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Implementing tasks with interactive technologies in classroom Computer Assisted Language Learning (CALL): towards a developmental framework

Vers un cadre de développement pour la mise en œuvre de tâches à l'aide de l'apprentissage des langues assisté par ordinateur (ALAO)

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Abstract

Classroom foreign language teachers using technology in task-based language teaching (TBLT) may experience pedagogical regression during technological development (Fullan, 2001), and fail to transform pedagogy because tools like interactive whiteboards (IWBs) support traditional as well as newer approaches (Avvisati et al., 2013). IWB-supported teacher education in TBLT must therefore develop new technological know-how and encourage pedagogy often also experienced as innovative. This study used questionnaire, video, and interview data from 9 French EFL teachers contributing to a website for IWB-supported TBLT to explore a) teachers' IWB use; b) task versus non-task-oriented activities; and c) teachers' IWB confidence and engagement. Results suggest three developmental stages: 1) restricted IWB use, little techno-pedagogical development; 2) improvement in technical but not pedagogical skills; and 3) high IWB fluency, greater pedagogical engagement, and some more task-oriented teaching. A starting point for a developmental framework, these findings also suggest need for more pedagogically oriented teacher support.

Résumé

Les instructeurs en langue étrangère utilisant en classe la technologie pour l'enseignement des langues basé sur les tâches (ELBT) peuvent connaître une régression pédagogique lorsqu'ils apprennent à maîtriser la technologie (Fullan, 2001) et ne pas réussir à transformer leur pédagogie, les outils tels que les tableaux blancs interactifs (TBI) appuyant tout autant les approches traditionnelles que les approches plus récentes (Avvisati et al., 2013). La formation des enseignants utilisant les TBI dans le cadre de l'ELBT doit donc développer de nouveaux savoir-faire technologiques et encourager une pédagogie souvent perçue comme innovante. Cette étude utilise un questionnaire, une vidéo et les données d'entrevues de neuf professeurs francophones d'anglais langue étrangère contribuant à un site Web pour l'ELBT soutenu par les

TBI, afin d'explorer a) l'utilisation des TBI par les enseignants ; b) les activités fondées sur des tâches eu égard à celles qui ne le sont pas ; et c) la confiance et l'investissement de l'enseignant dans les TBI. Les résultats suggèrent trois stades de développement: 1) l'utilisation limitée des TBI et un faible développement techno-pédagogique; 2) l'amélioration des compétences technologiques, mais pas des aptitudes pédagogiques ; et 3) la maîtrise des TBI, un plus grand investissement pédagogique, et un enseignement davantage orienté vers les tâches. Points de départ pour un cadre de développement, ces résultats suggèrent également le besoin d'aider davantage les enseignants sur le plan pédagogique.

Introduction

Many readers of this journal are likely to agree with computer-assisted language learning (CALL) expert Colpaert (2013) that "if your teaching is good nowadays it will include technology." Unfortunately, the converse - if your teaching includes technology, it will be good - does not follow. A large body of education research documents the difficulties involved in technology integration and the frequent failure of learning technologies to transform pedagogy and learning outcomes (Lee, 2013). For a variety of reasons, many teachers are more likely to incorporate new technologies into existing practice rather than exploit their affordances in new pedagogical directions. The same is true of language teaching methodologies. While a good deal of recent language education research underscores the theoretical interest and pedagogical effectiveness of communicative language teaching (CLT) and task-based language teaching (TBLT), there is also evidence of practitioner resistance to and subversion of these newer teaching approaches when imposed from above (Van den Branden, van Gorp & Verhelst, 2007a; Butler, 2011). Thus integrating technology into task-based approaches to teaching represents a double challenge for language teachers.

The research presented in this study is based on a large-scale teacher education project which sought to support language teachers in using the interactive whiteboard (IWB) for CLT and TBLT: iTILT (interactive Technologies In Language Teaching; http://itilt.eu). The project aimed to provide professional development for participating teachers, obtain research insights into teacher practice and reflection, and generate examples of IWB-supported language teaching for other teachers and trainers which are both "consistent with current models of foreign language teaching" and help "make the most of IWBs and the new technologies in today's language classrooms" (Whyte, Cutrim Schmid & van Hazebrouck, 2011, p. 5). The present paper focuses on teachers of English as a Foreign Language (EFL) in French school settings, many of whom were new to both the IWB technology and the TBLT framework. It aims to explore teacher development in both integrating technology into classroom practice and reflecting on pedagogical issues drawing on classroom data and participant commentary.

Research on the IWB and TBLT with technology

As suggested in the introduction, although "language teachers are under pressure to integrate both new technology and new pedagogy in their classrooms" (Cutrim Schmid & Whyte, 2012, p. 66) there is a tendency for teachers to assimilate both technological and pedagogical innovations

into existing practice rather than to adapt their teaching in order to accommodate new affordances and learning objectives. In the following review of the literature, IWB research and technological implementation of TBLT are examined in turn.

The IWB in Language Education

The IWB consists of a large touch-sensitive display connected to a computer and video projector to allow the manipulation at the board with a finger or stylus of any computer programme or internet application for collective viewing. A substantial body of general education research into the impact of the IWB on classroom practice and learning outcomes conducted over the past ten years shows the potential of this tool for integrating multimodality, increasing the pace of lessons, and improving motivation (see Cutrim Schmid & Whyte, 2012; Hillier, Beauchamp & Whyte 2013, for recent overviews). This research also reveals that although most teachers are able to begin using the tool relatively easily, since it fits with most pedagogical models (Avvisati et al., 2013), sustained support is necessary to ensure greater pedagogical effectiveness. Indeed, Glover et al. (2007) and Cutrim Schmid (2010) have claimed that "only once technical competence is achieved do teachers look for pedagogical advantages" (Cutrim Schmid & Whyte, 2012, p. 68). Beauchamp (2004) developed a transition framework to capture typical stages in teachers' adoption of IWB affordances, moving from the use of the IWB as no more than a chalkboard substitute towards more technically and pedagogically interactive options.

Other studies have investigated the relationship between general technological fluency[1] and IWB-specific confidence among teachers. In a baseline questionnaire administered at the start of the iTILT project, teachers claimed greater confidence with ICT in general than with particular IWB tools and features (Hillier, et al., 2013, pp. 12-13). Interestingly, however, they saw the value of learner use of the IWB: in contrast with Beauchamp's (2004) finding that only the most advanced IWB users gave learners access to the IWB, even the novice IWB users in this study wanted their learners to manipulate the IWB. The authors conclude that a "lack of self-efficacy with the various IWB tools does not necessarily affect teachers' appreciation of the opportunities for interactivity offered by the IWB, or prevent learner use of it" (Hillier et al., 2013, p. 16).

Nevertheless, early research findings from the iTILT project revealed a rather "conservative or cautious approach to IWB use for language teaching" (Whyte, Beauchamp & Hillier, 2012, p. 325). The subset of French and Welsh primary teachers in this study used only a narrow range of basic IWB tools and features for circumscribed teaching objectives (often subskills like pronunciation and vocabulary), and most frequently with one learner at the IWB before the whole class. There were no differences between experienced and novice IWB users. Further research has highlighted similar instances of conservative practice in teachers' choice of IWB-supported learning activities. Whyte, Cutrim Schmid, van Hazebrouck Thompson and Oberhofer (2013) found that "in spite of the CLT training that was provided before data collection, teachers sometimes chose video clips showing grammar-translation, grammar lecture, or drilling which

[1] In early work on this topic Resnick, Rusk and Cook suggest "technological fluency involves not only knowing how to use technological tools, but also knowing how to construct things of significance with those tools" (1998), while Barron and colleagues include the ability "to adapt computing tools creatively" (2009, p. 56). Here we refer to ease and effectiveness of tool use in the classroom.

conflicted with researchers' notions of 'good' or 'best practice'" (p. 15). This brings us to research and practice related to CLT and TBLT.

Technology in TBLT

Much has been written about the definition of the term "task," the implementation of TBLT, and its relation to CLT, both in theoretical terms (Ellis, 2003; Narcy Combes, 2006; Robinson, 2011) and from the practitioner's standpoint (Littlewood, 2004, 2007; Savignon, 2007; Ortega, 2012). This discussion is beyond the scope of the present paper, which adopts Reinders' (2008) uncontroversial summary of generally accepted criteria whereby a task involves a plan for a learning activity with a primary focus on making meaning. It involves real-world authentic language use and engages learners in cognitive skills in order to produce a defined communication-based learning outcome (p. 3). However, a note of caution is required in applying TBLT in school settings. As Ellis (2006) points out, TBLT requires learners "to forget where they are and why they are there and to act in the belief that they can learn the language indirectly through communicating in it rather than directly through studying it" (p. 31).

Narcy Combes (2006) goes further in defining a task as "*un ensemble d'actions réalistes pour aboutir à une production langagière « non-scolaire »"* or "a group of realistic actions leading to the production of language which is *not simply a pedagogical exercise*" (emphasis added). Like Ellis, Narcy Combes distinguishes task-oriented activities from pedagogical exercises in terms of factors such as goals, language use, and outcomes. In a task, the goal involves a meaningful purpose for language use while the aim of an exercise is to practice language forms. Tasks use authentic, unscripted language while exercises are more likely to focus on planned production. The outcome of a task should be judged in terms of communicative success while an exercise will be evaluated in terms of linguistic accuracy and complexity, for example.

While it is a straightforward matter to devise tasks for adult learners who have specific goals and needs beyond the classroom, what constitutes a real-world activity for school pupils in foreign language settings? Since school, with its steady diet of pedagogical exercises, is a major component of the real world for these learners, it seems necessary to refine Reinders' task definition to modify two criteria. Speaking to the question of cognitive skills, we suggest the task should be worth doing in the native language, while with respect to the real-world constraint, it may involve activities typical in non-language classes or outside the school setting.

Different facets of research in TBLT with technology are receiving increasing research attention (e.g., two collective volumes with a strong orientation to distance contexts: Thomas & Reinders, 2010; Van den Branden, van Gorp & Verhelst, 2010b). Of relevance to the present study is work on teacher education which generally supports Van den Branden and colleagues' analysis:

> Teachers do not act in a vacuum […A]ll of them function in a specific educational, cultural and political context that may strongly limit the pedagogical space in which they move. As a result, many teachers will be strongly inclined to change the task-based syllabus (rather than vice versa) and mould it so as to fit their own personal blend of pedagogical beliefs. (2010b, p. 5)

The role of the teacher is important in both designing and implementing learning tasks: what Breen (1987) calls *task as workplan* and *task as process*. Just as Allwright (1984) compared the

"plan" and "reality" of a syllabus, so Breen distinguishes "the original task-as-workplan," corresponding to teachers' objectives, or "what [they] intended or hoped the task would achieve," from "the actual task-in-process," or "what happens during language learning tasks" and "the ways learners interpret a workplan." (p. 335). The goals of a task are generally laid out by the teacher in designing the task, as part of the task-as-plan. The language used in the task may also be part of task-as-plan, in input provided to learners, for example. However, learners also have a contribution to make in choosing language forms to use, making this part of task-as-process. The same is true of task outcomes, which are part of task-as-plan insofar as teachers communicate expectations about task completion, yet part of task-in-process in terms of learner interpretation of tasks and teachers' ultimate evaluation of outcomes.

In a study of IWB use by primary and secondary EFL teachers in France and Germany, where there is pressure to adopt constructivist and task-based approaches consistent with the Common European Reference framework, Cutrim Schmid and Whyte (2012) examined task-as-plan. They found more examples of traditional and behaviourist activities (songs, drills, routines) than communicative activities such as guessing games, or task-based and project-based learning and concluded that "most of the participating teachers used the IWB in ways that did not reflect clear pedagogical transformation towards constructivist practices" (p. 83). In research on pre-service teaching training, Raith and Hegelheimer (2010) conducted a qualitative analysis of student reflections on their own implementations of TBLT (task-as-process) during teaching practice. The study highlighted limitations in these novice teachers' abilities to evaluate their teaching in terms of the TBLT framework, and the authors concluded that "a more guided reflection process is needed to support the development of TBLT competencies" (p. 167).

It is clear from the preceding literature review that more research in teacher education is required, with respect both to technology uptake and to pedagogical beliefs. Moreover, much task-based CALL research has been conducted in distance and hybrid environments. Learning technologies are also widely used in face-to-face settings, and Müller-Hartmann and Schocker von Ditfurth note that "we are still lacking classroom-based research, however, in primary and secondary schools" (2010, p. 35). The iTILT project has provided an opportunity to fill this gap and the means to investigate the role of the teacher in classroom CALL by focusing on IWB-supported language tasks.

Method

Data for the study were collected from nine teachers of English as a foreign or modern language in France in the course of a 28-month European Lifelong Learning project whose aim was to create an open educational resource to support CLT and TBLT-oriented language teaching with the IWB.

Participants

In keeping with the project goal of covering a broad spectrum of educational sectors, the French team included four primary, two lower secondary (*collège*), two upper secondary (*lycée*) teachers, and one teacher educator (*IUFM*), all working with EFL. Background information including participants' teaching experience and IWB use, as well as their classroom contexts is given in Table 1.

Table 1 shows the participants had different levels of teaching experience, though most had limited experience with an IWB; while some had participated in previous research projects or collaborated professionally, none of the group worked in the same school or town, or knew many of the other participants before the start of the project.

Table 1:
Background information on French iTILT teachers

Teacher	M/F	Age (yrs)	Teaching Experience (yrs)	IWB Experience (yrs)	Educational Level	Age of Learners (yrs)
A	F	40+	>20	2-3	Primary	9-10
B	F	40+	>20	2-3	Primary	8-9
C	F	20+	<10	0-1	Primary	7-11 (multi-level rural)
D	F	30+	<10	2-3	Primary	7-12 (special education unit)
E	F	30+	<10	0-1	Lower Secondary	11-12
F	F	20+	<10	2-3	Lower Secondary	11-12
G	M	50+	>30	0-1	University	20+
H	F	40+	>20	0-1	Upper Secondary	16-17
I	M	30+	>10	4-5	Upper Secondary	15

Data Collection

The research protocol for the French team covered initial training, classroom data collection, and ongoing researcher-teacher collaboration. The teachers were trained in their own teaching contexts on their own brand of IWB, using a) a 40-page training manual developed specifically for the project to cover technical aspects and pedagogical examples of IWB-supported language teaching[2] and b) sample electronic IWB resources appropriate to teachers' own learners, also developed in the project as examples of complete, self-contained learning scenarios or teaching units constructed along TBLT principles and including explanatory notes.[3] To obtain classroom practice data, EFL lessons were then filmed twice during one academic year, each session followed by learner focus group interviews; short video examples of IWB-supported language teaching were selected for the project website via video-stimulated reflective (VSR) interviews with each teacher. Finally, teachers were supported throughout the project via a) teacher focus group meetings where initial video data were shared and a beta version of the website tested, and b) an online community where project researchers, teachers and graduate students shared video diary entries, links and updates using a private circle on Google+. Different aspects of this collaborative action research protocol are described in more detail elsewhere (Whyte et al., 2011; Alexander, 2013; Whyte & Alexander, 2013; Whyte et al., 2013).

[2] http://www.itilt.eu/itilt-training-handbook
[3] http://www.itilt.eu/teaching-materials

Data and Research Questions

The data collected consists of

- 56 short (2-3 minute) videos of classroom activity at the IWB
- 16 semi-structured VSR teacher interviews and learner focus-group interviews (audio-recorded and transcribed)
- teacher questionnaire data (pre- and post-intervention attitude questionnaires, feedback on initial video data)
- focus group and online community contributions (group interviews, audio-recorded and transcribed, and Google+ posts).

The present study focuses on the classroom practice videos, using interview and questionnaire data to support interpretations of these data in answer to the following research questions.

1. How do teachers use the IWB in terms of allocating access to the IWB, defining teaching objectives, and exploiting specific affordances?
2. What kind of teaching and learning activities do they choose to present, and to what extent do these activities meet task-based criteria?
3. How do these uses of the IWB reflect the evolution of teachers' technical skills, pedagogical beliefs, and engagement in professional development over time?

Analysis and Discussion

This study takes a mixed methods approach to data analysis, combining a quantitative investigation of teachers' use of the IWB and responses to questionnaires on their attitudes and beliefs with qualitative perspectives as expressed in interviews and focus group sessions, as well as via the collaborative online platform.

Classroom use of the IWB

IWB use: access, objectives and affordances. As part of the wider iTILT project, all 267 video clips of classroom practice collected in 81 language sessions by 44 teachers in 7 countries were tagged in the project database to allow website users to search the collection (cf Whyte et al., 2013). Some of these metadata involved straightforward tags for native and target language, learner age and proficiency level. Other aspects of classroom practice were also coded to allow fine-grained searches of the video collection by teachers and teacher educators, and analysis of these data provides an interesting snapshot of IWB use among teachers in the project. Three areas of relevance for IWB-supported language teaching were coded: who manipulates the IWB, for what teaching objectives, and using which IWB tools and features? Categories were defined based on previous research and researchers' experience in teacher education, then refined via the double coding and discussion of a subset of 27 videos from the first round of films for 8 teachers (Whyte et al., 2012). The video clips in the French data set were also independently coded by at least two researchers with differences resolved through discussion (Alexander, 2013).

Results for the first rubric concerning who uses the IWB are given in Table 2. This table shows the total number of video clips of classroom practice by the nine French teachers: 27 for the first round of filming, and 29 for the second (total = 56). The videos were coded for each of 4 types of teacher use of the IWB (whole class instruction, whole class discussion, etc.) and 5 types of learner IWB use (individual activity at the IWB, pairwork, etc.) and both raw scores and percentages are shown. Subtotals for teacher-centred and learner-centred IWB use are calculated by expressing the number of clips coded for each as a percentage of the total (e.g., 46 learner-centred clips out of a total of 56 gives 82%). Note that "plenary," "stationwork," and "roleplay" are supplementary descriptors coded in addition to another category, and so are not included in the overall totals.

Table 2:
Participant Configuration: who has access to the IWB?

PARTICIPANT CONFIGURATION	**Round 1**		**Round 2**		**Total**	
	N=27	**%**	**N=29**	**%**	**N=56**	**%**
4 TEACHER-CENTERED total	*5*	*19%*	*5*	*17%*	*10*	*18%*
Whole class instruction	2	7%	4	14%	6	11%
Whole class discussion	2	7%	0	0%	2	4%
Whole class questioning	1	4%	1	3%	2	4%
Plenary	1	4%	1	3%	2	4%
5 LEARNER-CENTERED total	*22*	*81%*	*24*	*83%*	*46*	*82%*
Individual activity at IWB	20	74%	20	69%	40	71%
Pairwork at IWB	0	0%	1	3%	1	2%
Groupwork at IWB	2	7%	3	10%	5	9%
Stationwork	1	4%	5	17%	6	11%
Roleplay	2	7%	2	7%	4	7%

This analysis shows that the teachers overwhelmingly chose practice examples with one learner at the IWB, with few clips showing teacher use or pair or group-work. Whole class instruction was seen only in primary classes, while whole class discussion featured exclusively in upper secondary sessions. Group work and stationwork (groups rotating round several activities) occurred only in primary or student teacher sessions (which involved pre-service primary teachers). The proportion of learner-centred examples did not change over time, and confirms findings from pre-training attitude questionnaire data where iTILT language teachers, unlike the generalist teachers investigated in Beauchamp (2004), expressed willingness to allow learners to manipulate the IWB despite their own sometimes low levels of IWB confidence (Hillier et al., 2013).

The second coding rubric involved teaching objectives and results are shown in Table 3. Since a given video clip often included activities involving more than one language area, total coding figures generally exceed total numbers of clips.

Table 3 shows that the teaching objectives of the activities in the selected video clips were fairly evenly divided across the four skills and subskills, and that the most common were vocabulary, listening and speaking. A breakdown of these totals by teaching context (primary, secondary, etc.; not shown) indicates that 27 of the 38 instances in Table 3, or 71% of vocabulary examples were chosen by the 4 primary teachers. The same is true for listening (20/28 or 71%), and these activities also became much more frequent by the second round of filming (33% to 66%).

Examples of speaking came predominantly from lower secondary classrooms and student teacher training; respectively 77% and 71% of clips chosen by those teachers involved this language skill.

Table 3:
Teaching objectives: what skills are in focus?

LANGUAGE AREAS	Round 1		Round 2		Total	
	N=27	%	N=29	%	N=56	%
4 SKILLS	33	51%	43	52%	76	52%
listening	9	33%	19	66%	28	50%
speaking	13	48%	13	45%	26	46%
reading	4	15%	6	21%	10	18%
writing	7	26%	5	17%	12	21%
SUBSKILLS	32	49%	39	48%	71	48%
pronunciation	8	30%	9	31%	17	30%
vocabulary	17	63%	21	72%	38	68%
grammar	3	11%	4	14%	7	13%
spelling	2	7%	5	17%	7	13%
other	2	7%	0	0%	2	4%

The final level of coding concerned the specific affordances of the IWB, or which tools and features were used in the classroom excerpts. These elements can be divided into objects, which are generally embedded into IWB file pages during the preparation of materials, and actions, which refer to participant activity during class. Table 4 suggests that the excerpts selected for the project website showed a balance between embedded objects and participant actions; indeed only one teacher never used IWB software and confined her tool use essentially to the pen.

Table 4:
Tools and features: which affordances are exploited?

IWB TOOLS & FEATURES	Round 1		Round 2		Total	
	N=27	%	N=29	%	N=56	%
OBJECTS total	27	51%	34	47%	61	48%
Image	16	59%	19	66%	35	63%
Sound	6	22%	13	45%	19	34%
Interactive Object	4	15%	1	3%	5	9%
Other	1	4%	1	3%	2	4%
ACTIONS total	26	49%	39	53%	65	52%
Hide & Reveal/Spotlight	4	15%	9	31%	13	23%
Drag & Drop	10	37%	7	24%	17	30%
Pen	8	30%	9	31%	17	30%
Other	4	15%	14	48%	18	32%

According to Table 4 the most popular IWB tool or feature in the video clips chosen by teachers was embedded images, which featured in 83% of primary clips. Image use was followed by sound, which was more frequent by the second round of filming (22% to 45%) and again favoured by primary teachers (used in 52% of their clips; not shown). This development in use of embedded audio over the course of the project occurred in tandem with an increase in the

teaching of listening (Table 3) as three of the four primary teachers learned how to insert audio files using IWB software. In terms of IWB tools and features to permit actions, the most common were the pen tool, used in over half of both lower and upper secondary school videos, and the drag and drop function, which allows users to move objects on a given page. The "other" category in the final row of Table 4 represents a summing of incidences of a range of different tools and features (e.g., ad hoc and content marking, which constitute further, different uses of the pen tool) none of which occurred more than 7 times over the two filming sessions.

The coding of these videos under the three different rubrics just described thus provides a clear picture of the teachers' classroom practice with the IWB. In terms of IWB tools and features, the teachers showed a balance between embedded objects and participant actions, though they restricted both to a narrow range of the most basic possibilities. The practice examples they selected most frequently concerned speaking and listening activities, with vocabulary for younger learners, and overwhelmingly showed a single learner or series of learners at the IWB in front of the whole class. Aside from the embedded audio for listening activities mentioned above, there was little development in IWB use across the three coding rubrics for the group as a whole between first and second filming sessions (a period of some four months).

Teaching and learning activities: is there a TBLT orientation? Moving beyond the tagging system designed to help teachers and trainers using the project website to filter online content efficiently, it is important to consider the teaching and learning activities selected by teachers for inclusion in the collection as examples of good practice. While the principles of CLT and TBLT were mentioned during initial training and featured prominently in the manual and teaching materials discussed and shared with teachers, it is understandable that in the early stages of the project, technical issues regarding the IWB hardware and software tended to take precedence over pedagogical issues. All teachers designed activities and prepared materials for the filmed lessons according to their own preferences and priorities, though with a view to sharing both video excerpts and IWB files on the project website. The video episodes selected in collaboration with each teacher thus correspond relatively closely to their own views on effective IWB-supported teaching activities.

When the activities in the 56 video examples are analysed in TBLT terms, it is immediately apparent that very few meet a full range of strict task-based criteria. Table 5 compares task-oriented activities with pedagogical exercises in terms of the **goals** of each (creation of a meaningful context for language use versus practising language forms), the way **language** is used (authentic, unscripted language versus planned, error-free production), and the **outcome** of activities (communicative success versus accurate language use). Using a binary coding system which awards 1 or 0 for each of these three criteria in each activity, only 7 activities from 3 teachers can be judged to constitute tasks (3 points).[4] However, many activities designed, implemented and selected by teachers did meet one or more of the three criteria, and some of these are briefly described in the appropriate cell of Table 5.

[4] Videos were independently coded by two raters with an interrater reliability of 93.4%.

Table 5:
Examples of task-oriented teaching activities and pedagogical exercises

	TASK-ORIENTED ACTIVITY			PEDAGOGICAL EXERCISE		
	Focus	*Criterion*	*Example*	*Focus*	*Criterion*	*Example*
Goal	task-as-plan	activity is embedded in a meaningful context	primary learners draw random images of school supplies from a magic schoolbag to learn new vocabulary http://www.itilt.eu/iwb-practice?id=441	pedagogical objective	activity is designed to test or practice specific language forms	primary learners review animal vocabulary by naming images drawn randomly from magic box http://www.itilt.eu/iwb-practice?id=212
		it is cognitively challenging, worth doing in native language	lower secondary learners drag icons to represent their own pre- and post-school activities into table http://www.itilt.eu/iwb-practice?id=163		no context supplied for language learning	lower secondary learners use symbols and images to support speaking where correct utterances earn points in team game http://www.itilt.eu/iwb-practice?id=402
Language	task-as-plan	unscripted input, learner choice	student teachers use IWB software to support oral production and comprehension in summarising selected sections of video http://www.itilt.eu/iwb-practice?id=263	planned language practice	practice of pre-defined vocabulary, expression or structure	upper secondary learners listen for particular features (words, errors) in learner audio recording http://www.itilt.eu/iwb-practice?id=393
	task-as-process	teacher support for communication in target language	student teachers move jigsaw pieces into place to show listening comprehension; teacher focuses on meaning, not language form http://www.itilt.eu/iwb-practice?id=264	exclusive focus on accuracy	identification of learner errors, repetition of correct responses	upper secondary learners listen to one student read from a vocabulary list to notice and correct pronunciation errors http://www.itilt.eu/iwb-practice?id=365
Outcome	task-as-plan/ task-as-process	success is judged in communicative terms: comprehension or appropriate production	primary learners consult hidden answer key to check collaborative labelling of image http://www.itilt.eu/iwb-practice?id=164	correct, accurate language comprehension or production	evaluation of learner, correction of errors	primary learners use rebus to support speaking for oral evaluation http://www.itilt.eu/iwb-practice?id=262
			upper secondary learners role-play a debate on environmental issues http://www.itilt.eu/iwb-practice?id=392			upper secondary learners writing sentences to practice possessive form http://www.itilt.eu/iwb-practice?id=390

Table 6:
Teacher commentary on task-oriented activities versus pedagogical exercises

Task-Oriented Activity		**Pedagogical Exercise**	
Example	*Teacher justification*	*Example*	*Teacher justification*
primary learners use audio cues to help position an image according to the preposition used http://www.itilt.eu/iwb-practice?id=417	I think it's a situation of real communication. Because you have to hear, and to listen to a sentence. And they have to understand, and they have to do. So I think it's real. Not only a word. Because most of time, they just say "bear". There's no sense. So I think it has to make sense. So I think it's a good thing.	upper secondary learners listen to one student read from a vocabulary list to notice and correct pronunciation errors http://www.itilt.eu/iwb-practice?id=365	That was quite good! Two big problems, the "i" and the "ed". "Items." She said [ɪtemz] and Pupil 1 heard her say - it should have been [aɪtemz]. Pupil 2 got [draʊnd]] […] Listening carefully to avoid recurring errors with syllables that are always a problem. And that's why I like those two examples [draʊnd] and [aɪtem]. Just sounds that they are going to systematically be tempted to do the wrong way - and try to get them to recognize the fact that "Ah, there's the problem - you've got to be careful there." […] They read, listen, highlight. It's repetition, but then I don't have to worry about either photocopies or scratch paper or whatever.
one student primary teacher tutors a small group of peers in using the IWB in preparation for a class presentation in relation to a teaching placement abroad http://www.itilt.eu/iwb-practice?id=347	I'm sending my students to England, Liverpool, next year for a work placement. […] So they're going to teach English pupils, in English, and they're going to teach mathematics, PE, history, geography, in English. So I'm trying to prepare them for this work placement. And as you may know or not, in England, a lot of classrooms are equipped with whiteboards. […] So my objective is to teach them the strategy of teaching in English - math, in English, also the use of the interactive white board.	lower secondary learners use images to support practice of two grammatical structures http://www.itilt.eu/iwb-practice?id=412	I think it makes it less painful. Because all the info is just there, in front of them. So the drilling is not as painful as it can be sometimes […] Here, they have the adjectives, they're ready, they have the pictures, so they know what the picture means and what it is. […] and the drilling is also part of language learning […] It depends on what you are focusing on. […H]ere for example, I'm focusing on what? On the use of "more" + adjective + than, and the use of adjective + -er + than. That's what I'm focusing on.
a group of primary learners place labels on a large image of a girl to name body parts http://www.itilt.eu/iwb-practice?id=164	They take the pen and they look. They have the labels on the left and they put all the labels in the right place, and the others say if it's right or wrong. They correct if it needs to [be done] and then at the end they correct with the curtain. It's important because they are not alone in front of the board and all together they give their opinion and it was all correct for the 3 groups.	primary learners erase ink to reveal hidden animals for vocabulary practice http://www.itilt.eu/iwb-practice?id=213	We repeat, and repeat it - they will try to guess, so we hear different words, different names of animals. And finally, we repeat and repeat and repeat, and they learn it. They remember it.

The teacher who produced the highest proportion of task-oriented activities (5/7 meeting all three task criteria, the remainder meeting two out of three) was Teacher G, the university EFL teacher and TEFL trainer, whose learners were pre-service primary teachers. Primary practitioners B and D also implemented activities which met the three task criteria, though only D produced a range of task-like activities. The teachers who did not design task-oriented activities (selecting exercises which generally met no task criteria) were the two lower secondary practitioners, E and F, and C, a newly qualified primary teacher. The remaining teachers A, H and I implemented both task-oriented activities (which met one or two criteria) and pedagogical exercises. Table 6 provides illustrative comments that highlight differences in teacher thinking behind the design and implementation of task-like activities versus pedagogical exercises.

The activities on the left of Table 6 are described in terms of "real communication," real-world imperatives, and collaboration, while for the pedagogical exercises on the right, the teachers' focus is on "recurring errors," grammatical structures, drilling and repetition. In order to explore possible explanations for these differences in their choices of activities and exercises, the next part of the study looks more closely at individual teacher profiles and reflective data obtained during the collaborative aspects of the project.

Teacher Development Over Time

Data on the evolution of teachers' technical skills and pedagogical beliefs were obtained through questionnaire responses and by analysing participants' involvement in the online collaborative aspect of the project. In what follows each is presented in turn.

IWB attitude: self-efficacy perceptions and affordances. Teachers' perceptions of their own confidence using the IWB as well as their convictions about its effectiveness with respect to learners' engagement and motivation in lessons were measured before initial training and again at the end of the project using the same questionnaire. Teachers were asked to indicate their level of agreement on a 5-point Likert scale (1 = strongly agree, 5 = strongly disagree) with 40 statements concerning their use of the IWB and also general ICT habits (See Hillier et al., 2013 for more details of the questionnaire). Scores for each teacher on the items most relevant to the present study are given in two columns corresponding to pre- and post-intervention responses in Table 7. This table gives an overview of teachers' views on their use of the IWB, their ICT confidence, the IWB confidence, and their convictions regarding the value of the IWB.

The data in Table 7 can be judged to reveal two distinct teacher profiles: teachers who strongly believed learners should manipulate the IWB and who were very confident in their own IWB skills from the beginning of the project, (highlighted in green) and teachers who gained a large measure of confidence in their IWB skills using various tools and features over the course of the project (yellow). At the start of the project, while the majority of teachers were fairly confident in their ICT skills and (except for Teacher H) convinced of the utility of the IWB for language teaching, Teachers D and F showed the strongest convictions regarding learner IWB use and the greatest self-efficacy perceptions of their own abilities to use the IWB, neither of which waned over the project lifetime. Teachers A, C, E and H, in contrast, rated their abilities to use three to five basic tools and features much higher at the end of the project than at the start, suggesting meaningful development of technical skills. A change in Teacher H's perception of the utility of

the IWB in engagement and motivation and her sanctioning of learner IWB use was also recorded.

Table 7:
Pre- and post intervention ICT and IWB self-efficacy perception

Teacher	A		B		C		D		E		F		G		H		I
IWB USE																	
access to IWB	1	**1**	1	**1**	1	**1**	1	**1**	4	**5**	1	**1**	1	**1**	1	**3**	1
use for FL	4	**1**	2	**2**	3	**1**	3	**1**	4	**2**	4	**3**	3	**1**	5	**5**	1
learner use	2	**1**	2	**2**	3	**1**	1	**1**	2	**1**	1	**1**	2	**1**	5	**2**	3
ICT CONFIDENCE																	
find IWB resources	3	**2**	3	**3**	4	**3**	3	**1**	4	**3**	3	**1**	2	**2**	3	**1**	1
internet use	1	**1**	1	**2**	2	**2**	1	**1**	1	**1**	1	**1**	2	**1**	1	**1**	1
create materials	1	**1**	3	**2**	2	**2**	4	**1**	1	**1**	1	**1**	2	**1**	1	**1**	1
IWB CONFIDENCE																	
pen	1	**1**	2	**2**	3	**1**	1	**1**	1	**1**	1	**1**	3	**1**	3	**1**	1
eraser	1	**1**	2	**2**	3	**1**	1	**1**	4	**1**	1	**1**	1	**1**	6	**1**	1
drag/drop	3	**1**	1	**2**	6	**1**	1	**1**	4	**1**	1	**1**	1	**1**	5	**2**	1
audio	4	**1**	3	**3**	2	**1**	1	**1**	4	**1**	1	**1**	2	**1**	5	**6**	1
images	4	**1**	2	**2**	4	**1**	1	**1**	4	**2**	1	**1**	2	**1**	5	**2**	1
IWB CONVICTIONS																	
engagement	1	**1**	1	**2**	2	**1**	1	**1**	1	**1**	1	**1**	1	**1**	6	**2**	3
motivation	1	**1**	1	**2**	2	**1**	1	**1**	1	**1**	1	**1**	1	**1**	6	**2**	1

Project engagement: contributions to online collaborative space. Since all nine teachers were working in geographically disparate and pedagogically distinct contexts, an online collaborative space was set up using the then newly accessible Google+ platform which allows the private sharing of posts, comments, links and audiovisual materials (photos, audio files, videos) among members of a group or "circle" in an anti-chronological "stream." Teachers were invited to post short video diary entries at regular intervals, as well as any questions, comments or links they wished to share with the goal of increasing general ICT skills, as well as opportunities for support and exchange among researchers and practitioners. Over the ten-month data collection period, over 250 contributions were logged in the stream by the nine teachers, two members of the research team, and two graduate students associated with the project. Two thirds of these contributions came from the research team in the form of video prompts, project updates, and comments on teacher contributions. The remaining third came from the teachers themselves, and participation patterns varied across teachers but also over time, with peaks of activity corresponding to face-to-face events during data collection: the first class films, a mid-project meeting to share the first videos, the second filming, and a second sharing session.

Teachers' video contributions, either uploaded by teachers from home or recorded with researchers after VSR interviews, were an opportunity for participants to reflect on their own preoccupations in teaching with the IWB. The excerpts shown in Table 8 illustrate the range of topics explored by teachers.

Table 8:
Examples of video diary contributions

CATEGORY	TEACHER COMMENT
Teaching	For this year I would like to have more time to create files for the IWB. The class works with three groups and children now have enough autonomy so I put audio files on the IWB and they enjoy them. They can repeat and they listen to the audio files. So I find a site with English accent and English or American voices so because my French accent is very hehe so they listen to English voices and I think it's important for them. I work one hour and a half every week and it's just enough because sometimes I've not enough time to summarise the topic at the end of the lesson. To join the three groups and talk about the topic of the day. But all is right I think and I would like to create more files and to put them on the site. But when I work with books it's difficult because of the rights and so I will try to not take pictures without rights and it takes time B
Learning	I've noticed that many pupils tend to make a lot of mistakes when they write the lessons in their copybook. Spelling mistakes which in fact lead to grammar mistakes as well. And of course they learn these mistakes when they learn the lessons and make them over and over again. Many parents complain that they don't know how to help their children learn English because they don't speak English themselves, and I think it could really help them if they could at least trust the copybook. So what I'll try to do is to upload the files more often at least once a week or every day. I think it can really be helpful. F
Project	So that's basically how I work with the IWB and I think if I want to be able to upload this video to Google+ I should stop now. Anyway I'm very happy to be a part of this project because I've started to feel a little isolated in my school. Maybe because it's a small school and also because even if we have three boards it means that we're only 3 teachers to use them. And I'm the only English or even FL teacher to use it so I'm very glad to be able to share with you. F
Technical issues	This has been an interesting and frustrating time for me underlining my reading [on Marc Prensky ...]: digital immigrants who came late to technology like myself may at some point speak digital language fluently however we will always have a heavy accent which is immediately perceptible to a digital native such as the young people around us who manipulate this equipment with ease. So becoming familiar with the interactive whiteboard, not being able to switch it on, not being able to use it in class when I have wanted to has been a learning curve. H
New initiatives	*Pupil video to researcher (D)* Learners: Hello J. Teacher D: Hi J, we have some questions to ask you. So first, it's Pupil 1.

Interestingly, the two teachers who were most active on Google+ (core participants D and F) as shown in Table 9 were also the two who showed the highest levels of IWB self-efficacy beliefs (highlighted in green in Table 7). This finding suggests a correlation between the confidence of technologically fluent teachers and their willingness to participate in further professional development opportunities. Teacher B also shows a relatively high level of participation, as well as stable though slightly lower ICT and IWB confidence (Table 7). Furthermore, the peripheral participants on Google+ H, A and E were among those who showed the most development in IWB skills over the course of the project (highlighted in yellow in Table 7). As Table 9 shows, these teachers did engage with development opportunities, but focused specifically on technical and organisational aspects. These results resonate with previous research suggesting that teachers generally seek to resolve technical issues before turning to pedagogical matters (Glover et al., 2007; Cutrim Schmid, 2010).

Table 8 shows a range of issues raised by teachers, from technical difficulties and comments on the project itself to wider pedagogical questions; Teacher D took the initiative of showing a researcher video to her learners as an example of a native speaker. Levels of teacher engagement with this professional development opportunity also varied, and a quantitative snapshot is

provided in Table 9, where participants are ordered from left to right based on the frequency of their contributions on Google+. Three participant profiles are apparent: **core** participants, shown in green, who posted the most media (video) files and addressed the widest range of issues (teaching, learning, etc.); **peripheral** participants, in yellow, who posted less (fewer videos) and focused on a narrower range of more concrete concerns (technological problems, project organisation); and **less engaged** participants, who posted only with researcher assistance and discussed fewer topics.

Table 9:
Teacher engagement with collaborative online development opportunities

PARTICIPATION	D	F	B	H	A	E	G	C	I
MEDIA	**13**	**7**	**3**	**2**	**2**	**2**	**2**	**2**	**1**
Video	11	3	3	2	2	2	2	2	1
Link	2	4	0	0	0	0	0	0	0
TYPE	**26**	**17**	**5**	**19**	**12**	**8**	**3**	**2**	**2**
Post	15	5	1	10	2	2	0	0	0
Comment	9	10	2	7	7	3	1	0	0
Assisted post	0	1	2	1	2	1	2	2	1
Other	2	1	0	1	1	2	0	0	1
CONTENT	**51**	**30**	**14**	**31**	**15**	**14**	**6**	**5**	**2**
teaching	7	7	4	2	0	2	2	1	0
learning	4	2	2	1	0	0	0	2	0
teacher	3	3	1	3	1	0	1	0	0
learner(s)	11	2	3	1	0	0	0	2	1
technology	5	9	1	13	5	4	2	0	1
project	7	1	2	3	5	3	0	0	0
social	14	6	1	8	4	5	1	0	0

In the last section of this study, we examine in more detail two teachers with contrasting profiles with respect to the analyses conducted so far: one core participant with high IWB self-efficacy who implemented a number of task-oriented activities, and one peripheral participant whose IWB skills and convictions developed over the project and whose teaching involved more pedagogical exercises.

Teacher profiles for IWB development

In the final part of the study the different types of analysis are brought together to show how the development of IWB technical skills and professional reflection over time relate to the IWB-supported examples of classroom practice as well as teachers' own reflections during the project. Two teachers with contrasting profiles are presented: an experienced IWB user and core participant in the project, primary school Teacher D, and another less technologically fluent, more peripheral participant, upper secondary Teacher H.

Novice IWB user: Teacher H. Teacher H was a French-trained American in her forties, had taught upper secondary English for over 20 years, and also had in-service teacher training responsibilities with the local educational authority (*académie*). She was a novice IWB user who undertook to have her classroom equipped with an IWB specifically in order to participate in the

project, and was an active (peripheral) participant in online and face-to-face collaboration. Her pre-project questionnaire responses (Table 7) showed a lack of confidence with many IWB tools and features, and she was the only teacher not to express strong beliefs in the potential of the IWB to engage and motivate learners at the outset.

This teacher experienced a number of difficulties related to the physical installation of the equipment, as well as more customary software teething problems, which slowed the development of her IWB skills and delayed filming (only one class session was recorded). Her comments in Table 10 reflect these frustrations.

The quotes in Table 10 suggest that this teacher's main concern is with the technology itself: her IWB "won't work," is liable to "conk out," and requires "constantly recalibrating." She seems to set high standards for herself, aiming for "very creative," "ambitious," even "spectacular stuff" which must add to the frustration of her "own difficulties in working with the board." She thus finds it "reassuring" to see "authentic," "apply-able" examples of other teachers' classroom practice which she judges to aim a little lower but still have an impact: "injecting [more visual and more kinesthetic] elements into our lessons" though "not necessarily in a highly-focused way." Efficiency is also a concern for this teacher, who welcomes changes which will only take up "a short time in every 50 minute class" and which could be operable “if I take the time” to learn the software.

By the end of the project, Teacher H was more convinced of the value of the IWB, though very confident only with the pen and eraser tools (Table 7). Indeed, this teacher used the IWB in a more restricted manner than many of the other teachers: her classroom video clips showed only a single learner at the IWB, and almost exclusively productive skills (speaking and writing, and the associated subskills of pronunciation, grammar, and vocabulary). Since she did not use specific IWB software, there are no examples of embedded objects, and the main tool use was the pen for writing, highlighting, and drawing tables and diagrams in a wordprocessing file. It seems likely that technical difficulties held back the development of this teacher’s technical IWB skills.

In terms of teaching and learning activities, on the other hand, Teacher H’s four classroom clips included two pedagogical exercises designed to practice grammar and pronunciation, and two task-oriented activities involving authentic language (an extract from a movie trailer) with either a communicative workplan or outcome. Her comments regarding pedagogy in Table 10 suggest ambivalence towards CLT and TBLT. While valuing “a very elite learning system” requiring learners to “concentrate” on “learning by rote” in the belief that “later on that will be beneficial,” she concedes that “that’s not the way kids learn any more;” “they HAVE to be getting up, going to the board” and she acknowledges the value of technology in providing such opportunities efficiently.

Table 10:
Teacher H Commentary

	Comment	*Date*	*Source*
Technology	I am having a very very difficult time trying to positively integrate the technology, first with my fab IWB that won't work when I need it to (again today) and now with Google Plus	Nov	Google+
	I have been able to use the board. I am not very creative with it and my only useful skills so far are flashing up documents that I had already prepared on Open Office and then having the pupils write/highlight on them to do what we would have been doing with photocopies. This saves paper and does make it more generally interactive. […] Saving and reusing everything is also a big advantage. In a nutshell, I have yet to do spectacular stuff, but I'm getting used to using it a bit more and am dealing with the problem of constantly recalibrating due to the vibrations on the videopro from our floppy ceilings.	Jan	Google+
	When [Researcher] came to film, it was a good example of my 'mental limits' when it comes to using it. We did different activities with it and the pupils manipulated it easily and it didn't conk out on me, so everything was fine. But, as usual, I was not comfortable enough with what we were doing to quickly entitle it, save it and then use the board again for the final "trace écrite" which went into the pupil's copybook. I yearned to go back to my familiar old whiteboard and do it the OLD way, so that's what I did. […] That pretty much illustrates where I am at.	April	Google+
Pedagogy	I always feel like I am under-exploiting the board's possibilities because I don't necessarily have the time and skills to do more ambitious things with it. Watching, it all seems to me to come down to the fact that the board obliges Gutenbergists (that most teachers are) to put more visual and more kinesthetic elements into a lesson, that is to say that the pupils HAVE to be looking around, but not necessarily in a highly-focused way. They HAVE to be getting up, going to the board, reaching up, stepping back to look at it, handing the stylus to someone else (trying to get a high-five whilst doing so!)... Even if we do try to inject these elements into our lessons, this only accounts for a short time in every 50 minute class. Using the board seems to make this "moving/seeing" quota shoot up considerably compared to the just listening and concentrating time.	March	First focus group (selected video clips)
	Even after using [the IWB], I still think that using any equipment like this is a defeat for me […] because for me it's a form of dumbing down. Even if it can be very useful, but the classic idea - and it's a racist idea - is that I [= the learner] should be able to sit down and for 35 minutes concentrate on something and realize that it's only later that I might understand the full impact of what's being said or what I'm writing down, or what I'm supposed to be participating in, that it doesn't have to be instantaneous. […] So yeah, it's obviously a very big defeat for the classical idea of learning by rote, learning pattern drills: I can sit here and concentrate on this and later on that will be beneficial to me. But you know, we have to live with the times. And that's not the way kids learn anymore. […] Who wants lots and lots and lots of stuff to memorize? […] You know, like lessons used to be 20 years ago, when you still had the tail end of the very elite learning system.	May	VSR interview
Collaboration	A reassuring look inside other classes that puts the teacher at ease with his/her own difficulties in working with the board.	March	First focus group
	Watching dedicated people doing their work is always a joy and I have seen a lot of clips about education like these, but in this case it gives more directly "apply-able" ideas since these are the same kids I actually work with and I know it's close to home. Very interesting observation of creativity.	June	Second focus group

	Very authentic, creative and interesting, full of good ideas that I could apply right away if I take the time to watch tutorials about set up	June	Second focus group

Experienced IWB user: Teacher D. This teacher profile contrasts sharply with Teacher D, a French primary teacher who began the project with greater IWB experience and a very different pedagogical outlook. Teacher D was in her thirties, with nearly ten years' experience teaching a special education unit in a mainstream rural primary school. She had used an IWB for around 3 years at the start of the project, and expressed high levels of confidence in her IWB skills and strong convictions about the value of the IWB (Table 7). She used the IWB for a broader spectrum of teaching objectives (listening, speaking, vocabulary) and deployed a wider range of tools and features than many other teachers (hide and reveal, drag and drop). Although she came to the project with considerable technological fluency, she also showed development from the first to second rounds of filming: she learned to embed audio files and accordingly devised more listening activities.

Table 11 provides a sample of Teacher D's comments presented according to the same rubrics in Table 10 to facilitate comparison.

While Teacher D also experienced a number of technical difficulties (software bugs resulting in ongoing formatting problems, and numerous crashes with embedded audio during one filmed session), she did not dwell on these in interviews, discussions or on Google+. She tended to make light of problems ("maybe I haven't all the power on the machine!!!") and offered technical assistance to other teachers ("make a shorter video […] just to try"). She appreciated the collaborative opportunities offered in the project for her own development: "I can discover other ways of teaching" and "feel less isolated" (echoing Teacher F in Table 8). However she was also quick to exploit opportunities directly with her learners "I also think [iTILT project] videos can be used with my pupils" and she initiated a video exchange between her class and project researchers as native-speaker models, inspired by the Google+ exchanges.

In terms of pedagogical development, this teacher commented on a wide range of issues related to IWB-supported language teaching, but concentrated particularly on the specific question of learner autonomy with her special education learners. Following a learner focus group activity involving drawings of the English lessons with the IWB, Teacher D began to feel her lessons were too teacher-centred. In the final teacher focus group session she explained how she was struck by the prominence in her learners' depictions of IWB-supported language sessions of both the stylus, representing technical access to the IWB, and herself as teacher, the participant who held the power to grant or deny this access.

Table 11:
Teacher D Commentary

	Comment	*Date*	*Source*
Technology	To answer to your questions, the connection I'm using at school and at home is : 2 mega (256 ko /s) and it takes a certain time to upload the video: 10 at 15 minutes maybe more. I used Windows Movie Player new version to film myself and to make the video with the learning session about Halloween. I think in that case it's probably a problem of connection too low. Maybe it can be good to make a shorter video (few seconds) just to see if the problem goes on with Windows Movie Maker, just to try, because sometimes the videos with personal cameras are too heavy. Sorry not helping more.	November 2011	Google+
	Great ! After so many days, I have the power on my computer, in fact on Windows Movie Maker. So here is my video on my new year's resolutions with the IWB. Sorry [Researcher], I know it's a little bit late but we are still in January, so.... You will excuse me because the sound is very low. Maybe i finally haven't all the power on the machine !!!	January 2012	Google+
Pedagogy	Once past the period of discovery, the children expressed their pleasure and also their need to make the exercises by themselves. So it created something new into the group because the group really federated around a common interest. Not only learn a new language, but also discover countries where we speak in English. So that's the reason we started to make videos to communicate and exchange with [Researcher]. […] And finally, the use of the IWB made me think differently my way of teaching with the goal of bringing more autonomy into the group. So I think the iTILT project is a very good thing for the learners and also for the teachers. So, long life to the iTILT project!	April 2012	Google+
	Et en plus, ça correspondait aussi à ce que les enfants disaient. Parce que moi ils me représentaient avec - alors le stylo, ça c'est absolument géant, c'est comme ça, hein - et moi tout le temps devant. Donc je me suis dis "aie !" Si je suis en frontal, il y a quelque chose qui va pas, quoi. C'est que justement le tableau interactif, il y a cette notion d'interactivité, donc c'est clair moi je suis trop présente. Donc il faut que je trouve une solution pour me mettre un peu de côté, puisque le but c'est qu'eux soient plus autonomes. Et ça s'est fait après.	October 2012	Pilot focus group (website testing)
Collaboration	I wish we can share a lot of things and I wish the project will be very rich not only for the kids of course when we use the IWB but also sharing all the resources and the experiences that we can have.	October 2011	Google+
	It's interesting to watch the other videos at other levels because I can discover other ways of teaching. I also think these videos can be used with my pupils to show them they are not the only kids to learn english with the IWB.	March 2012	First focus group
	voir le commentaire de l'enseignant qui a monté sa séance, qui l'a créé et puis de voir le résultat en vidéo si on lit le commentaire d'abord et de voir ce que ça donne avec les enfants et des fois on est en décalage par rapport à ce qu'on annonce ou alors ça coule complétement […] On se sent moins seule parce qu'on se dit on vit la même chose	October 2012	Pilot focus group (website testing)
	I wish I can continue to contribute to participate in the enrichment of the website, and to have again times of exchanges with the other teachers. I think it's a good opportunity for me to be in training with a connection important on my daily practice. And I think it's an important source of motivation.	November 2012	Google+

Figure 1 shows three learner drawings in which the size of the IWB pens on the right of each IWB is greatly exaggerated. The teacher herself, also on the right of the IWB (dressed in black) is also very prominent in two of the three pictures. This experience led Teacher D to set herself a goal of 'bringing more autonomy into the group," and "finding a solution to get [her]self more on the sidelines, because the objective is for them to be more autonomous" (Table 11). A comparison of classroom video clips between first and second rounds reveals the increase in embedded audio and listening activities already mentioned, but also shows a higher incidence of task-oriented activities. Her three first round clips met one or two task criteria, while the five from the second round all met two or three, particularly in terms of authentic language use by both teacher and learners, and of communicative outcomes, which were absent in the early clips. If increased task-orientation can be equated with greater learner autonomy, then Teacher D successfully implemented activities to match her own goals.

Figure 1. Learner depictions of IWB-supported language teaching from Teacher D's class

The foregoing section thus integrates a variety of different data sources and types of analysis to describe and explain the use of the IWB in the teaching and learning activities of two EFL teachers at different stages of their personal pedagogical and technological trajectories. It highlights a number of challenges facing teachers, as well as opportunities for the integration of technology-supported TBLT, and suggests that particular teacher responses depend on a variety of factors such as technological fluency and self-efficacy beliefs, pedagogical priorities, as well as perceptions of the potential for professional development in projects such as this.

Conclusion

What, then, can be concluded about the impact of a project seeking to support teachers in using technology within the particular pedagogical framework of CLT and TBLT? The findings of this study of EFL teachers in a variety of contexts, with differing levels of teaching experience and technological fluency, as well as particular professional goals, offer a somewhat complex picture of CALL teacher development, as might be expected. An initial analysis of teachers' use of the

IWB to teach EFL showed a fairly conservative or cautious approach to the integration of this tool. They tended to use a relatively restricted range of basic tools and features in the service of a somewhat circumscribed teaching objectives, and although learner IWB access appeared generous, it was overwhelmingly limited to designated individual learners observed by the class group. In keeping with this rather teacher-controlled approach, a second level of analysis of the IWB-supported teaching/learning activities according to TBLT criteria revealed that only two teachers designed and implemented a significant proportion of task-oriented activities. The majority of video examples of IWB-supported classroom language teaching more closely resembled pedagogical exercises with a focus on decontextualised language practice and error correction. Of course the project itself imposed some constraints which limit the generalizability of findings: the teachers were necessarily expected to show IWB-mediated activities (rather than use other technologies, or none); the episodes analysed are selections rather than full lessons; and the project timetable allowed only a few months for development between filming sessions. However, the patterns of IWB use observed were apparent among both technologically fluent teachers and IWB novices, as well as more and less experienced teachers at different educational levels, and in spite of ongoing teacher education efforts to support CLT and TBLT-oriented teaching and learning.

The study sought explanations for individual teacher integration of IWB affordances in data on teacher attitudes and reflection and identified a certain number of connections between the evolution of teachers' technical skills, pedagogical beliefs, and engagement in different aspects of the project. It showed how the classroom practice of one more experienced IWB user evolved in terms of both the technological affordances which were exploited and the task-based orientation of teaching and learning activities. Teacher D seemed developmentally ready to use technology to transform her teaching practice and this paper documents the ways in which her engagement in the project stimulated reflection and subsequent pedagogical change. We might predict that two other teachers - Teacher F and perhaps Teacher B - who also showed signs of developmental readiness in their IWB confidence and engagement as core participants, but whose classroom practice had not changed by the end of the project, may in fact also come to make pedagogical changes related to technology integration. The study also showed how a novice IWB user developed technical skills but seemed less likely to embrace technology-driven pedagogical transformation, due perhaps to ambivalence about CLT and TBLT and conceivably also about the role of technology in education. A similar close analysis of the other teachers presenting similar profiles, Teachers A and E, might be expected to confirm an interpretation of Teacher H's development whereby teachers need to a) reach a certain threshold of technical confidence and b) engage with pedagogical issues of specific relevance to their own contexts before the integration of technology transforms teaching. Such an interpretation would also fit the study's findings with respect to the three remaining, less engaged participants.

Looking beyond the potential of this type of research for the construction of a teacher development framework for the integration of learning technologies which is specific to the language classroom (cf Beauchamp, 2004), this study highlights a need for pedagogical support as well as or - dare we suggest - even *instead of* technology training in language education. Technology acceptance models are often based on perceptions of a tool's usefulness compared to the ease of its use (Davis, 1989), and the CALL research cited earlier suggests that the former often takes precedence, since teachers tend to need to develop technical skills before turning their attention to how a tool could or should be used. But perhaps it is time to turn this tendency

on its head and focus first on usefulness: encourage teachers to use learning technologies because of the teaching and learning potential they offer, rather than on the basis of (usually over-optimistic) ease of use arguments. With this in mind, future empirical research might focus directly on the main affordances of learning technologies for learning and teaching foreign languages, such as live communication with distant speakers of the target language, for example. And on the basis of the findings of the present study, greater attention needs to be accorded to pedagogical concerns, in particular the potential of TBLT to promote effective classroom language learning.

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