Benefits of using interactive whiteboards at Kajzerica elementary school

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Abstract - Interactive whiteboards are powerful teaching tools. In elementary school Kajzerica we are proud to benefit from interactive whiteboards and endless possibilities to create and manage our classes. Potential applications of interactive whiteboard are: using web-based resources in whole-class teaching, showing video clips to help explain concepts, manipulating text and practising handwriting, saving notes written on the board for future use, quick and seamless revision. After implementing interactive whiteboards into our classrooms, students feel more involved and therefore their motivation for the class is higher. Since the beginning of the school year, we have advanced our classes, recreating them and exploring numerous possibilities to benefit our students and encouraging them to do more. This research will show how students and teachers benefit from interactive whiteboards in our school and how we recreated particular classes using an interactive whiteboard.

I. INTRODUCTION

Introduction of interactive whiteboards into classes has enriched students’ and teachers’ lives. Both teachers and students do more research, constructing and interacting. Using interactive whiteboard helps teachers to explain complex and abstract concepts more efficiently and it makes them more flexible for building various class materials. Many of our teachers saw interactive whiteboards as a teaching method or technique rather than an aid in teaching or a part of an equipment. The ability to dynamically manipulate and annotate objects and the enhanced presentation of a certain matter is what differentiates classical teaching from teaching with an interactive whiteboard. We embraced digital culture and the fact that is very important in our students’ lives so it is to be expected that we adjust our classes to the digital age. Our students do not expect that we continue to use chalk and green board because it becomes too abstract for them. They live in a digital age where their attention is not focused on only one thing, but it is dispersed into several things. We had to adapt.

II. TECHNICAL CHARACTERISTICS OF INTERACTIVE WHITEBOARD

There are two very distinct kinds of interactive whiteboards: The first is a "virtual" electronic version of a dry-wipe board on a computer that facilitates learners in a virtual classroom to view what an instructor, presenter, teacher or fellow learner writes or draws. It is also called an electronic whiteboard and can be found in conferencing and data-allotment systems. The second type is a huge physical display panel that can operate as an ordinary whiteboard, a projector screen, an electronic copy board or as a computer projector screen on which the computer image can be controlled by touching or writing on the surface of the panel instead of using a mouse or keyboard [1].

We use the second kind of interactive whiteboard in our school. Every classroom in our school has one laptop, projector, interactive whiteboard and Internet connection so technical prerequisites are satisfied.

III. INTERACTIVE TEACHING

Interactive teaching methods are an effective way to connect with students used to constant stimulation. Teachers use higher order questioning and students’ active contributions are valued as they test their developing understanding against collective meaning [2]. Interactive teaching encourages and expects learners to participate, use questions to stimulate discussion, emphasizing the value of answers, giving participants hands-on experience and using teaching aids to gain and retain attention. Students are reviled from their passivity of merely listening to a lecture and instead become attentive and engaged [3]. These techniques are often perceived as “fun”, yet they are frequently more effective than lectures at enabling student learning. Telling is not teaching, nor is listening learning. We must engage participants in learning activities that lead to a higher level of understanding and result in the participants ability to apply what he learned. Interactive teaching is a two-way process of active participant engagement with each other, the facilitator, and the content [4].

IV. METHODOLOGY

A. Method

The qualitative descriptive research method was employed to investigate the perceptions of teachers regarding teaching with an interactive whiteboard. Data was collected from teachers via interview where we divided our teachers into two groups; the first group was the teachers who are teaching from first to fourth grade, and the second group was the teachers who teach from fifth to eighth grade.

B. Participants

Participants are the teachers of our school. A total of 29 teachers were interviewed for this research. The first group of teachers had 14 members, while the second one had 15 members. Only several teachers had previous experience with interactive whiteboards. The majority of
teaching staff started using an interactive whiteboard at the beginning of the school year (September, 2014). The average age of our teaching staff is 40 years old. 86% of our teaching staff hold Master (mag. prim. Educ. or mag. Educ.).

C. Sample question from the research

1. Would you rather work in classic classroom or modern one?
2. Do you use ICT in your classroom?
3. Do you think you can benefit from ICT in order to improve your class?
4. Do you think that workshop helped you with using interactive whiteboard in your class?
5. Do you have to reorganize the way you teach your classes now when you are using interactive whiteboard?
6. Do you think you have to do the research on how to improve using interactive whiteboards in order to benefit the students you teach?
7. Do you think we should organize more workshops for using interactive whiteboard in class?

C. Analysis

The first group of teachers were the ones that teach from the first through fourth grade, while the second group were the teachers that teach from fifth through eight grade. The second group of teachers has one or two subject that they teach in higher classes, while the first group has to teach around 10 different subjects.

Since the first group of teachers had to incorporate interactive whiteboards into 10 different subjects, which means they had to do more research and practice than the second group [5]. Both groups had previous experience with implementing ICT in their classes (using computer or laptop for presentations, videos or educational games).

At the beginning of the school year, the school had organized an educational workshop for our teaching staff where our teachers learned how to use interactive whiteboards. We found out during interviews that teachers had to reorganize their classes in order to incorporate interactive whiteboard into a class curriculum. This action compelled them to do research and to extend their knowledge about using information and communication technology in the class [6].

D. Results

Results of this research compared with the results of Türel and Johnson's research are very similar. The interactive whiteboard has allowed our teachers several instructional strategies; highlighting, coloring, flipping back and forth to review previous content providing reviewing techniques better understanding, using pictures for discussion and brainstorming, collaborative writing, shared reading, peer-teaching, and collaborative problem solving, hiding and revealing, drag and drop, and matching items activities, observing different media which is essential for visual learners, accommodating lower ability and special needs, finding hidden part of a picture with spotlight or screen-shade, capturing screenshots from web pages synchronously and manipulating them, correcting mistakes in the materials and playing games [7]. Using interactive whiteboard had also given us a chance to save paper since we didn't need to print exercises and distribute them to our students so it gave us environmental benefit as well.

Students have increased their independence from the teacher as well as learning outcomes. They can vividly learn from their mistakes and they are enabled to construct and evaluate by themselves which results in higher motivation and engagement into class curriculum. We try to see students as subjects of our educational process rather than objects. With interactive whiteboards the classic frontal approach is fully replaced by interaction between teachers and students. This way we were able to change class dynamics and encourage students to actively participate in class.

Both groups of teachers have successfully implemented interactive whiteboard in their classes.

V. EXAMPLES OF GOOD PRACTICE

A. Computer science

Teaching Computer science was elevated in several ways. Students are able to use interactive whiteboards to their full extent. We are able to combine matter from several subjects very easily (for example Mathematics, the English language and Arts are correlationing when learning and creating spreadsheets) so that the learning outcomes would be visible in every subject and not just one (in this case Computer science), which results in coherence of the syllabus.

We managed to raise the dynamics by encouraging students to be more independent and constructive in their learning outcomes with the constant support of the teacher. All of Computer science classes in Kajzerica elementary school are visible in the private student access network where they can upload and submit their notes and findings and later present it to the whole class. Some of students' works can already be seen on the school's website.

B. 1st grade Croatian language

In the first grade elementary school, students learn to recognize and write letters. They become more familiar with the surroundings they live in and they are taught to express themselves.

Using interactive whiteboard has enabled teachers to combine several resources to make classes fun and creative. One teacher has created an exercise with letters of the alphabet on the far left of the screen, in the middle is the picture starting with that specific letter and on the right is the sound of that letter. The teacher would mix the pictures and the students had to match the specific letter with the picture and the recorded sound of that letter. This exercise enabled them to use information and communication technology methodically from the early age which resulted in increment of self confidence and creative thinking. Later on, they would be able to draw an object into the given box whose first letter starts with the letter in question and then to write the whole word.
C. Geography

Our Geography teacher has completely replaced textbook maps with Google Earth. While explaining the position and basic characteristic of individual countries or continent, she would point her hand to the two dimensional paper world map and the students would remember her action and do the same. Now, she launches this application and uses the interactive whiteboard so students can interact with the globe and approximate the country in question. Furthermore, they can change views and see satellite images, maps and real life footage. She can copy the screen of the footage using interactive whiteboard tools and then modify the picture, as well as flip several pictures in question for repetition and better understanding. This allows students to develop critical thinking and to compare the characteristics of several countries very vividly.

D. Foreign language (English and German language)

Teaching foreign language becomes more interesting and creative using the interactive whiteboard. Similar to the first grade example, students need to match the sounds of letters in a foreign language with the picture of the letter in question. Later they match the sound of the word with the word in question.

Older students can learn to assemble sentences in foreign languages very easily using the interactive whiteboard. The following exercise has several components: recorded sound of words in a foreign language, written words in Croatian language, written words in a foreign language, constructed sentence in Croatian language and the gaps for constructing the sentence in a foreign language. In the early stage, the teacher reproduces recorded sound of the sentence in a foreign language (the answer) so that the student needs to recognize and match the words with the sound and fill in the gaps with written words in a foreign language to construct the sentence. Later on, the recorded sound of the sentence in a foreign language becomes redundant and the students need to construct the sentence on their own.

E. Chemistry

Teaching Chemistry is difficult without visual component. Although presentations can be considered good and interesting, students cannot interact with it, nor adjust it to their satisfaction. Interactive whiteboards enable students to create molecules on their own, to connect the atoms using right connection and to see the differences in object motion. This gives us better insight to the student’s understanding of the topic.

VI. CONCLUSION

Introducing interactive whiteboard gave our school the following benefits: increment of digital competencies of our teaching staff, our students are more motivated and proactive, our teachers have many more resources to create an interesting and fun classes, interaction between teachers and students is more dynamic and we have begun to collect materials to create our e-learning database.

REFERENCES