classroom; playing tracks of native speakers' dialogue, projecting pictures to teach vocabulary, posting classroom materials, encouraging students to create PowerPoint presentations and receiving students' writings and sending feedback via email. In line with the findings of Li and Walsh (2013), teachers wanted to be 'up-to-date' in their 'teaching style'. ICT was seen as making the classroom a more varied, enjoyable and interactive place. As well as teaching satisfaction, students' motivation and encouragement was also an important factor. Many of the teachers surveyed believed that ICT came easily to students and was desirable culturally for them.

What did teachers perceive as enabling / constraining the use of ICT?

Findings from all sets of data suggested that access to ICT was a key issue. Data projectors, laptops, desk top computers and mobile devices enabled ICT implementation in teaching. Both the top decile of users of ICT and the upper quartile were more likely to agree that access to ICT was high, which suggests that the perception of access was as important as access itself. Lack of access to ICT was a barrier to the use of ICT in teaching and not all could count on data projection in the classrooms, the Internet was not provided in teaching rooms and the lack of classroom machines meant that the idea of asking students to turn to computers did not arise. In general students did not bring their own laptops or iPads to classes, and many felt discouraged from doing so. This was due to concerns over equity, as not all students had their own laptops for financial reasons, and other students had complained that laptops were too heavy to carry around the university, particularly while moving from one building to another. Smaller devices, such as iPads, iPhones and tablets, would be more portable but are often more expensive.

Survey and interview data suggest that most teachers were aware that the institute management was 'pushing' the use of ICT. Interview data showed that the majority of teachers agreed that they were provided with training in the use of ICT. A few teachers said that the institute management had encouraged them to develop professionally and to create their own websites. Training had been provided and several teachers had benefited from Masters study both at home and overseas. A few teachers felt that being rewarded for the use of ICT would provide them with further encouragement. In contrast lack of reward for using ICT was an obstacle and many felt that training was technologically rather than pedagogically focused, and some felt it was not relevant or adapted to their needs.

The most noticeable finding was that extended users of ICT tended to express greater concern for their relationships with students and found the time to use ICT in the belief that the impact of ICT would be beneficial on both cognitive and affective grounds. This led them to be more proactive, and their greater experience resulted in greater confidence and competence to use ICT. Where they could they compensated for resource constraints by using their own devices (for example laptops, iPads, MP3 players, speakers and wireless Internet devices) and make use of additional software such as Blogs and messenger. Personal factors then were critical. This has echoes of the entrepreneurial users of ICT reported on by Drent and Meelissen (2008).

Extended users were more likely to value their autonomy. They were critical of following a rigid scheme of work and experimented with new ways of teaching. Their attitudes were broadly consistent with Becker's (1994) classic study linking learner centred teaching to adoption of ICT, however a proviso here is that few teachers were able to describe their teaching as such as social constructivist and observation of lessons showed the instructional character of much classroom teaching.

Finally, more frequent users of ICT were convinced of the notion that ICT had the power to improve their classroom teaching and thus took the time to extend their use of ICT while teachers' lack of technical confidence was a barrier to the use of ICT. Uncertainty about the value of ICT acted as a break on its future development and on the willingness to innovate or 'try things out'. Two interviewed teachers said that they did not like to lose control over the class while using ICT, which reduced their interest in continuing to use ICT. ICT was found to be time-consuming for the majority of teachers.

Interview data suggested that aspects of the working environment helped enable the use of ICT. A few female teachers mentioned that 'all' faculty members and students were using ICT, which encouraged its use. A few said that the cooperative spirit among colleagues in the institute, support from coordinators and the nature of the curriculum were factors that encouraged them to use ICT. Aspects of the curriculum also encouraged the use of ICT, for example the textbook came with a large number of CD-ROM based interactive exercises that could be projected to students. However the environment also made it difficult to use ICT and making time for ICT use was cited as a major barrier by the majority of male and female teachers. Here the curriculum itself was seen as a barrier to the use of ICT - in particular the module system put them under a lot of pressure to follow a rigidly paced pattern of teaching and left little time for teaching using ICT. Two of the interviewed male teachers said that a lack of encouragement from coordinators to use ICT was a further obstacle. In addition some teachers found the students themselves a barrier to the use of

ICT negating a widely felt perception that learners were motivated by the use of ICT. Time became even more of a pressure if students' attitudes were negative and if a lack of punctuality was a problem.

FACTORS OR ZONES: UNDERSTANDING THE TAKE-UP OF ICT

In relation to the literature cited earlier, in many respects this appears as confirmatory study in that the factors which influence the use of ICT (table 1) were much in evidence in this institute for English language teaching in Saudi Arabia. The findings can be summarised as:

Enabled access + belief in effectiveness + reward, training, support = take up

Constrained access + lack of belief in effectiveness + limited reward, training, support = restricted take up

The key implication is that to increase the use of ICT teachers need to have improved access, in particular mobile access, be provided with more rewards and training, in particular training that addresses the pedagogical use of ICT, and be provided with exemplars which showcase the value of ICT. This is an adequate diagnosis but it does provide a fairly static picture of ICT take up when striking in this study is that some teachers have adopted ICT and their agency in doing this is not fully recognised. One reason is a methodological problem: the factors approach takes teachers (their beliefs and willingness to use ICT) both as a 'factor' in the use of ICT and as agents in their own right. There must be a better model for showing the actions of teachers, what was critical after all was not only teachers' resilience and drive in using ICT but their perceptions of the environment in which ICT was being used. In addressing this problem we found it useful to reconsider the data from the point of view of Valsiner (1984; 1987) zones theory. Although the Zones theory was first applied in the context of child development it has been employed more recently in the study of technology take up, (for example Borthick et al., 2003; Galbraith and Goos, 2003; Goos, 2005 and, in the context of Gulf states, Hussain et al., 2011 and Alotaibi, 2014).

Valsiner (1984) proposed three zones in order to understand behaviour: a zone of free movement (ZFM) – the environment which furnished support or constraint on action; a zone of promoted action (ZPA), in other words what is being encouraged or discouraged within this environment; and a zone of zone of proximal development (ZPD), as taken from Vygotsky (1978), referring to the distance between an existing capability and the higher level of performance achieved under the guidance or in collaboration with a more knowledgeable other. Crossing a ZPD suggests a process of interaction and communication. For example,

in the context of L2 learning, Turuk (2008) regards learning as a process of collaboration rather than isolation.

In understanding the take up of ICT, Goos (2005) sees the three zones as capturing the relationship between the restrictions and possibilities of the teaching environment, teaching action and, as in her particular context, the progress of beginner teachers' pedagogy. The ZFM depicts environmental hindrances that might confine freedom of action including access to hardware, software and laboratories, access to teaching material, support from colleagues (including technical support), curriculum and assessment requirements and students (perceived abilities and behaviour). The ZPA represents the efforts of a teacher educator, supervising teachers, or more experienced teaching colleague to 'promote particular teaching skills or approaches'. ZPA - actions promoted by an expert guide - should overlap or be consistent with ZPD (what can be achieved) and what is in the zone of free movement.

The zones framework seems to work well with our study of EFL teachers. First there is a zone of free movement consisting of access to tools, training, support of others, a curriculum that has to be taught and workloads. This zone can be characterised as heavily constrained with respect to teaching and curriculum demands but as offering opportunities to use technology. The zone however is fluid, for example it can and is altered by access to ICT in the home and can be altered too by introducing hardware and software into the environment. The environment was selectively perceived so that for some there was felt to be an unalterable constraint on ICT, for others an opportunity to use ICT for relevant pedagogic purposes. Next there is a zone of promoted action in that teachers were offered encouragement to use ICT, but this did not translate into personalised CPD and in-class support and in this sense the zone can be classified as narrow. In terms of ZPD, teachers' perceptions of ICT integration, their technological knowledge and their personal and pedagogical beliefs varied. Some teachers had prior experience of using ICT which provided them with the stimulus and knowledge to use ICT. However, many teachers had much less knowledge of ICT in the classroom and were at a very different point within a ZPD.

Given the balance of opportunity and constraint with the ZFM; a narrow ZPA and a differentiated ZPD, it is not unexpected that for the most part teachers' use of ICT was 'channelled' into restricted use. This was most obvious in looking at teachers who had prior experience of ICT and came into institute with higher expectations of continuing to use it. However, faced with the constraints within the ZFM and a narrow ZPA they often followed the restricted practice of colleagues. The wide use of data projection was however observed and this can now be seen from another perspective. In the ZFM, nearly all classrooms were

equipped with a data projector connected to a computer, and there was a tightly organised ZPA with teachers not only trained to use data projection but expected to use it. The use of data projection did not fall outside the teachers' ZPD as most understood how to use the technology (the technical component of training) and all could see the value of using it for everyday classroom teaching (the pedagogical component).

The zones framework enables us to see the take up of ICT through the eyes of the teachers. In particular extended teachers were able to find affordances in their ZFM in order to develop a greater repertoire of ICT use, and were able to introduce technology practices which were in part unexpected, for example communicating with students by email or chat messages. Much of this practice was emergent, it had not become routine. It had however already led to a crossing of a ZPD in that through experimenting with, for example social media, teachers had gained confidence in using ICT for teaching. However use of ICT did not happen in isolation and there were indications that users had created some informal systems of support in their institute.

The key recommendations arising from this study concerned the provision of access, the addressing of curriculum concerns and an offer of classroom support but in considering the use of ICT through a zones framework a more personalised and teacher-centred notion of CPD was recommended, one which offered a differentiated approach and was alive to the emergent practice of each individual.

SUMMARY

This paper has explored the reported use of Information Communication Technology (ICT) by teachers of English as a Foreign Language (EFL) at a university in Saudi Arabia. It found differentiated use with extended and restricted users. There were several encouragers to using ICT both in respect to personal factors, for example teachers' beliefs and entrepreneurial outlook, and environmental factors. These same factors could also be seen as constraints. The findings were further discussed in terms of a zones framework which offered to provide a more teacher centred view of the take up. This enabled a more coherent account of teacher agency and drew attention to the subjective perception of the environment. A key recommendation is to provide CPD which is differentiated to the particular needs and interests of the teacher. However environmental changes are also needed if teaching is be channelled into the use of ICT

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