THE USE OF INTERACTIVE WHITEBOARDS IN PRIMARY ENGLISH LANGUAGE CLASSROOMS

© Erika FRANKOVA
(University of Presov, Presov, Slovakia)

erika.frankova@pf.unipo.sk

The paper refers how Interactive whiteboards (IWBs) were used to support teaching and learning English language in primary education classrooms in Slovakia and Estonia. The research focuses on students aged from 6 to 10 years, as well as on their English teachers. It analyses the use of IWB and its integration process in English language teaching from the perspective of pupil and his/her interactive learning process. The paper draws upon the literature review critical view on IWBs use in education. In the first part, the paper discusses society change, school reform, ICT implementation and IWBs use in Slovakia and worldwide. Secondly, it discusses some perceived pedagogical benefits and potential problems related to adopting IWBs into primary classrooms and English language teaching at primary level. Finally, the paper brings results from own research, the first part done in period April-June 2010 at basic schools in Prešov region in Slovakia; the second part done in period September-December 2010 at basic schools in Estonia. Mixed methodology was appropriate due to the nature of the research questions. The research provides interesting insights which can help to better understand language learning process in this digital age. The data discussed in the paper are drawn from a study carried out as a part of a PhD research programme at University of Tartu, Estonia.

Keywords: primary education, interactive whiteboards, interactive learning environment, English language skills, task assignment.

The topic of the research is very actual and necessary, particularly in relation to the type of educational future and dynamic learning environments required for learners to develop appropriate skills and competencies for the life in the 21st century. Over a decade of research has documented the effect of appropriate use of technology in educational settings. The aim of the paper is to show critical view on effective technology use and impact on pupils´ foreign language development at primary level of education.

Technology use in primary schools is quite often a topic for discussion. If we join modern technologies and pupils´ self-realization the learning process will change from passive receiving the information to adventure journey following the information. IWB and its services together with internet are cultivating medium for language learning at primary level. Therefore, it is necessary for teachers of young children to be about the range of appropriate

technology applications. It is responsibility of educators to help children to understand how to use technology in safe and enriching ways. They need to expose children to developmentally appropriate, challenging, creative, and collaborative uses of technology. The full potential of technology's tools is only realized, however, when they are used effectively and in ways that connect meaningfully to the ongoing curriculum of the classroom and support creativity and critical thinking (Bergen, 2000).

It's necessary to say that, our society is characterized by principal changes which include globalisation, development in technology and total change in information society which is based on information. Schools need to respond to this change and find new teaching methods. To be successful in these new conditions means to acquire flexibility to study alone and cooperate with working team. Students need to be prepared for participation in the emerging knowledge economy and information based society. But the problem appears to teach students appropriate skills in appropriate way. Students need to acquire completely new competences and these and more problems caused aggressive pressure on our education and school system and contributed to the school reform in Slovakia in 2008. ICT implementation has been a component in many recent educational reforms in many countries and Slovakia was one of them.

School reform in Slovakia

Nevertheless results from research done in the field show increasing use of computers and IWBs at Slovak schools, in international student measurement (e.g. PISA) students show below-average level of technological knowledge. From that reason Estonia was chosen for our research as the second best European country in the PISA measurement with the aim to find, bring and suggest better way of IWBs use not only in English language teaching at primary education but emphasise also important things which forego IWBs use, such as effective trainings and acquiring digital competences during the initial teacher training at Universities.

As technology integration continues to gain importance, teachers must develop higher levels of confidence and proficiency in using technology in their classrooms and thus contribute to teaching transform and help students to acquire key competences. „*Main goal of our school reform is to transform tradition encyclopaedic, memorizing and directive teaching into creative human education ... with emphasis on activity and responsibility of a student ...*" (Kovalčíková, 2003:103). One of the main aims of the school reform is „*method, form and technology change by using modern ICT*" (Turek, 1998:310). From perspective of ISCED 1 (The International Standard Classification of Education for primary education), is acquiring of key competences long and difficult process which starts in pre-primary, continues to primary and secondary education and it's formed as life goes along. Key competences are: communication, personal and social capabilities, math and digital literacy (ICT), capability to study, solve problems, understand culture in the context and be able to understand different cultures. Systematic basic education in ICT gives the same opportunity for all pupils to acquire basic digital literacy. Thus elementary teachers should have digital competence and be able to provide effective teaching with ICT use.

According to the National Programme of Education and Training in Slovakia, the educational process has been innovating by implementing ICT

into school teaching mostly by presenting the knowledge via data-projector or with interactive technology. The innovation does not depend on technology itself but on the way it is used and on changes which occur by its use. These changes include interaction between teacher and pupil and between pupil and interactive teaching aid, than it is a change in gathering the knowledge by pupils, the use of activating educational methods and the development of cognitive thinking. Nowadays the educational process has been innovating mostly by IWBs use.

Interactive Whiteboards use in education

IWB is a touch–sensitive electronic presentation device, it is a display panel. It controls the mouse functions of the computer and it can move the cursor around the screen. A standard set up comprises computer, data projector, IWB and electronic pen. The IWB is connected to the computer using a standard USB connection, and the computer is connected to the data projector. The IWB and data projector are not connected together, but IWB must be calibrated with the electronic pen to work together with data projector properly. In addition to the hardware functions, IWBs are also equipped with interactive software which offers very useful facilities for teaching. These include the ability to manipulate content on the board – write over the picture, drag-and-drop objects, and most IWBs provide a library of resources, from backgrounds and shapes, to maps and cliparts. The computer images are displayed on IWB by the data projector and all applications on the computer can be controlled via touching the board with electronic pen or with your finger. Furthermore, the touch–sensitive screen captures everything written or drawn on its surface. If the computer is linked to speakers and a video player, multimedia resources can be incorporated and if it is connected to the Internet, there is immediate access to appropriate websites to enhance work in the classroom.

There is a difference between using the computer and the projector in class and using interactive technology because *"IWBs make the computer visible, as all interaction with both the hardware and the software itself"* (Dudeney, 2006:27). It is known that approximate participation in remembering process depending on the way of gathering the information is 10 % for reading, 20 % for listening and 30 % for seeing. Pupils basically learn by seeing and listening and thus two sensors are involved in learning process – audition and vision. Learning process can be more intensive and more effective with more sensors involved in it (Driensky & Hrmo, 2004). The main difference between using the computer and the projector in class and using IWBs is that with IWBs use there is another sensor involved in learning process – it is touch. IWBs use in education process support making associations for different types of intelligence and learning styles and furthermore with more sensors involved in learning is increased didactic efficiency of education. Interactive technology can bring interaction between pupil and interactive teaching aid, a different way of gathering the knowledge by pupils and it can contribute to the development of cognitive thinking of students. Interactive teaching aid has to allow student to be active in teaching process and to be active in his/her own learning process. The interaction between pupil and interactive teaching aid consists in the opportunity for pupil to enter the aid and thus change its process. In learning via interactive teaching aids pupils have to gather new knowledge by themselves and so be active in his/her own learning process. With IWBs use in classrooms is very important to create the interactive learning

environment and discussion with pupils by using teaching aids such as books, notebooks, natural objects, etc. It is also very important to use active teaching methods with the use of IWBs which allow all pupils to active work. The interactivity between a learner and the IWB depends on teacher characteristics and his/her ability to change the learning process from teacher-centred to child-centred education and to create interactive learning environment.

There are some common issues, such as using the correct pressure on the surface of the IWB and avoiding casting a shadow especially by pupils, which teacher should consider while using IWB. From the perspective of Rudd (2008) interesting area to debate relates to whether IWBs increase interactivity. IWB should be used to increase greater active pupil participation not to present a presentation device. Technology use does not automatically means interactivity in classroom, there are researches suggesting that the best and "deepest" learning occurs when learners are active, have more control of the content development and interactions in lessons, and where there is a greater dialogue around learning episodes. So IWB should be used to increase greater active pupil participation.

Interactive Whiteboards use in primary English classroom

IWBs and educational technology have been welcomed by a large number of primary teachers because it is useful in conducting whole-class teaching methods, which is a requirement of the primary strategies. The way young learners learn a foreign language depends on their developmental stage. Phillips (1993) says that young learners respond to language according to what it does and what they can do with it. They respond to the meaning and do not worry about words or sentences. Young learners are great mimics and they are usually ready to enjoy prepared activities with a high level of motivation. There is no doubt that new generation of children love computers and technology.

Proper IWBs use can enhance child's motivation, active participation and so new knowledge is being acquired through game and experience. There are kinds of activities that work very well for young learners, such as games and songs with action, total physical respond activities, tasks that involve colouring, simple repetitive stories and rhymes. Use of IWB is extremely appropriate if not demanding at this stage. It is common sense that if an activity is enjoyable, it will be memorable. With manipulating images and relating language to personal experience students can learn more effectively. With IWB use we can use activities which stir a class or settle it down, which engaged child's minds and which keep them physically occupied. Movement increases brain and blood oxygenation, which improves learning conditions and language output. When teacher uses IWB but in fact only talks and uses IWB as a presentation device while all students only listen is not considered effective. Other methods which have greater impact on learning should be used together with IWB, such as forming students into small groups and allowing them to complete language tasks by working together and relying on each other. To find out the way IWBs are used in language classroom we created three research questions:

1. What is the general way of IWB use in primary English language classroom?
2. What kind of IWB activities do primary English teachers use for practising language skills?
3. What is students´ participation while IWB activities?

Methodology and participants

The sampling frame were basic schools in Prešov region and in Estonia where IWBs were used in English language at primary education, we worked with available group use at both parts of the research. We were observing primary English teachers using IWBs in their classrooms to find out the way of its use, main problems of its use and thus create some recommendations for better IWBs use in primary English teachers.

The first part of the research study was focused on the way of IWB use at English language teaching in primary education, done from April-June 2010, at four basic schools in Prešov region. Seven primary English teachers, in particular one male and six female were observed at 16 English language lessons. Together 169 pupils were involved in observations, in particular 40 from the first grade, 48 from the third grade and 81 from the forth grade. The questionnaire was developed to find out the attitudes of pupils to interactive technology at English lessons. It was administrated to 100 pupils from the third and the fourth grades. Structured no participant observations and quantitative questionnaires for pupils were used to provide how some primary English teachers integrated the use of IWB into English language teaching, practising English language skills and learning activities, as well as pupils' attitudes to this technology.

The second part of the research study was focused on classroom management and teaching methods at primary English classroom with IWB use done from September – December 2010. In the research were involved 171 young learners from eleven primary classes at one elementary school in Tallinn, one elementary school in Pärnu, one in Otepää and one in Tartu. In particular 37 pupils from the second grade, 89 pupils from the third grade and 45 pupils from the forth grade and eight primary English teachers were observed at English language lessons 17 times. All teachers in this sample were female. There were 49 primary teachers participating in the questionnaire, in particular 47 female and 2 male. One female teacher, IWB trainer, was participating in the interview focused on methodology and didactic parts of teacher trainings for IWBs use. Developed questionnaire for Estonian primary English teachers was focused on access to IWBs use, frequency of its use, online materials and teachers´ opinions for IWBs use in language classrooms. Online questionnaire and structured no participant observations are followed by a semi-structured conversational interview to complete data collection and start analysis process. These instruments were used to provide an in depth view of how some teachers have integrated the use of IWB into their classroom teaching, learning activities and trainings to be undertaken for IWB use.

Results

There was an obstruction with writing and moving the object displayed on the screen by pupils stemming from a very gentle touch by their finger. Double click was very often a reason for learning environment total decelerating. In general we can say that teachers used IWB as a presentation device mostly for reviewing the knowledge. IWB was used mostly for practising the vocabulary. Teachers were acting mostly as "guides on the side" and whole class teaching strategies were used the most. Careful consideration must be given to the positioning of equipment, its location in the classroom in terms of visibility and accessibility. The IWB should be

positioned at the right height for young learners to use. We found out the lack of involving all students into the activities with IWB use and it is very important because the students´ participation is a crucial factor in ensuring the interactive atmosphere in the classroom.

Unfortunately there appears a new phenomenon during the observations - *Absence of speaking by pupils working on IWB*. In the first part of the research there appears 23,8 % absence of speaking and in the second part of the research it was even more, in average 70 %. In the second part we deliberated only speaking as producing, particularly tongue twisters, describing pictures, creating sentences, discussion, revising vocabulary and translation. The absence of speaking by pupils with IWB activities is extremely high and it means that task assignment have to be improved to let pupils speak in front of the IWB.

Generalization of the theory

As it has been shown, IWB is a good device for frontal teaching. Interactive learning environment depends on teaching style and the way of task assignment. With a frontal teaching as a teaching method, during the IWB activity, teacher can secure interactivity in classroom with discussion with pupils. Teachers at all levels should use tasks assignments on IWB regarding to the levels of Niemerko's taxonomy. We can understand task assignment for activity on IWB as the same type of questioning as in a test. This taxonomy is generally understood as the most suitable for building cognitive (knowledge) tests (Turek, 1998). Any repetitive activities, for which the IWB is a perfect tool, are kind of remembering, it means the easiest level of learning process. By using active verbs in tasks assignments and by following the levels of Bloom's taxonomy for IWB activities, learners are able to apply knowledge on higher levels. Discussion and tasks assignments are the crucial factors for interactive learning environment. Teachers can give tasks assignments for IWB activities with the use of Bloom's Taxonomy Verbs. These instructors create richer learning experiences for students and they retain more useful knowledge in the process. Teachers at all levels, from kindergarten through college, have improved the quality of their teaching and increased the level at which their students learn by using these verbs. The use of active verbs applied from Bloom's Taxonomy and following the four levels from Niemierko's taxonomy in teaching with IWB can help students learn at a higher level.

Martinková (2010) states that pure "clicking" and "dragging" objects displayed on the IWB, which is often used for tasks such as *match the sentence*, *make pairs*, *compose the following*, etc. is proven to be insufficient. The author divided the list of active verbs into 1) verbal active verbs and 2) non-verbal active verbs stimulating action. Verbal active verbs encourage active student participation rather than let students only to click on objects displayed on the IWB. Dialogues between students and teacher play a crucial role in learning process which involves the use of IBWs. It is the teacher's responsibility to correctly formulate tasks to promote active interaction. It's formulation must begin by using verbs such as *name, clarify, explain*, *prove*, *reword*, *formulate using your own words*, *interpret*, *describe*, *reproduce*, *defend*, etc. These verbs should be followed by other active verbs such as *assign*, *put in order*, *write*, *draw*, *correct*, *create*, *distinguish*, *choose*, *complete*.

This message has to be sent to the teaching professions and training providers because it helps to desired system level changes in pedagogical

practise. Research done in the field identifies a broad range of positive impacts of the use of IWBs but we have to bear in mind that learners' needs come first and the technology simply helps teachers to meet those needs. The activities for IWBs should be created by three principles mentioned below to ensure proper and effective use of IWB in primary English language classroom. and they can be secured by following principles written by Vosniadou (2001). The principles are divided into three categories of students´ learning process:

1. *active involvement*: learning requires the active, constructive involvement of the learner;
2. *social participation*: learning is primarily a social activity and participation in the social life of the school is central for learning to occur;
3. *meaningful activities*: people learn best when they participate in activities that are perceived to be useful in real life and are culturally relevant.

We believe that following these principles can ensure proper and effective use of IWB at primary level of education and can help to create effective interactive learning environment.

IWB use can undoubtedly increase learning opportunities but the technology does not replace effective teaching. In order to take full advantage of the technology, the teacher needs to combine knowledge of the teaching subject, an understanding of the way pupils learn and variety of teaching strategies along the skilful manipulation of the IWB technology.

Conclusion

The study found that all observed teachers used IWB on some degree to support teaching and learning process. This was done in various ways and with varying success. In particular, ICT infrastructure, access and use of IWB, as well as pedagogical aspects of integrating IWB into classroom program at primary education have to be improved. We want to highlight lack of technical confidence and practical issues which present barriers in mediating successful integrating IWB into pedagogical practise. We suggest that trainers in Slovakia should focus on the broader pedagogic aspects of classroom interactivity and that teachers´ should consider more carefully when it is more appropriate to use IWB and for what purposes.

The implications stemming from the research study include the need to offer more professional development on how to integrate IWB into English language teaching, as well as to provide initial teachers´ trainings. Then provide teachers with ready access to online resources and introduce them adequate class management and teaching methods while IWB used. The results underpin a number of meaningful differences in the current practise of IWB use in primary education because IWB was used mostly as a presentation device for practising vocabulary. Similar results showed Becta's survey that technology was used by teachers primarily for presentational purposes rather than a means to engage students in learning activities (Smith, Rudd & Cohan, 2008).

Integrating IWB into English language teaching is more effective when primary English teachers rather use own created simple interactive activities with animation, graphics and visual representation of knowledge than published material. These activities fit to the curriculum, to pupils and they are amazing in their simplicity and effectiveness. This is the fundamental

feature of a technology use in English language teaching. The use of active verbs applied from Bloom's Taxonomy and following the four levels from Niemierko's taxonomy in task assignment for IWB' s activities can help to ensure discussion and interactivity in classroom.

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