Lidia BILBATUA and Laetitia VEDRENNE
University of Wollongong

Resource development and teacher training:
a model of Interactive WhiteBoard (IWB)
integration in language labs

Abstract
Pedagogical research often focuses on learners’ experience of technology-enhanced learning environments. It is widely accepted that effective use of Information and Communication Technologies (ICT) in learning requires the learner to be already fluent in them (Lai and Morrison 2013: 154). If this is the case, then practitioners also need to be competent, yet the digital literacy of today’s learners often appears greater than that of practitioners. This translates into a big gap between learners and practitioners in ability and confidence in the use of ICTs.

In this paper, we present the outcomes of a research project funded by the University of Wollongong (UoW) on the creation of innovative teaching resources to integrate Interactive WhiteBoards (IWBs) more effectively in the classroom. It also provided training opportunities to improve quality learning and teaching practices and standards embedded in course design and delivery.

1. Literature review
Whilst there is a wealth of studies on using Interactive WhiteBoards (IWBs) in learning and teaching, the vast majority are based on research undertaken in the primary and secondary education sectors. Schuck and Kearney (2007: 3) claim that “as most of the research so far has been conducted in schools where the use of IWBs is very recent, further studies are needed are assess their impact once they are embedded in classroom practice”. Very few studies address the use of IWBs in Higher Education (Al-Qirim 2011; Johnson et al. 2013). Moreover, the findings of most studies are inconclusive and sometimes contradictory: Schuck and Kearney (2007: 3) claim that “[w]hile it appears that there are many benefits to classroom use of this technology, it is not yet clear how IWB use might affect learning outcomes or concept development”. Hockly (2013: 355) explains that

a direct causal relationship between IWBs and student attainment is extremely difficult to prove because of the many factors involved, for example the way teachers use the IWB, the classroom context, the amount of professional development received by the teacher, the materials used, students’ motivation, and expectations and attitudes.
Whilst it would be extremely difficult to prove a positive impact of IWB on students’ achievement in all contexts, research suggests that their use does enhance students’ learning experience, because it increases engagement (Beeland 2002). Confusion abounds in perceptions: for example, Cutrim Schmid (2010) emphasises the issues related to the use of IWBs, focusing on the “danger of the IWBs being used to enhance teachers’ control of the learning environment”, while also considering that there is a positive impact of IWBs on learning thanks to “the opportunities of using this technology in conjunction with Web 2.0 tools” (Cutrim Schmid 2010: 161).

Overall, the literature suggests that a key component in the efficacy of using IWBs is the teacher (Cutrim Schmid 2010; Hockly 2013; Hubbard 2008; Hubbard and Levy 2006; Hughes 2005; Marzano and Haystead 2009; Russell, Bebell, O’Dwyer and O’Connor 2003). Specifically, Marzano and Haystead (2009: 39) argue that, where Promethean IWBs and ActivInspire are used, there are four conditions that contribute to large percentile gains in student achievement:

- A teacher is experienced.
- A teacher has used the technology for an extended period of time.
- A teacher uses the technology extensively in the classroom but not beyond 80% of the time.
- A teacher has high confidence in his or her use of the technology.

Certainly, many authors agree that today’s students have ICT skills ingrained in them from an early age. Conole (2008: 138) confirms that “students are using technologies to support all aspects of their learning processes … Technology is not simply seen as an ‘add-on’ for these students, it is central to how they organise and orientate their learning”. Nevertheless, due to the rapid pace of technology innovation, practitioners often lack knowledge and training in using technology confidently.

2. Context of this study

In 2007, the University of Wollongong (UoW) commissioned an institution-wide review of the future of languages. The review took into consideration the increasing access to technology and IWBs in schools, as well as international trends in the use of technology in teaching (British Educational Communications and Technology Agency [BECTA] 2004; Johnson et al. 2013). It recommended the creation of a physical space dedicated to languages and technology. Two new language laboratories were built and equipped with Promethean IWBs and the ActivInspire software. The latter is an interactive presentation software, designed to work with Promethean IWBs, integrating dual-user pen and multi-touch functionality. It includes teaching templates, visual and auditory resources and interactive tools. The recommendation of the review also reflected today’s students’ ubiquitous use of technology, including use in their learning experiences. However, we were keen to avoid what Hockly (2013: 1) defines as “the top-down implementation of educational hardware ... driven by the technology itself rather than by any underlying pedagogical principles or research studies.”
The use of IWBs in the language classroom was immediately firmly embedded in the first-year French and Spanish curriculum at UoW. These courses have large enrolments, requiring a large number of casual teachers, so there is a regular need for staff training to develop and maintain knowledge and skills in the use of Promethean IWBs and ActivInspire. UoW therefore funded a project led by the French and Spanish coordinators to create innovative teaching resources to integrate IWBs more effectively into the language classroom. Similarly to the European project on Interactive Technologies in Language Teaching (iTILT), our project also included the creation of training opportunities to improve quality learning and teaching practices and standards embedded in course design and delivery.

3. Innovative language teaching practices

3.1 General remarks

The presence of IWBs in the classroom helps to create a less formal learning environment because the physical spaces within the room are no longer constrained by the often necessary presence of the teacher at the board at front of the room, while the students sit at their desks. IWBs encourage students’ mobility within the room, giving them a sense of ownership and control over their learning environment, and thus increasing students’ engagement and attention. With IWBs, the learning and teaching spaces evolve to offer a student-centred learning environment.

A major feature of ActivInspire is the ease and reliability of integrated media which in many ways reflects students’ experience of digital culture (Schuck and Kearney 2007). Teachers have total control of command features for audio-visual material: this includes pause and precise backtrack. For comprehension activities, this advanced and versatile feature means news, interviews, up-to-date information, music and movies are reliably available in the classroom. Another essential feature of ActivInspire is the ease with which slides can be modified, so that new material can be spontaneously added to an ActivInspire presentation in order to respond to students’ feedback (just-in-time teaching). In the figures below, a selection of slides designed by the French and Spanish coordinators show how they focus on specific language learning skills using the IWB features.

3.2 Writing skills (grammar)

Figure 1 shows the conjugation of the group of –ER verbs in Spanish with stem changes. Visual learning supports grammar learning: one rule applies ‘in’ the boot, another ‘outside’ the boot. Visual stimulation contributes to better memorization of grammar rules. The boot can be dragged in and out of the frame repeatedly, either by the teacher or students to elicit the rule. Furthermore, the verbs can be changed on the board immediately, allowing just in-time teaching.
Figure 1: Electronic Flipchart page—visual learning and Spanish conjugation

Figure 2 illustrates the use of visual learning with colours to distinguish between two verbs in Spanish (ser and estar). All the forms of the same verb are identified by the same colour, enabling students to distinguish the verb forms and contributing to better memorization. It also shows an example of resources easily adapted to different levels of competency. Whilst the lower level students will simply drag and drop their chosen answer from the selection of verb forms at the bottom of the page (kinesthetic learning), more advanced students will not see the verb forms and will have to write the answer themselves.

Figure 2: Electronic Flipchart page—visual and kinesthetic learning with Spanish verbs
3.3 Writing skills (vocabulary)

Figure 3 shows an example of the flexibility afforded by ActivInspire. When individual numbers on the left are revealed, students are asked to shout out the answer in French. If students hesitate or get a number wrong, the teacher hides it and reveals it again later. The software allows backtracking which supports individual learning.

Figure 3: Electronic Flipchart page—flexible path of reveal to support individual learning

Figure 4 shows an example of visual and collaborative learning to improve students’ complex vocabulary acquisition. Students must match idiomatic expressions on the left with their explanation on the right. Students come to the board in groups and use their problem-solving skills. They decide collaboratively on the answer and drag the explanation under the expression. The teacher then drags back to the right the wrong answers and students must again decide collaboratively on the correct answer. Furthermore, competitiveness amongst students can be encouraged at two levels: at
the IWB; and between IWB users and the other students in the class—something students enjoy, while encouraging learning at the same time. It helps with learner attention (getting up breaks the pace and/or activity) and promotes deep learning. Visual learning activates students’ memorization: shapes (hearts) contribute to elicit the meaning of the expressions that all use the French word for heart.

### 3.4 Listening skills and intercultural knowledge

Figures 5 and 6 illustrate how a flipchart page can integrate several pedagogical goals with the touch of a button. The slide contains a fill-in-the-gap exercise based on the lyrics of a popular contemporary song. The teacher clicks on the web address at the top of the slide in order to start the video directly in YouTube. The video contributes to exposing students to authentic language and increases cultural knowledge. It provides visual stimuli to elicit students’ comprehension. It can be played several times, with or without the video, in order to allow students to read the lyrics and to work on their in-context writing and listening skills.

![Figure 5: Electronic Flipchart page—lyrics and fill-in-the-gap exercise](http://www.youtube.com/watch?v=m171Gyy7)

"Me _______ los aviones, me gustas tú, me _______ viajar, me gustas tú, me gusta la mañana, me gustas tú."
4. Workshops and training opportunities

The second aspect of our project involved teacher training, as professional development and training of teachers is essential to ensure that they are proficient with the technology and capable of integrating IWBs meaningfully in their pedagogy. Promethean provided an initial short training session at UoW to present ActivInsire and Promethean IWBs. Afterwards, we surveyed language teachers informally and found that many were still reluctant to use the IWBs in class because they did not feel confident with this new technology and felt they had had insufficient training. Our informal findings are supported by research which has “shown that teachers will normally try out what they are confident they can cope with. Therefore, any pressure on teachers to change quickly may be counter-productive” (Cutrim Schmid 2010: 170).

The French and Spanish coordinators consequently ran workshops to introduce key features of ActivInsire and teaching with IWBs in relation to language teaching because “it is strategic to identify the relevant knowledge base teachers draw on and develop when learning to teach with technology” (Hughes 2005: 279). Workshop participants faced a range of challenges with regards to the use of IWBs in the classroom. Firstly, as Orr (2008: 9) suggests, “IWBs are least effective and have
limited impact on teaching and learning when teachers simply incorporate them into traditional ways of working”. It was difficult for participants to find the time to create resources that would go beyond importing existing teaching materials into ActivInspire in order to use the software fully. Glover and Miller (2001: 269) also suggest that there “may be a tendency for IWBs to be used more as an interest enhancer than as a new approach to learning”.

Developing holistic teaching strategies was therefore a key factor in the workshops, which were most effective when we separated the use of IWBs in the classroom from resource design. The workshops were subsequently divided into three parts:

1. Firstly, the participants worked on a PC with ActivInspire; they had access to ready-made French and Spanish language resources and were able to gain confidence in using the software.

2. Secondly, the participants used the IWBs in the language labs in order to experience the same resources in a real teaching context. This allowed them to experience the advanced pedagogical features of teaching with IWBs, highlighting in particular their interactive aspects.

3. The third part of the workshop focused on resource design. This part of the workshop was open to all participants but only concerned resource designers. Once the participants had become more proficient in using ActivInspire and Promethean IWBs, they could produce their own resources. Some of the teachers have fully integrated the technology in their teaching practice and are now experienced and confident users of the technology.

5. Discussion and conclusion

After three years and several software updates, we have found that repeated technical issues affect staff’s ability and willingness to use IWBs effectively, which in turn may impact negatively on students’ learning. Schuck and Kearney (2007: 5) agree that “technical support and easy access to equipment is fundamental”. The lack of adequate technical support aggravates confidence issues, disrupts teaching strategies and discourages teachers to use the technology. As Hubbard and Levy (2006: 34) advocate, “the ideal solution for a teacher education program would be to add a CALL [computer-aided language learning] specialist to your faculty”. We believe this specialist can be an academic with a keen interest and a sound working knowledge of the strategies involved in CALL.

A major advantage of ActivInspire for language teachers is the reliable and easy integration of various forms of audio-visual material and Web 2.0 resources in order to provide students with authentic learning experience. It should be noted that we encountered some issues with character-based languages: colleagues teaching Japanese and Mandarin found ActivInspire and Promethean IWBs did not allow them and their students to comfortably write characters directly on the IWB, although they could still use all other features of the software.
This project has demonstrated that it is essential to provide continuous professional development opportunities for practitioners using technology in the classroom. Further research on the impact of the use of IWBs on students’ achievement in higher education is needed to demonstrate its effectiveness on language learning and teaching. With the increasing presence of IWBs in teaching institutions, more and more publishers provide IWB-ready resources to accompany their textbooks. However, there are compatibility issues, depending on the IWB that software publishers support. Moreover, these IWB-ready resources still need to be adapted to individual teaching contexts, meaning they still require teachers’ skills and knowledge to be used effectively.

Finally, the question remains whether IWBs still have a future in the classroom: the 2013 Horizon Report (Johnson et al. 2013) suggests that tablet computing is likely to be adopted widely within a year. The kinesthetic learning aspects of IWBs are easily replicated with tablets. Tablets also support the learning needs of individual students, whilst enabling collaboration thanks to Wi-Fi and Bluetooth. Therefore, it is likely that there will be another adjustment of the teaching and learning physical space with the advent of these technologies.

Notes
1. A more detailed look at some of the resources and types of activities created under the project is available in a short video of examples in action, see http://www.youtube.com/watch?v=eNKVd5RS6ak

References


