Interactive Whiteboards: EFL Teachers’ Practices and Pedagogy in the Greek Reality

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The purpose of this paper is to showcase one particular aspect of information technology, the electronic interactive whiteboard (IWB), with the view to recording the perceptions and practices of teachers who use it in Greek private foreign language centres where IWBs are rapidly adopted as a multimedia teaching tool. The driving force behind this research was to explore the value of IWBs as an instructional tool closely associated with teachers and their pedagogy with the view to drawing conclusions pertaining to successful IWB implementation in education. The research revealed teachers’ satisfaction with most aspects of IWB use but also the need for teachers’ training on using the IWBs to shift their pedagogy towards more interactive, social, student-centred learning.

Ως σκοπός της παρούσας εργασίας είναι να καταδείξει τις αρετές ενός συγκεκριμένου τομέα της πληροφορικής, του ηλεκτρονικού διαδραστικού πίνακα, και να καταγράψει τις αντιλήψεις και τις πρακτικές των καθηγητών που τον χρησιμοποιούν στα Ελληνικά ιδιωτικά κέντρα ξένων γλώσσων όπου οι διαδραστικοί πίνακες γρήγορα υιοθετήθηκαν ως ένα εκπαιδευτικό εργαλείο που χρησιμοποιεί πολυμέσα. Η κινητήριος δύναμη πίσω από αυτή την έρευνα ήταν η διερεύνηση της αξίας των διαδραστικών πινάκων ως εκπαιδευτικά εργαλεία που έχουν άμεση σχέση με τους καθηγητές και τις παιδαγωγικές τους αντιλήψεις με σκοπό την εξαγωγή συμπερασμάτων σχετικά με την επιτυχημένη εφαρμογή τους στην εκπαίδευση. Η έρευνα αποκάλυψε την ικανοποίηση των καθηγητών με τις περισσότερες πλευρές των διαδραστικών πινάκων, όπως επίσης και την ανάγκη για επιμόρφωση των
καθηγητών σχετικά με τη χρήση τους, έτσι ώστε να υπάρξει αλλαγή της παιδαγωγικής τους προσέγγισης προς μια πιο διαδραστική, κοινωνική, μαθητοκεντρική εκπαίδευση.

**Key words:** Interactive Whiteboards, Greek foreign language centres, teachers’ perceptions and practices, teacher-centred approaches, learner-centred approaches, supported didactic, interactive, enhanced interactive

### 1. Introduction

The later part of the 20th century saw radical changes regarding computer and communication technologies which have given students the opportunity to “interact with each other, with their teachers and the information itself” (Schroeder, 2007, p. 1), within the realm of ‘constructivist’ learning theories based on the work of Piaget and Vygotsky. This paper showcases one recently new technological medium, the electronic interactive whiteboard (IWB) with the view to hearkening the reactions of teachers who use it in Greek private foreign language centres where IWBs are employed as a multimedia teaching tool. However, this rapid uptake of IWBs raises questions about teachers’ perceptions and uses regarding this teaching medium.

While the literature suggests that there are numerous benefits associated with the use of IWBs as an instructional tool, their implementation and efficacy in foreign language centres in the Greek EFL context have not been rigorously investigated. This is due to the fact that although IWBs have become common practice worldwide, their deployment in Greece has not been so extensive yet. In fact, research so far, not in the Greek reality however, shows conflicting results concerning the pedagogical impact with findings indicating the promotion of teacher-centred approaches and low-level student engagement (Hall & Higgins, 2005; Miller & Glover, 2002; Vincent, 2007). Nevertheless, there is research (Kennewell, 2005; Lee & Winzenried, 2006; Vincent, 2007) which shows that there is potential in IWBs to change pedagogy when the teacher employs all IWB capabilities or ‘affordances’ and design features (Hartson, 2003) to cater for the diversity of students in the class and enhance interactivity, collaborative group working and the shared scaffolding of learning alongside the teacher or peers.

In particular, this study seeks to shed light on:

- the diversity of teachers’ perceptions regarding IWBs in Greek foreign language centres,
- teachers’ common IWB practices,
- the consistency or inconsistency between reported perceptions and practices,
- the model of pedagogy promoted (a traditional/ teacher-centred approach or a progressive/ functional/ learner-centred learning environment)
- the perceived problems and solutions for a more effective use of IWBs.

More specifically, the paper is organised into six sections comprising a brief literature review on IWBs and theories of pedagogy behind the effective integration of IWBs (section 2), a presentation of the research design and methodology (section 3) and a presentation and discussion of the findings (section 4) followed by the pedagogical implications, limitations of
the study, recommendations for further research (section 5) and concluding remarks (section 6).

2. Literature review- Interactive whiteboards and pedagogy

There is consensus that the IWB has the potential to mediate pedagogy and change classroom dynamics. However, there have been conflicting research findings concerning the nature of this pedagogical change. On the one hand, Miller & Glover (2002) and Kennewell (2006), identify a shift towards teacher-centred practices with the teacher assuming the dominant role of the IWB use and low-level student engagement and interaction with the IWB which is not conducive to enhanced learning results. Students’ engagement with the board is limited only to manipulating items on it without any chances for self-directed learning.

On the other hand, research indicates that IWBs constitute a teaching tool which can instigate change. According to Kennewell & Morgan (2003, p. 71), there are a number of key features which take their role beyond a mere presentation device:

- their interactivity, which facilitates active learning, not just passive reception of information;
- their size, which facilitates collaborative group working;
- their accessibility for all learners but especially young children;
- their recordability, so that any end product can be stored for subsequent re-use, or deconstructed to analyse a process;
- their visual element, which can facilitate concept acquisition, motivate pupil participation and reinforce learning (Glover et al., 2005).

Exploiting these features, IWBs can promote learner-centred practices and result in enriched learning outcomes (Shenton & Pagett, 2007; Wood & Ashfield, 2008). However, in line with Vincent (2007), in order for IWBs to enhance learning opportunities, a teacher should exploit their design characteristics such as multimedia, built-in technical tools, websites and other connected peripherals that can promote the learning process. Similarly, Shen & Chuang (2009) point out the need for further improvement of the tools for making interactive presentations.

More specifically, according to Beauchamp & Parkinson (2005), beginners use IWBs as traditional chalkboards while advanced users use them by employing more interactive teaching strategies. When teachers begin to reflect on their practice and, as new skills are mastered, they can develop new methods to interact not only with technology but also with the class as well as allowing the class to interact with each other.

Similarly, McCormick & Scrimshaw (2001) assert that teachers can use the IWBs in three ways: as an aid to efficiency where the enhanced screen size has led to improved vision of video material, as an extension device with the integration of multimedia materials to the point that the quality of teaching is improved, and as a transformative device where the learning takes place through board interaction and associated group and class discussion. Moreover, Glover et al. (2005, p. 158) indicate the need for a “two-pronged pedagogic change from the didactic to the interactive approach to learning and teaching, and from the
use of IWBs and multimedia as a visual support for lessons to the integration of the technology and media into lesson planning”.

More specifically, teachers tend to pass through three pedagogical phases as they develop their technical abilities and gain understanding of the nature of interactivity (Miller et al., 2005). These are:

- Supported didactic. According to this approach, teachers make some use of the visual element of the IWB to illustrate concepts instead of helping the students develop conceptually through them. They follow a traditional teacher-centred approach although they may begin employing their own material in a traditional way via Excel, Powerpoint or other commercially produced programs.

- Interactive. This phase is characterised as a progression from the supported didactic stage although the full potential of IWBs is not fully realised and developed. Even though teachers may lack confidence in utilising the technology, they integrate the IWB into their instructional practice and try to explore further the capabilities of Excel, Powerpoint and the software accompanying the IWB in order to aid the conceptual development of their students through various verbal, visual and aesthetic stimuli.

- Enhanced interactive. This stage marks a progression from the interactive stage. Teachers consider technology an integral part of their lesson and try to foster the cognitive development of their students by taking advantage of the interactive feature of IWBs. They are familiar with the techniques available, confident with the use of technology and offer their students the opportunity to engage in individual or collaborative active learning by reacting to the IWB stimuli.

It follows then that for a real transformation of pedagogy, teachers need to use IWBs as a transformative device and adopt a more interactive approach to instruction, for, as Guimares et al. (2000) claim, the IWB technology can improve learning only through a “process of co-construction sustained by ‘organic, adaptive and generative’ learning material” (Glover & Miller, 2001, p. 258).

In conclusion, research findings recognize the potential value of using IWB technology although there is scepticism concerning their pedagogical impact. Teachers’ perceptions and attitudes regarding IWBs may vary and that is why their practices need to be explored as well, in order to draw conclusions regarding IWB effective implementation.

3. Research design

3.1 The participants in the research

The target population in this research was teachers of English who work in Greek foreign language centres and use IWBs in their teaching.

3.2 Purpose and significance of the study

In Greece, IWBs are used in most private schools and foreign language centres, institutes and universities and they have recently been introduced in primary and secondary state schools although their number is quite limited. While many foreign studies (Bell, 1998; Beeland, 2002; Cogill, 2002; Levy, 2002; Beauchamp, 2004; Wall et al., 2005; Moss et al.,
2007) have attempted to explore teachers’ perceptions, needs and preferences regarding IWBs, their implementation and efficacy in the Greek EFL context have not been rigorously explored. Research findings in the Greek foreign language context have attempted to investigate EFL public teachers’ attitudes towards educational technology in general (Hadjirigas, 2012), or the use of IWBs to enhance intermediate EFL students’ motivation (Pieri, 2010), teach vocabulary to young learners (Bakou, 2012) and implement process writing in conjunction with online collaborative writing (Kritsotaki, 2010) but the perceptions and practices of teachers who work in Greek private foreign language centres had not been explored.

Thus, the main purpose of this study was to gain some insight into the usage of IWB in foreign language centres and explore the relationship between teachers’ existing perceptions and practices, and other key variables that are thought to be influencing these practices such as age, teaching qualifications, teaching experience with IWBs, training and frequency of use. Additionally, the research attempted at exploring the extent to which teachers endorse teacher-centred or student-centred approaches and categorising them according to the typology of type of use of IWBs (see section 2) varying from ‘supported didactic’, and ‘interactive’ to ‘enhanced interactive’ (Miller et al., 2005) or, in other words, in terms of whether the IWB is used only as “a teaching aid” or as “a truly interactive device at the heart of all teaching” (Glover & Miller, 2001, p. 258).

3.3 The research methodology

3.3.1 Questionnaire

A ‘self-completion questionnaire’ (Dörnyei, 2003) was emailed to many EFL teachers who work in Greek private foreign language centres and it was answered by 80 of them (see Appendix). More specifically, the questionnaire was developed for this research after studying several studies concerning perceptions, practices, instructional theories and problems of IWB users (Bell, 1998; Glover & Miller, 2001b; Beauchamp, 2004; BECTA, 2004; Beauchamp & Parkinson, 2005; Glover et al., 2005; Türel & Johnson, 2012). It included multiple choice set of questions, Likert scales and ranking questions soliciting information concerning demographic data, teaching experience and training with IWBs, information on the practices and perceptions towards IWBs, as well as problems and solutions associated with their effective use (see Appendix). The last part of the questionnaire entitled ‘general comments’ included open questions (based on Bell, 1998) inviting teachers to provide freely any comments they wanted hoping to reveal information which had not been anticipated or recorded previously.

3.3.2 Analysis of quantitative data

The quantitative data yielded after the administration of the questionnaire was analysed in three different ways delineated below employing the IBM SPSS statistics software. A first stage of analysis was to record the percentage of teachers who possess a certain belief or adopt certain classroom practices and display these figures in the form of tables, pie or bar charts. Furthermore, an attempt was made to develop a primary evaluation model in order to identify the position of teachers on a continuum which measures the pedagogic phases they go through as they become more fluent with techniques and gain understanding of the
nature of interactivity (Miller et al., 2005). These phases which were discussed in detail in section 2 are the ‘supported didactic’, the ‘interactive’ or ‘enhanced interactive one’. For this purpose, the statements of question 16 (Q16), which refer to the frequency of using certain IWB features, and the statements of question 17 (Q17) (see Appendix), which indicate teaching pedagogical practices with the IWB, were considered relevant to examine. From these statements, a selection was made in order to ensure that the ones with the optimal correlation were chosen. To this end, Cronbach’s Alpha estimation method for an internal consistency and reliability test was used. From Q16, the items with the strongest correlation chosen were numbers 2,5,10,11,12,13,14,15,16,17 (Cronbach’s Alpha= 0.845) and from Q17 statements 7,9,10,11,13 (Cronbach’s Alpha=0.780). More specifically, in Q16, the variables chosen (see tables 1 & 2 below) were Beauchamp & Parkinson’s (2005, p. 102,) possibilities of progression in IWB skill mastery. From Q17, items 7, 9, 10, 11 were also adapted from Beauchamp & Parkinson’s (2005, p. 102,) research to account for a progression in interactivity starting from a didactic approach and moving to methods that include greater pupil involvement.

(Beauamp & Parkinson, 2005, p.102)

A possible progression of IWB skills

<table>
<thead>
<tr>
<th>Progression in skills</th>
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<tbody>
<tr>
<td>Handwritten text on board in a similar fashion to the traditional use of a blackboard or whiteboard</td>
</tr>
<tr>
<td>Pre-prepared text and graphics used</td>
</tr>
<tr>
<td>Saving flipcharts for future use</td>
</tr>
<tr>
<td>PowerPoint used with the IWB acting as the screen</td>
</tr>
<tr>
<td>PowerPoint used and slides annotated using IWB software</td>
</tr>
<tr>
<td>Use of drag and drop to move text and graphics around the screen</td>
</tr>
<tr>
<td>Moving forwards and backwards between pages to create an effective learning sequence</td>
</tr>
<tr>
<td>Importing digital images and sound clips</td>
</tr>
<tr>
<td>Use of hyperlinks to switch between programs</td>
</tr>
<tr>
<td>Preparing a library of resources for the IWB and using this effectively</td>
</tr>
</tbody>
</table>

Table 1

The mathematical actualization of this progression was made possible with the introduction of linear weighting factors for the variables in each section. Each variable was credited points in a descending order in the Likert scale, i.e. 3 points for marking ‘always’, 2 points for ‘often’, 1 point for ‘seldom’ and 0 points for ‘never’. These points were then multiplied by the corresponding weight factor for each variable.
Each respondent could be credited a maximum score of 165 for each category (Q16 and Q17) and the final score was the mean value of the scores of these two subsets. The researcher assumed that the total ranking of the respondents would follow a normal distribution pattern deriving from the range of 0-165 with Mean=82.5 and St.D.=27.5. Following this distribution, the three major categories of teachers’ pedagogical phases were defined as:

### Respondents’ categories

<table>
<thead>
<tr>
<th>Score Range</th>
<th>Pedagogical Phase</th>
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<tbody>
<tr>
<td>0 ≤ Supported Didactic &lt; 55</td>
<td>(1) Supported Didactic</td>
</tr>
<tr>
<td>55 ≤ Interactive &lt; 110</td>
<td>(2) Interactive</td>
</tr>
<tr>
<td>110 ≤ Enhanced Interactive ≤ 165</td>
<td>(3) Enhanced Interactive</td>
</tr>
</tbody>
</table>

(1) $M - St.D. = 55$, (2) $M + St.D. = 110$, (3) Range $\in [0, 165]$, $M = 82.5$

After the calculation of each participant’s final score, the researcher performed the Kolmogorov-Smirnov test to examine the form of the distribution of the respondents’ score and found that this distribution was normal ($p$-value=0.746>a=0.05). Therefore, the initial hypothesis for the normal distribution of participants’ answers and the accuracy of the ranking model was confirmed.

Another step in the analysis of the quantitative data was to look for causative relationships between variables such as age, teaching qualifications, teaching experience in general, teaching experience with the IWB, training on the use of IWBs and frequency of use, and the total ranking of respondents. For this reason, the results from questions 2, 5, 6, 8, 11, 14 were cross-tabulated with the respondents’ classification from Q16 and Q17 and their correlation was checked by performing Chi-Square Tests.
Finally, the analysis aimed at examining whether there is consistency or discrepancy between teachers’ perceptions and self-reported practices. To this end, statements 22, 23, 24, 25 from question 18 (Q18) regarding the ability of IWBs to improve students’ speaking, listening, reading and writing skills were compared to question 13 where teachers report on their use of IWBs to teach these skills. Additionally, item 20 from Q18 regarding teachers’ perception about the degree to which IWBs give students greater opportunities for participation and collaboration were compared to items 4 and 6 from Q17 where teachers referred to their frequency of promoting cooperative learning and the active participation of learners respectively.

3.3.3 Analysis of qualitative data

For the analysis of the respondents’ answers to the open questions regarding IWBs, a phenomenological approach⁴ (Cresswell, 1998), was deployed in order to highlight significant statements, develop clusters of meaning and identify themes that emerged from teachers’ experiences of the phenomenon (ibid.).

Moreover, a categorical aggregation process (Stake, 1995) and direct interpretation were applied to the open questions of the questionnaire in order to identify common and contrasting themes. More specifically, direct interpretation was applied as the researcher looked at single instances and drew meaning from them without looking for multiple instances (Cresswell, 1998). Categorical aggregation entailed looking for an emergence of meaning through the repetition of phenomena (Stake, 1995). In other words, when coding the data, the researcher did not just notice the repetition of instances but also noticed significant things which occurred only once. Furthermore, a more holistic open-ended analysis was carried out to deal with other issues that arose.

4. Findings and discussion

For a more analytical presentation of the descriptive results, see the author’s dissertation thesis (Basmatzi, 2013) for the Hellenic Open University.

4.1 Teachers’ personal details

According to the findings, the vast majority of teachers were female (91.3%), while most of the respondents were 25-30 years old (40%) with a high percentage belonging to the age group 36-40 (23.75%). Regarding their teaching qualifications, half of them were university degree holders (51.2%) whereas another significant percentage (28.7%) was in the process of acquiring a Master’s degree. It is also worth mentioning that 6 participants were highly qualified since they possessed a PhD or were in the process of acquiring one whereas 10 respondents did not have pedagogical training as they were only proficiency certificate holders. The majority had been teachers for less than 5 years (40%), while the second higher proportion was that of teachers with 6-10 years of experience. Moreover, the vast majority taught mostly children or teenagers and mainly junior or elementary students (66%).
4.2 Teachers’ experience and training with IWBs

Regarding teachers’ experience on the IWB, 37.5% had been using IWBs for 3-5 years whereas an equally significant percentage (32.5%) was novice users with experience of less than a year. It is also worth noting that a very small proportion of teachers (5%) had used IWB for more than five years, which can be attributed to the fact that IWBs is a technological tool recently introduced in the Greek reality.

In relation to training on the use of IWBs, the vast majority (72.5%) were trained by EFL publishing houses. Moreover, a significant 38.8% were trained by educational seminars, one fifth of the respondents report being trained by colleagues whereas some (22.5%) are self-taught. However, many participants were trained in various ways. For example, 21 respondents out of the 58 trained by publishing houses also reported having attended educational seminars whereas 15 of them were also trained by the IWB vendor, 4 were self-taught and 10 out of the 58 were helped by colleagues as well.

4.3 Teaching practices regarding IWBs

The overwhelming majority of teachers (91.3%) use the IWB to practise grammar and vocabulary with their students and a high proportion of 75% to practise reading. Listening follows with a percentage of 70% while it is worth noting that only around 45% uses IWBs to practise speaking and writing with their students. Concerning frequency of IWB use, it seems that the majority of respondents make frequent use of the IWB with the 37.5% using it every day followed by a 23.8% who use it once or twice a week and another 20% who use it three or four times a week. Only a very small percentage of 2.5% report making rare use.

Moreover, in relation to teachers’ usage of computer applications via the IWB, the overwhelming majority (97.5%) of respondents use the IWB to access the IWB software of the coursebook used whereas 58.8% use it to access ‘You tube’ and around 45% DVDs and CDroms. It is worth noticing the low percentages of people who use concordances (11.3%), e-mails (8.8%), blogs and wikis (13.8%) and digital storybooks (16.3%) as well as the null percentages of teachers who access active worlds or do webquests with the use of IWBs in class. Thus, teachers use traditional applications of technology and do not make use of Web 2.0 technologies, interactive multimedia environments and synchronous or asynchronous online networking which could provide students with “ample opportunities for exposure to authentic linguistic input” promoting cultural understanding and finally, language learning (Kern & Warschauer, 2000; Shetzer & Warschauer, 2000; Vlachos & Athanasiadis, 2005, Vlachos & Papaefthimiou-Lytra, 2008).

With regard to the ways teachers treat IWB features, the questionnaire yielded the following results: The majority of respondents claimed that they often write text on IWB in a similar way to the traditional whiteboard (36.3%), use pre-prepared text and graphics (38.8%), emphasise using the tickertape or spotlight function (41.3%), annotate and modify using the pen or arrows and lines (46.3%) and link to internet sites (51.2%), which indicate a relatively basic use of the IWB affordances (Beauchamp & Parkinson, 2005). Moreover, it is interesting to see that a considerable percentage of teachers responded that they never employ more advanced IWB features which indicate more technical mastery (ibid.) and enable the teacher to “move away from a linear progression to a more discursive model where the technology can allow ideas to move in many directions” (ibid., p. 102). In parallel
with previous studies in other contexts (Türel, 2011, Türel & Johnson, 2012), teachers make limited use of the IWB affordances since features such as hyperlinks which are considered to show a high level of IWB skills are the least utilised. More specifically, teachers denoted that they never store on flipchart pages (53.8%), link to other pages in the flipchart (48.8%), employ PowerPoint and annotate slides using IWB software (52.5%), use hyperlinks to switch between pages (57.5%) or programmes (67.5%) and prepare a library of resources for the IWB (52.5).

As for the teaching methodology employed when using IWBs, the analysis revealed the following results: The vast majority (68.8%) always use the IWB software accompanying the coursebook used and only a 18.8% always create their own teaching material. This is not surprising as in the context of Greek private foreign language centres, some language schools invest a considerable amount of money in buying the relative equipment while other schools resort to the ‘easy solution’ of adopting a specific IWB software and textbook series accompanying a complimentary projector by publishing houses. This software by educational publishers entails electronic versions of pages from the textbook or workbook making very limited use of the interactive potential of IWBs.

Moreover, a great percentage of the participants (65%) claim they always encourage the active participation of learners, often encourage cooperative learning with the IWB (48.8%), negotiate and adapt the tasks and activities to suit students’ needs rather than impose them on the learners (52.5%) and train the learners to take responsibility for their own learning using the IWB (56.3%). However, quite inconsistently, 37.5% of the teachers report that they never jointly do activities such as labelling, drawing or constructing graphs on the IWB or seldom co-construct arguments and explanations on the IWB (36.3).

4.4 Teachers’ perceptions regarding the use of IWBs

Similar to previous research findings (BECTA, 2003; Beeland, 2002; Bell, 1998; Bell, 2002; Moss et al., 2007; Türel & Johnson, 2012), the overall tenor of responses to the questionnaire regarding the use of IWBs was positive with teachers recognising the numerous benefits for teachers and students among which the accommodation of various learning styles, the motivational aspect, the presentation of resources and the facilitation of interaction being the most prominent. Moreover, there was consensus that teachers are the agents of change who can realize the potential of IWBs provided they are given opportunities by the foreign language centre owners to implement new technology.

With regard to benefits associated with teachers, most respondents agree that IWBs are easy to employ, promote the teachers’ organisational skills and reduce the workload. However, when asked to respond to the negative statement “IWBs minimise the teacher’s role”, the majority disagreed (58.8%) or strongly disagreed (12.5%) with a notable 21.5% who adopted a neutral position.

Additionally, the analysis of the respondents’ perceptions showed that the teachers surveyed acknowledge a variety of benefits for their students. In particular, they agree that IWBs help focus students’ attention on the large IWB screen (27.5% strongly agree, 62.5% agree), are suitable for a wide range of age groups (32.5% strongly agree, 56.3% agree), enhance students’ motivation (30% strongly agree, 55% agree) and give students greater opportunities for participation and collaboration (37.5% strongly agree, 46.3% agree).
However, the statement with the strongest agreement of all (40% strongly agree, 50%
agree) is that “IWBs involve a multimedia/multisensory presentation accommodating
different types of learners as teachers can call on a variety of resources to suit particular
needs”.

4.5 Potential problems and possible solutions using IWBs

For most respondents and broadly in line with the results of several studies
(Glover & Miller, 2001b; Hall & Higgins, 2005; Malavet, 1998; Smith et al., 2005; Türel &
Johnson, 2012), inadequate (65%) or lack of technical support (67.5%) when problems occur
and lack of training on how to integrate IWBs in their lessons constitute major obstacles.
Emphasis is also put on the cost of equipment (53.8%) and the incompatibility of different
IWB makes with the available computers (52.5%) followed by students’ unwillingness to
participate (46.5%), lack of time to use IWBs as there is a lot of course material to cover
(45%) and lack of time to prepare resources (38.8%), as also reported in Sicilia (2005).
Moreover, a 38.8% report that they are hindered by slow internet connection and
insufficient access to IWBs (37.5%) (as in BECTA, 2004; Gomes, 2005). Furthermore, the
selection of equipment (48.8%) and teaching materials (40%) are reported as being minor
problems whereas increased noise levels (62.5%), setting up the board (51.2%), logistical
problems of situating the board (40%) and lack of computer literacy (42.5%) do not
constitute a problem for most respondents.

Quite consistently, the ranking of the solutions in question 21 of the questionnaire
corresponds with the ranking of problems identified above. More specifically, available
technical support is reported as the most important solution, followed by the inclusion of
IWBs in the school timetable, training on the integration of IWBs and finally, training on
computer literacy.

4.6 General comments (answers to open questions)

The majority of teachers expressed their satisfaction with comments such as “it’s an asset to
the English classroom” or “it’s a must” as they consider IWBs an integral part of the 21st
century classroom. However, some teachers contended that they are not given much
latitude by their school owners to use the IWB very often and more creatively as the
material to be taught has to be followed to the letter.

Moreover, several respondents admitted that IWBs are still in their infancy regarding
exploitation as most teachers are computer illiterate while one user noted that “IWBs are a
useful tool in the hands of the teachers but they should be used in moderation and in
combination with other activities that promote students’ interaction with each other as well
as their cognitive skills and critical thinking”. Finally, a user commented that “an IWB alone
cannot bring success without an effective teacher or a good syllabus away from teacher-
centred practices”.

4.7 A grading of the respondents’ practices – pedagogical phases

As another method of analysing data, the Likert scales were used in order to categorise the
respondents according to whether they endorse teacher-centred or student-centred
practices. Using the evaluation model described in section 3, teachers were graded in terms
of their technical mastery (based on Q16, Mean$_{Q16}$=51.81, St.D$_{Q16}$=36.9), their progression in interactivity (Q17, Mean$_{Q17}$=78.15, St.D$_{Q17}$=38.3), and according to their answers to both Q16 and 17 (Mean$_{Q_{total}}$=64.98 and St.D$_{Q_{total}}$=33.4) and was found that the distribution of total grading fits a normal one (p-value= 0.746 > α= 0.05). Furthermore, significant differences were also identified (p-value=0.000 < α=0.05) between the grading results of Q16 and 17 (ΔMean=26.33-15.96%). Finally, according to the applied ranking model for each participant score from Q16, Q17 and from both of them, the respondents were identified as belonging to one of the three categories: ‘supported didactic’, ‘interactive’ and ‘enhanced interactive’ (Miller et al., 2005).

According to the statements of Q16, which refer to the frequency of using certain IWB features, out of the 80 respondents, 56 (70%) are found to belong in the ‘supported didactic’ phase indicating the use of a teacher-centred modality. More specifically, these teachers make some use of the IWB as a black/whiteboard substitute to illustrate rather than develop concepts (Miller et al., 2005) and engage in basic use of technology. Another 17.5% (14 teachers) is found to be in the ‘interactive phase’ advancing technically, exploring further the potential of PowerPoint and the software tools that accompany the IWB but without exploiting the full potential of IWB technology (ibid.). In line with Somekh (2006, in Koenraad, 2008, p. 20), IWBs are used mainly to “enliven and enrich didactic pedagogy” facilitating traditional conveyance of concepts. Finally, 12.5% (10 teachers) belong to the ‘enhanced interactive’ category as they exploit the interactive capacity of technology to “create a new learning praxis” (Beauchamp, 2004, p. 343).

With regard to the reported pedagogical practices that teachers employ when using IWBs in their classroom, the results are quite different. 19 teachers (23.8%) are found to be in the ‘supported didactic’ phase, where the teacher retains control of the IWB and there is little interactivity which is required for enhanced learning (McCormick & Scrimshaw, 2001). The number of teachers who are considered to be in the ‘interactive’ stage is higher with 39 teachers (48.8%) progressing from a traditional didactic stage to a more interactive one. Finally, 22 teachers (27.5%) are graded as ‘enhanced interactive’ making technology an integral part of their lesson (ibid.) and transferring more responsibility to students for their own learning (Beauchamp & Parkinson, 2005).

Furthermore, in terms of both their technical mastery and pedagogical practices 30 teachers (37.5%) are graded as ‘supported didactic’, 40 as ‘interactive’ (50%) and 10 of them (12.5%) as ‘enhanced interactive’.

Notably, the significant differences between the categorisation of respondents according to IWB skill mastery and practices raises questions as to how reported basic use of IWB technology can lead to reported ‘interactive’ or ‘enhanced interactive’ learning.

4.8 Cross-tabulations

4.8.1 Investigating causative relationships between variables

One more stage in the analysis of the questionnaire was to investigate the possible causative relationships between certain variables of the questionnaire and the final categorisation of respondents using Pearson chi-square tests. It was found that the age of the respondents (p-value=0.131 > α=0.05), their teaching qualifications (p-value=0.211 > α=0.05), their
training by IWB vendors, (p-value=0.530 > α= 0.05), by educational seminars (p-value=0.735 > α=0.05), by colleagues (p-value=1 > α=0.05) or when self-taught (p-value=0.144 > α=0.05) did not have a significant effect on the categorization outcome. More specifically, unlike research conducted by Herbert (2002), the results indicated that older teachers are not technophobes, whereas teachers’ further qualifications such as a postgraduate degree does not seem to influence teachers’ attitudes towards innovation (unlike Johnson, 2006).

The factors which seem to influence the final categorization of respondents and are good predictors of IWB skill employment, as also suggested by Moss et al. (2007) and Türel & Johnson (2012), are their teaching experience in general (p-value=0.000 < α=0.05), their teaching experience with the IWB (p-value=0.017 < α=0.05) and the frequency of IWB use (p-value=0.015 < α=0.05). More specifically, according to Somekh et al. (2007), when the use of IWBS is embedded in teachers’ pedagogy after sustained experience (around two years) with IWBS, teachers may alter their practices to exploit the technological potential.

4.8.2 Comparing teachers’ perceptions with self-reported practices

The final step of the analysis sought to explore whether there is consistency or inconsistency between teachers’ perceptions and self-reported practices. To this end, some of the perceptions recorded in Q18 were examined in relation to some practices from earlier sections of the questionnaire. More specifically, a cross tabulation was performed to examine whether teachers’ perceptions regarding the potential of IWBS to improve students’ reading (statement 24), listening (statement 23), writing (statement 25) and speaking (statement 22) coincided with teachers’ practices with regard to these skills from the responses to Q13. The analysis revealed the following results:

Out of the 47 respondents who denoted that they strongly agree and agree that IWBS help improve students’ reading skills, 9 of them (19.1%) stated that they do not use IWBS to practise reading. Conversely, 5 out of the 7 teachers who expressed their disagreement, admitted to making use of IWBS to enhance their students’ reading skills. In relation to listening, 13 respondents (22.8%), out of the 57 who expressed their agreement with the IWB potential to improve students’ listening skills, stated that they do not use IWBS for listening practice.

Moreover, out of the 33 teachers who agree that IWBS help improve students’ writing skills, a significant number of respondents (12 teachers, 36.36%) do not use them for writing practice. As for speaking, 18 (47.36%) out of the 38 respondents who gave positive answers regarding the ability of IWBS to improve speaking, reported that they do not use them to practise speaking whereas 2 out of the 6 who disagreed reported using them for speaking in their practice.

It is also worth noticing the distribution of neutral points between the positive and negative answers as regards the use of IWBS and the practice of the four skills. It is interesting to see that as far as listening and reading are concerned, the majority of respondents (65%) who adopted a neutral position reported using IWBS to practise these skills whereas concerning speaking and writing, an equal percentage recorded not using IWBS to practise them.

336
Furthermore, teachers’ perception regarding the potential of IWBs to “give students greater opportunities for participation and collaboration” was cross-examined with statements 4 and 6 from Q17. The analysis revealed that out of the 67 participants who expressed their agreement to the above statement and who we would expect to encourage student participation and collaboration either ‘always’ or ‘often’, a 17.7% (12 teachers) stated that they seldom encourage cooperative learning and another 8.95% (6 teachers) that they seldom encourage the active participation of learners.

These results as well as the findings from the previous cross-tabulation indicate that there seems to be incongruence between teachers’ stated beliefs and their instructional practices. Although some respondents hold beliefs which are progressive and favour collaborative learning and student autonomy, their self-reported practices exhibit features of a transmission teaching model which, as Anderson (1985) maintains, can be attributed to the fact that although teachers possess declarative knowledge (what to teach), they lack the procedural knowledge (how) which would enable them to put theory into practice.

The incongruence between teachers’ perceptions and practices is to be expected. Research has shown that teachers’ ability to articulate and implement their theoretical beliefs in their instruction is controlled and limited by the complexities of their schools and classrooms (Duffy, 1982; Duffy & Anderson, 1984; Duffy & Ball, 1986; Fang, 1996; Paris et al., 1991; Roehler & Duffy, 1991). More specifically, Robertson et al., (1996) maintain that schools as institutions give teachers little time to familiarize themselves with ICT because timetabling does not allow time for such learning. Furthermore, schools are sometimes resistant to change as they feel content with their tested instructional practices (Mumtaz, 2000).

Moreover, a teacher’s role in foreign language centres is mainly to help students acquire certificates which presumably constitute proof for a student’s competence in L2. Therefore, in many cases, teachers are not granted much latitude by the school owners in order to modify, add, reorder or skip activities in the textbook, which is actually the syllabus, as the textbook sequence of activities and the teacher’s guidelines in the teacher’s book are to be followed to the letter. In this case, there might be a “massive gap between theory and practice” (Jenkins, 2007, p. 246) as even teachers who get the opportunities to learn about educational technology and IWBs, are prevented from making links between theory and everyday teaching because of the institutional constraints imposed upon them.

5. Pedagogical implications

Following the discussion above, although not an indictment of IWBs, lack of adequate training was cited as an obstacle for embracing technology. Whether this training was provided by vendors, educational seminars, colleagues or other entities, it seemed inadequate as contributors to this research who had attended formal training or were involved in a self-exploratory approach did not employ IWBs as a transformative device and incorporated the acquired features of IWB into their “existing pedagogical knowledge rather than ICT causing a shift in pedagogy” (Kennewell, 2005, p. 17).

As such, it is clear in this research that teachers need training on using the IWB to shift their pedagogy towards more “student-centred, social and interactive learning” (Türel & Johnson, 2012, p. 391). However, in the context of foreign language centres, schools may not have the time and money to offer their staff training on IWB use. That is
why, teachers should be involved in a self-exploratory approach where IWB successful experiences are shared or co-ordinated by an enthusiastic colleague in their own school with the view to enhancing their competence and understanding of effective IWB instructional practices (Moss et al., 2007; Shenton & Pagett, 2007). Moreover, teachers could take advantage of online support communities which regularly contribute research findings and administer free IWB lessons to promote the use of IWBs in classrooms.

Furthermore, teachers should participate in formal training sessions to enhance their technical competencies and be aware of pedagogical implications in order to reap maximum benefits regarding their students’ learning via IWBs (Türel, 2010). How the aforementioned professional development programmes can be organised is not within the scope of this research. However, some preliminary design considerations can be established.

Based on the research, teachers’ training should be tailored to the needs of teachers (Levy, 2002), with experiential training on ICT skills (Condie & Munro, 2007). Moreover, training on the IWB features must be linked to pedagogical theory and practice (Miller & Glover, 2007). That is why accredited training programmes by trainers who are expert users of IWBs and with a solid pedagogical foundation (Condie & Munro, 2007) could help practitioners reflect on their current pedagogy and realise how IWB technology can support, extend or transform this (Simkh, 2007).

Teachers have the potential to change when they are shown that there is a mismatch between what they would ideally prefer to do and what they do in reality (Khonamri & Salimi, 2010). Thus, only by being trained to recognise how their perceptions and teaching context contribute to their practices and by making them aware of their skills and shortcomings, will teachers be able to improve their instructional approach and reduce this inconsistency (ibid.). Additionally, trainee teachers need to be provided with opportunities to explore IWB techniques in their own teaching context (Graham & Thornley, 2000).

Another implication extrapolated from the research is that within a constructivist instructional design, teachers should involve all students and value their individual contributions in the IWB classroom allowing pupils to come up and use the interactive element of the whiteboard so that technology enhances learning, motivates students and develops their social skills (Candlin & Mercer, 2001). Therefore, teachers should not focus on interacting with the technology itself but rather use it “as another medium (besides themselves) to interact with the class, as well as allowing the class to interact with each other, in mutually developing new teaching and learning strategies” (Beauchamp & Parkinson, 2005, p. 103).

To sum up, the IWB can make effective instruction full of learning opportunities possible provided there is training on the appropriate methodological integration of IWBs adhering to principles of language learning, time to prepare resources instead of ‘slavishly’ espousing available software-recipes for ‘good’ teaching results, the mutual support of colleagues and adequate access to IWBs (Glover & Miller, 2002a; Kennewell & Morgan, 2003). Training in IWB skills and using digital resources is necessary but teachers also need adequate time to familiarize themselves with the new technology and start evaluating their instructional strategies to integrate IWB in their practice.
5.1 Limitations of the study and suggestions for further research

This is a small-scale study since the number of teachers who participated is relatively small compared to the number of teachers employed in foreign language centres. However, the fact that the results of the adopted grading model for the categorisation of teachers described in section 3 fits a normal distribution allows for some initial generalised conclusions to be drawn. Nonetheless, the participation of more respondents could help the researcher explore the issue further and generalise even more on the findings.

Additionally, in order to gain a more comprehensive view of what teachers perceive and do in their classroom practice with regard to the employment of IWBs, further research by means of different research tools such as observations of teaching practice complemented with interviews could increase research credibility in the study of teacher cognition and concentrate on the ‘insider’ view and estimated thoughts of the observed teachers. In this way, practitioners’ self-reported perceptions and practices could be examined to see if they differ from what really happens in the classroom.

Moreover, further exploitation of the questionnaire via more cross-tabulations could identify other variables that may affect teachers’ perceptions or their successful uptake of IWBs. For example, the levels taught and the respondents’ nationality could be examined in relation to the teachers’ final categorisation. Furthermore, future IWB research could focus on the possible variations in the relationships between different modes of IWB use and the resulting interaction patterns across differing content or curriculum areas, and on what constitutes effective training in terms of IWB skill development and teacher pedagogy.

Finally, what needs to be heeded is that since a teacher’s pedagogy is affected by a variety of factors such as personal beliefs, attitudes, technical abilities, access to professional training and the particularities of the teaching context, more empirical and longitudinal research is necessary in order to explore before and after-IWB pedagogies and draw conclusions regarding the pedagogical effect of IWBs.

6. Concluding remarks

The research presented in this paper aimed at exploring teachers’ use and perceptions regarding IWBs in Greek foreign language centres and investigating whether IWBs lead to an educational innovation or to just an optimisation of traditional teaching practices. The key issue emerging from the research is the need for teachers to move further on the continuum of teacher-centred and student-centred teaching approaches towards the direction of learner-centredness within the realm of social constructivism so that the IWB benefits are translated into positive learning outcomes (Higgins et al., 2007). Moreover, training is needed so that knowledge of technology and effective pedagogic approaches are integrated into teachers’ instructional design.

It is a foregone conclusion that more and more practitioners will encompass IWBs as a teaching medium in their daily practice in the following years as IWBs are educational tools which have an immense potential to open up new vistas, promote meaningful interaction, help teachers break away from sterile and ineffective teacher-centred practices, endorse a feeling of student empowerment and achievement as global citizens and generally improve the quality of teaching and learning.
However, in order for IWBs to provide a rich learning environment, teachers should safeguard effective interaction and forge paths for maximum learner participation and engagement with interesting authentic tasks. Therefore, careful scaffolding is needed to “fuse this phenomenon with pedagogy” (Wood & Ashfield, 2008, p. 94) so that the value of IWBs is highlighted and teachers manage to shift from a monolithic ‘supported didactic’ to a multidimensional ‘enhanced interactive’ conception of teaching and pave the way to increased learning experience.

Notes

1. Cronbach’s Alpha estimation method is used as a measure of internal consistency and reliability of a sample of items. Cronbach’s Alpha coefficients are calculated and interpreted based on the rules 0.9 = high level, 0.8= moderate level, 0.7= low level, 0.6= acceptable level and <6= unacceptable level (Murphy & Davidshofer, 1991).

2. The Kolmogorov-Smirnov test is a non-parametric test that can be used to compare two samples or test the validity within the variables of a dataset.

3. A Chi-Square test examines whether there is a significant difference between the expected and the observed frequencies in datasets. It is used to analyse the relationships of key categorical variables.

4. Phenomenology is a method that can provide the investigator with insight, to “understand the phenomena of education by maintaining a view of pedagogy as an expression of the whole, and a view of the experiential situation as the topos [common theme] of real pedagogic acting” (Van Manen, 1990, p. 7).

Acknowledgement

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Appendix – Research Questionnaire

I. PERSONAL INFORMATION (Please, write about your personal and language learning/teaching background to help better interpret and classify your answers) – Click on / mark the appropriate box

1. Gender
   - Male
   - Female

2. Age
   - <25
   - 25-30
   - 31-35
   - 36-40
   - 41-45
   - 46-50
   - >50

3. Nationality (     )

4. Area of residence (     )

5. Teaching Qualifications – Click on / mark ALL boxes that apply
   - Proficiency holder
   - University Degree
   - Master’s Degree
   - PhD in progress
   - PhD
   - Other (Please specify): _______________

6. Teaching Experience
   - 1-5 years
   - 6-10 years
   - 11-15 years
   - 16-20 years
   - 21-25 years
   - More than 25 years

7. What levels do you currently teach? – Click on / mark ALL that apply
   - Children-Teenagers
     - Pre-junior level
     - C senior (A2 level)
     - Proficiency (C2)
   - Other (Please specify): _______________

   - Adults
     - A1
     - A2
     - B1
     - B2
     - IELTS / TOEFL
     - C1
     - C2
     - Business English
   - Other (Please specify): _______________

II. TEACHING EXPERIENCE AND TRAINING WITH INTERACTIVE WHITEBOARDS (IWBs)

8. Teaching experience with IWBs
   - None
   - Less than a year
   - 1-2 years
   - 3-5 years
   - >5 years

9. Type of IWB you have used
   - Active whiteboard
   - A normal whiteboard transformed into interactive with the use of a projector.

10. Available equipment in your teaching situation - Click on / mark ALL that apply
    - No IWBs in my teaching context
    - An IWB in one class
    - An IWB in some classes
    - An IWB in all classes
    - One computer in the classroom
    - Some computers in the classroom but not enough for individual or pair work
    - One computer for every student in the classroom
    - Wi-Fi internet connection
    - Printers
    - Microphone
    - Speakers
    - Camera
    - Other (Please, specify): _______________

11. How have you learned how to use the IWB? Mark ALL boxes that apply
    - By EFL publishing houses
    - By the IWB vendor
    - By educational seminars
    - By colleagues
    - I am self-taught
    - Other (please specify): _______________

12. How would you rate your ability to use IWBs?
    - Excellent
    - Good
    - Average
    - Below average
    - Poor
III. YOUR TEACHING PRACTICE REGARDING IWBs

13. You use IWBs in your classroom for your students to practise… - Click on / mark ALL boxes that apply
- Grammar  
- Vocabulary  
- Listening  
- Speaking  
- Reading  
- Writing  
- Other (please specify): _______________

14. How often do you use IWBs in your classes? - Click on / mark the appropriate box
- a. Every day  
- b. Several times a week (3-4 times)  
- c. A few times a week (once or twice)  
- d. A few days a month  
- e. Rarely

15. You use the IWB in your classes to access / do …- Click on / mark ALL boxes that apply
- The IWB software of the coursebook used  
- Concordances  
- The Word Processor  
- YouTube  
- CD roms  
- E-mails  
- DVDs  
- Blogs  
- Grammar exercises on the Internet  
- Wikis  
- Search engines  
- Webquests  
- The World Wide Web  
- Active Worlds  
- Online dictionaries  
- Digital storybooks  
- Other (Please, specify): _______________

16. How often do you perform the following when you use IWBs? (Click on / mark the appropriate box)

<table>
<thead>
<tr>
<th>Ways of treating whiteboard features</th>
<th>Always</th>
<th>Often</th>
<th>Seldom</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Writing text on board in a similar way to the traditional use of a blackboard of whiteboard</td>
<td></td>
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<tr>
<td>2. Using pre-prepared text and graphics</td>
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<tr>
<td>3. Copying and pasting from other software (Word, graphics packages)</td>
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<tr>
<td>4. Emphasizing using the tickertape or spotlight function</td>
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<tr>
<td>5. Storing on flipchart pages for future use</td>
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<tr>
<td>6. Linking to other pages in the flipchart</td>
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<tr>
<td>7. Linking to files stored on the computer (e.g. Word, Excel, Powerpoint)</td>
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<tr>
<td>8. Linking to Internet sites</td>
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<tr>
<td>9. Annotating and modifying using the pen or arrows and lines</td>
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<tr>
<td>10. Using PowerPoint with the IWB acting as the screen</td>
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<tr>
<td>11. Employing PowerPoint and annotating slides using IWB</td>
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</tbody>
</table>
### Using 'drag and drop' to move text and graphics around the screen

### Moving forwards and backwards between pages to create an effective learning sequence

### Importing digital images and sound clips

### Using hyperlinks to switch between pages

### Using hyperlinks to switch between programmes

### Preparing a library of resources for the IWB

17. How often do you perform the following when using the IWB? - Click on / mark the appropriate box.

<table>
<thead>
<tr>
<th>Teaching practices</th>
<th>Always</th>
<th>Often</th>
<th>Seldom</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I create my own teaching material for the IWB.</td>
<td></td>
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<tr>
<td>2. I use the IWB software accompanying the coursebook I use.</td>
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<tr>
<td>3. I share teaching material with colleagues.</td>
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<tr>
<td>4. I encourage cooperative learning with the IWB.</td>
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<tr>
<td>5. I use the IWB to present information to the students.</td>
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<tr>
<td>6. I encourage the active participation of learners.</td>
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<tr>
<td>7. I write notes on the IWB and then some class discussion follows.</td>
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<tr>
<td>8. I negotiate and adapt the tasks and activities to suit my students’ needs rather than impose them on the learners.</td>
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<tr>
<td>9. I share my lesson objectives on the IWB with the class and revisit them at key points of the lesson.</td>
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<tr>
<td>10. I and my students jointly do activities such as labeling, drawing or constructing graphs on the IWB.</td>
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<tr>
<td>11. I and my students co-construct arguments and explanations on the IWB.</td>
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</tbody>
</table>
12. I promote learner autonomy through self-correction and peer assessment using the IWB.

13. I try to train my learners to take responsibility for their own learning using the IWB.

IV. YOUR PERCEPTIONS REGARDING THE USE OF IWBs

18. Indicate the extent to which you agree or disagree with the following statements - Click on/ mark the appropriate box

<table>
<thead>
<tr>
<th>Teaching practices</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Normal</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am in favour of the use of IWBs in English lessons.</td>
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<tr>
<td>The cost of IWBs is high.</td>
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<td>The use of IWBs reinforces teacher-centered approaches.</td>
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<tr>
<td>IWBs foster educational change.</td>
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<td>IWBs promote interactivity.</td>
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<tr>
<td>IWBs offer greater opportunities to integrate Information Communication Technology (ICT) in lessons while teaching from the front of the class.</td>
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<tr>
<td>IWBs offer increased flexibility and versatility since teachers can draw on and annotate a wide range of web-based resources.</td>
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<tr>
<td>IWBs are a waste of time.</td>
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<tr>
<td>The lesson pace is faster with the use of IWBs.</td>
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<tr>
<td>IWBs minimize the teacher’s role.</td>
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<tr>
<td>IWBs promote the teachers’ organizational skills.</td>
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<tr>
<td>IWBs help teachers save and print what is on the board, reducing duplication of effort and facilitating revision.</td>
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<tr>
<td>IWBs enable teachers to share and re-use materials, reducing workloads.</td>
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<tr>
<td>IWBs are easy to use, particularly compared with using a computer in whole-class teaching.</td>
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<tr>
<td>IWBs inspire teachers to change their pedagogy and use more technology.</td>
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<tr>
<td>IWBs allocate a passive role to students.</td>
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<tr>
<td>IWBs help focus students’ attention on the large IWB screen.</td>
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<tr>
<td>IWBs are suitable for a wide range of age groups.</td>
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<tr>
<td>IWBs enhance students’ motivation.</td>
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<tr>
<td>IWBs give students greater opportunities for participation and collaboration.</td>
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<tr>
<td>IWBs involve a multimedia/multisensory presentation accommodating different types of learners as teachers can call on a variety of resources to suit particular needs.</td>
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<tr>
<td>IWBs help improve students’ speaking skills</td>
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<td>IWBs help improve students’ listening skills.</td>
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<td>IWBs help improve students’ reading skills.</td>
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<td>IWBs help improve students’ writing skills.</td>
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<tr>
<td>IWBs help raise students’ awareness of L2 cultural elements.</td>
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<td>IWBs reduce the need for note taking because users can save and print what appears on the board.</td>
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</tbody>
</table>
IWBs offer students the opportunity to be creative in their presentations to their classmates.

IWBs help students organize, present, justify their work and answer questions on it promoting their cognitive skills.

IWBs help younger children and students with disabilities engage with technology since the use of a keyboard is not required.

IWBs help improve Students’ behaviour in class.

The effectiveness of IWBs relies on teacher’s use.

### V. POTENTIAL PROBLEMS AND POSSIBLE SOLUTIONS USING IWBs

19. Indicate how much each of the following constitutes an obstacle for you in making more effective use of IWBs - Click on / mark the appropriate box.

<table>
<thead>
<tr>
<th>Teaching practices</th>
<th>Major problem</th>
<th>Minor problem</th>
<th>Not a problem</th>
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</thead>
<tbody>
<tr>
<td>Lack of computer literacy</td>
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<tr>
<td>No access to IWBs</td>
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<td>Insufficient access to IWBs</td>
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<td>Lack of time to use IWBs as there is a lot of course material to cover</td>
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<td>Setting up the board</td>
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<td>Lack of time to prepare resources</td>
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<tr>
<td>Lack of Training on how to integrate IWBs in lessons</td>
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<td>Selection of equipment</td>
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<td>Selection of teaching materials</td>
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<tr>
<td>Logistical problems of situating the board so that the cords are not in the way and students would not trip over them</td>
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<tr>
<td>Lack of Technical support when problems occur</td>
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<td>Inadequate technical support</td>
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<td>Slow internet connection</td>
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<td>Cost of equipment</td>
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<tr>
<td>Different IWB makes might not be compatible with available computers</td>
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<td>Students’ unwillingness to participate</td>
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<td>Increased noise levels</td>
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</tbody>
</table>

20. If you face other problems regarding the use of IWBs in your lessons, please specify:

1.
2.
3.
4.
5.

21. Possible solutions to overcome the problems for the effective use of IWBs. Please, write a number from 1-5 in the space provided to rank the solutions mentioned below and your own ideas in order of importance (1=more important…5=less important)

- Available technical support
- Training on computer literacy
- Training on the integration of IWBs
d. The use of IWBs should be included in the school timetable

22. Which aspect of the IWBs do you like the most?

23. Which aspect of the IWBs do you like the least?

24. Have your original expectations regarding the use of IWBs been met? Why/why not?

25. Please, feel free to make any comments on the use of IWBs in Greek foreign language centers:

Thank you very much

__________________________

Sophia Basmatzi (basmasoph@yahoo.com) holds a B.A. in English Language and Literature from the National and Kapodistrian University of Athens and a M.Ed. in Teaching English to Speakers of Other Languages from the Hellenic Open University. She has been working as a teacher of English in Greek Private Foreign language centres for twenty years. Her research interests include educational technology and pedagogy, teaching English to young learners and teenagers, and teacher education.