Svitlana Vasylenko
Vice-Head of IT in Education Laboratory,
Borys Grinchenko Kyiv University, Kyiv, Ukraine
s.vasylenko@kubg.edu.ua
ORCID: 0000-0002-5790-572X

EXPERIENCE USING MULTIMEDIA BOARDS FOR VISUALIZATION, CONDUCTING PEDAGOGICAL DISCUSSIONS, DEVELOPING INTERACTIVE EXERCISES FOR PRIMARY SCHOOL

Abstract. This article is concerning foremost studying the experience of different educators in developed and rapidly developing countries using multimedia boards for visualization science and mathematics, conducting teachers` and students` teaching discussions, develop of interactive exercises, increase the level of teachers` IT-competencies, problems of readiness to use ICT, and the formation level of professional teachers needs to use the whiteboard. The article focuses on the main scientific theories description, scientific achievements and developments in using multimedia boards in the school. By the way, author dwells on preparing future teachers for teaching science in elementary and primary school, ability to update teaching children with special needs: visually challenged, deaf student, fine motor delay, autistic, mental and behavioral challenged, psychological aspects of using IWB in teaching children with different types of perceptual information: visual, audial, kinesthetic, discrete. In conclusion author gives applicant`s scientific prognostication contribution to studying forming of primary school teachers` methodical competence.

Keywords: multimedia board; IWB; interactive exercise; teachers` IT-competencies; teaching children with special needs; primary school teachers` methodical competence

The new generation, including students as well, grows in the Internet era and the social network. The Internet has set a global trend in the getting available and necessary information and contacts fast. Social networks have absorbed and exaggerate all the most painful features of their most rewarding and regular audience - schoolchildren, students, young people in general.

Today, we may carry an iPhone, Android, or a Blackberry in our pockets and purses that enable us to interact with anyone, at any time, in any place, in any medium — a reality that surpasses our childhood fantasies. Not only we can communicate but we can also explore, study, work, play, and shop — all with a tiny tool that fits in the palm of our hand. We also tote lightweight tablet and laptop computers in our briefcases and carry with software to generate text, images, and data wherever we go.

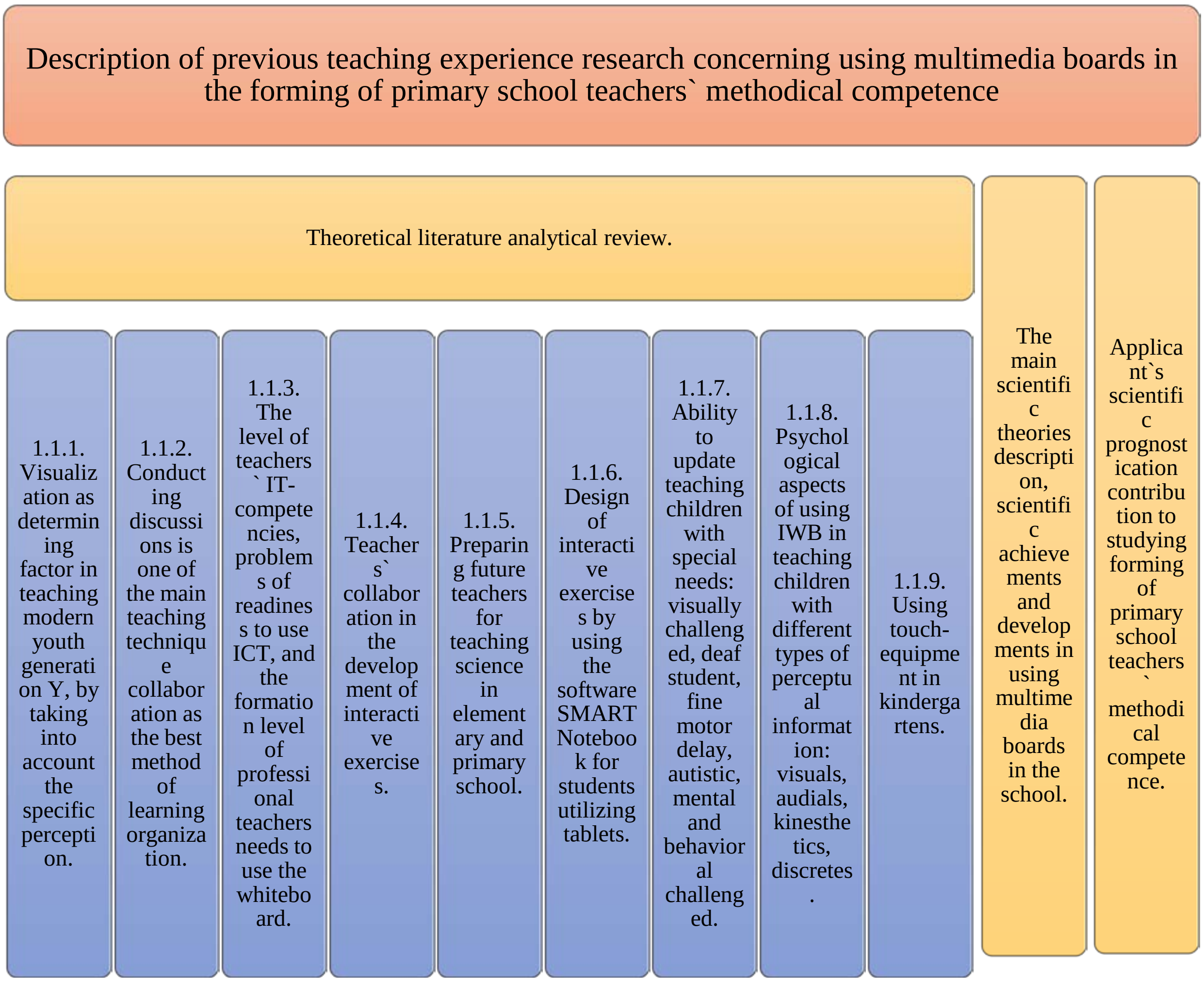
The need to organize the processes of teaching, which enchases the students` motivation to study, forms the desire for successful life and professional development in the digital era.

DeKieffer conducted a series of studies over ten year intervals, in 1947, 1957, 1967, and 1977. In 2000 the first in a similar series of ten-year studies was conducted, and this 2010 study is the first update to that study. Results indicate that the introductory technology course has gone through a particularly dynamic era recently, with nearly half of all topics appearing as new in 2010. Of particular note among the new topics are SMART Boards and Web 2.0 technologies such as Blogs, Wikis, and Professional and Social Networking Sites. (Villano, M. (2006). pp 16-20).

Educational institutions have tried to provide students better learning environments by equipping them with the latest technology. This effort has encouraged instructors to use various assistive technologies such as computers and the Internet in their classrooms especially over the last decade; this process is called integration of information and communication technologies (ICT) (Hsu, 2010). As a part of the ICT integration process, the interactive whiteboard (IWB) has been one technology most invested in especially by European countries such as England, Spain, and Turkey (Holmes, 2009; Türel, 2010). As of

2010, England has the highest IWB penetration rate (73%) in the world and many countries including Denmark (50%) and the USA (35%) have substantially increased IWB rates in classrooms; however, the average rate for Asia is still lower than 2% according to a recent research report (McIntyreBrown, 2011) (Türel, Y. K. & Johnson, T. E., (2012), pp 381–394).

Many educators devoted their articles to such research aspects investigation use the multimedia board:



Several teachers took the same emotion as one teacher said, “I use the SMART Board more often than manipulatives, because the lessons are already put together ahead of time and it takes less time to watch an experiment on the SMART Board rather than pulling out and having to put away all of the manipulatives,” while another made summarized use of both manipulatives and SMART Boards with, “I use manipulatives so every student can be fully engaged in the lesson. It is very motivational to know they will have an opportunity to ’play‘ with the science. I use the SMART Board for watching films and stories that support the science program. I also use it to manipulate scientific equipment I do not have, or would not use with first graders. For example, filling and pouring virtual beakers and test tubes.”

The comments were wide ranging and offered a broad array of information to inform how best to advance the using SMART Boards and narrow the areas in which teachers seem to need the most support. The comments also shed light on the idea that there are perhaps model teachers who would be willing to take on the role of teacher–leader in helping train fellow educators on the use of SMART Boards and manipulatives in the elementary Science classroom.

In first grade our time for science is severely limited. We never get to all of it. I usually have two 40-minute periods per week.” Similarly, another teacher said, “I seldom use manipulatives for teaching science because I do not have many manipulatives for the topics covered.” On the other hand, some teachers commented more to the effect of, “I often use manipulatives mainly when I perform an experiment, which is basically every skill” (Martin S., Shaw E., Daughenbaugh L., (2014), pp 90–96).

Another author (Kate W., Steve H., Heather S. (2005), pp 851–867) notes that pupils most commonly associated the IWB with visual ways of learning. The majority commented on how the visual and verbal elements complemented each other and promoted effective learning:

- The pictures help you to understand what the teacher is talking about (girl, age 10).
- You must get a smartboard because it helps you mix your ideas and work together (girl, age 10).
- It helps because you can see things, hear things and move things around the board (boy, age 10).
- You must get a smartboard because it helps you mix your ideas and work together (girl, age 10). ?

Eighty pupils (46 boys and 34 girls) in three LEAs completed the pupil views templates. The responses were broken down into 1568 individual statements for analysis, ranging from single words to whole sentences. The split between responses in the thought and speech bubbles was approximately equal (51% and 49% respectively).

The statements were categorized according to whether they were positive, negative, or neutral. This classifications forms the structure for the presentation of results: 56,3% choose «positive», 31,4% - «neutral», 12,1% - «negative» (Kate W., Steve H., Heather S. (2005), pp 851–867).

The report from the National Academy of Sciences shows that 26 % of US teenagers spend between one and two hours online a day. The statistics indicate that kids prefer to learn in a visual world and like to have information at their fingertips. Across the board, the latest and greatest classroom display products meet these needs (Villano, M. (2006). pp 16-20).

IWB can be used on all classes, even the verbal as reading, history etc.

Shared reading is a powerful technique for teaching reading skills and strategies (Sharon R., Chhanda I., (2011), pp 224–227).

Essentially, there appears to be the potential for enhancements in whole-class teaching and learning through the use of IWBs if pedagogic practice were to adapt and change through creative and innovative use of the particular features of this new technology (Figure 1, 2).
Follow these steps to create shared reading lessons with the interactive whiteboard.

1. Find a text. Short poems, nursery rhymes, and songs make good reading. The text may be typed onto the computer, using Word or the SMART board Notebook software and illustrated with clip art. You can also project texts from online resources such as www.starfall.com.
2. Identify skills and strategies to teach. You may chose to focus on phonemic awareness, phonics, strategies such as using context clues, or even punctuation or grammar.

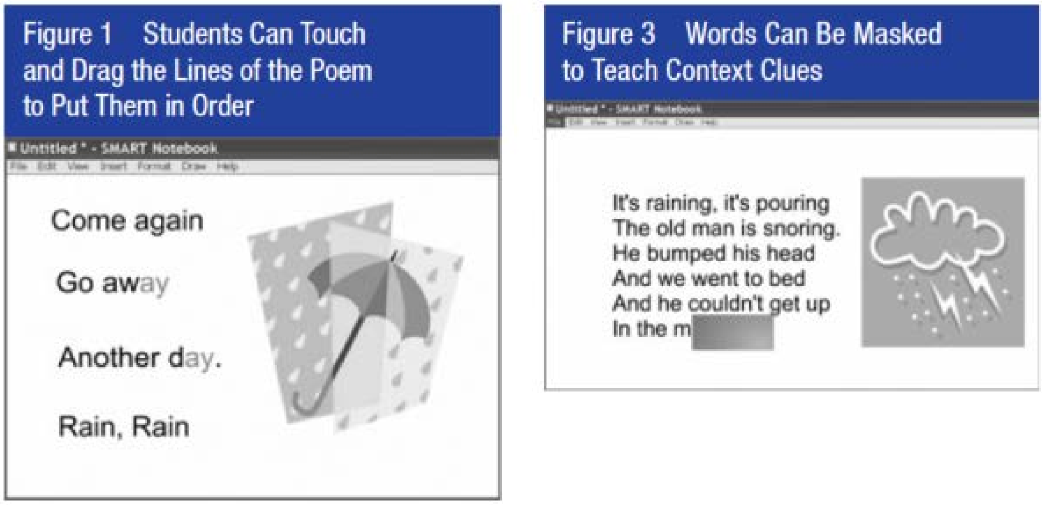


Fig. 1. Types of tasks for SMART board

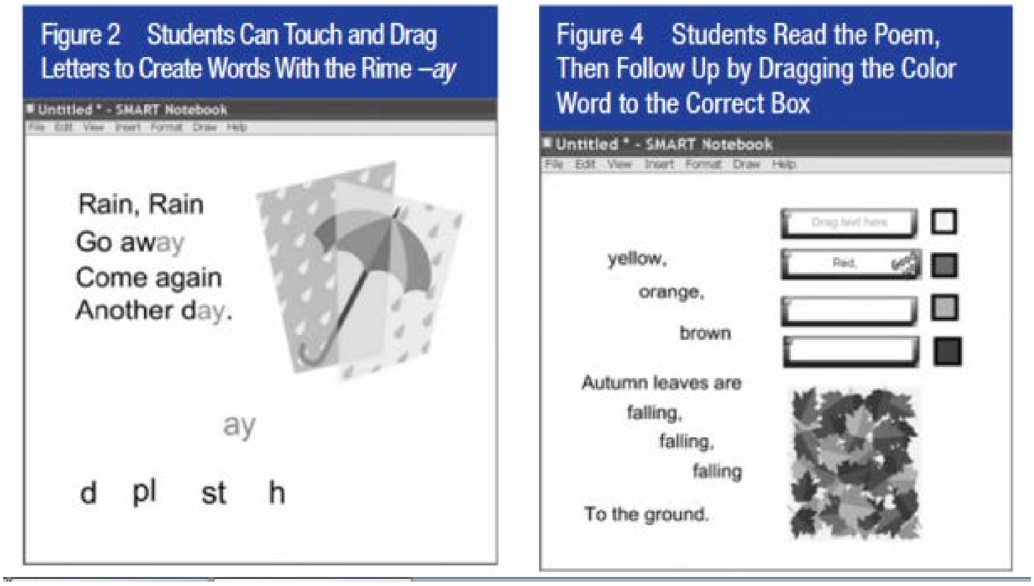


Fig. 2. Types of tasks for SMART board

3. Read the poem together with the children. Pointing to each word as you read will help younger readers learn directionality and map the spoken word onto the written word. Maintain students' interest during repeated readings by reading the poem in groups or adding motions or sounds.
4. Teach skills or strategies using the text.

Conducting discussions is one of the main teaching technique collaboration as the best method of learning organization. The article focuses on the classroom unveiled by the Pennsylvania Community Engagement Department at Pennsylvania Museum in November 2011, which highlights the SMART Board, a large touch-screen whiteboard programmed for interactive and collaborative student learning (Expedition, (2012), pp 53-54).

In this article (Ruggieri, M., (2005), pp 52-53) author dwells on interactive whiteboards a higher potential to enhance student learning. Using technology in the classroom keeps everyone awake and interested. She notes about her method for conducting of discussions in classroom by usage IWB.

Interactive whiteboard do possible to save all teacher`s notes from the discussions in classroom.

The level of teachers` IT-competencies, problems of readiness to use ICT, and the formation level of professional teachers needs to use the whiteboard. Learning to use computer and the Internet is an easy task, but mastering ICT use as an effective tool to improve teaching and learning processes is not. ICT presents new challenges to teachers. Teachers need training not only in computer literacy but also in the pedagogical application of those skills to improve teaching and learning. Technical support and pedagogical support are issues. They play important roles in implementing Smart Board in teaching and learning a second language like English language (Al-Faki I., Khamis A., (2014), pp 136-158).

These challenges are due to many reasons. Those reasons are teachers' lack of computer competency, breakdown in the common understanding of the schools' goals among those who hold the decision-making power, ongoing technical support is insufficient and the learners are more familiar with technology than their teachers are. Techno-savvy learners might be a challenge to teachers, who are incompetent users of computer. Those challenges interact to hinder IWB integration into teaching and learning English language.

The study recommends that teachers need continuing pedagogical support and technical support. The schools' administration should have a clear vision concerning the smart board, providing materials and resources. The number of the team of technicians should be increased. Moreover, teachers should be aware of digital learners' needs.

The aim of the study about FATIH PROJECT IMPLEMENTATION (Kiranli S., Yusuf Y., (2013), pp 88-105) is to specify the technology usage competency levels of high school teachers according to educational technology standards. The study was conducted through sampling out of target population and convenience sampling method was used in sampling. The assessment instrument used in this research was developed by the researchers grounding on the dimensions of National Educational Technology Standards for Teachers. The data have been described through frequency, percentage, arithmetic mean, standard deviation values, independent examples t-test and one-way variance analyses. According to the data procured at the end of the research, they thought that teachers meet the NETS*T standards and have a good level of technology usage skills. However, the level of their ability to use SMART board and developing learning object is low.

From my point of view teachers' technology usage competency levels do not show significant difference according to their gender, branch, their educational level and their seniority.

Teachers` collaboration in the development of interactive exercises. The study about difficulties facing teachers in using interactive whiteboards in their classes (Al-Faki I., Khamis A., (2014), pp 136-158) recommends that teachers need continuing pedagogical support and technical support. The schools' administration should have a clear vision concerning the smart board, providing materials and resources. The number of the team of technicians should be increased. Moreover, teachers should be aware of digital learners' needs.

The findings of this study show many challenges that teachers face when using interactive whiteboard. Those challenges are categorized into four categories.

Teacher Factor	Schools' Administration Factor	Technical Support Factor	Student Factor
• 1. There is a big gap between teachers' practice and pedagogical framework of the Smart Board. They use teacher-centered approach and Presentation Practice Production format of lesson with Smart board. • 2. Teachers use Smart board as a presentational tool for teaching classes. • 3. Teachers adhere to conventional approach (teacher-centered approach). • 4. Nearly half of teachers face difficulties to manage Smart Board. • 5. Teachers lack knowledge about troubleshooting of Smart Board. • 6. > 42 % of teachers complain about their busy schedules. • 7. > 35 % of teachers do not use web-learning resources in classes. • 8. > 15 % of teachers lack computer competency.	• 1. Schools' Administration does not have a clear vision concerning Smart Board. • 2. Schools' Administration does not provide periodical pedagogical support concerning interactive whiteboard. • 3. Schools' Administration provides insufficient interactive learning materials (software) - Schools suffer from shortage of supporting materials. • 4. Schools' Administration provides sufficient professional programs to raise teachers' skills of using computer and Smart Board. Technicians did the training programs. • 5. Schools' Administration provides an insufficient initial training regarding Smart Board. Once per school year is insufficient, particularly because the IWB is a new technology to both teachers and learners.	• 1. The majority of teachers emphasize that technicians are not available when Smart Board's problems occur. • 2. The number of technicians is a small to deal with all classrooms demands. • 3. Technicians are not helpful in training teachers to diagnose and eliminate problems of the Smart Board. • 4. IT departments limit the use of the Internet in classrooms. • 5. IT departments do not train students on how to utilize the Smart Board. • 6. Nearly all teachers complain about computer programs and anti-virus protection, which are not updated regularly, in the classroom. It is considered the biggest challenge, which impedes and affects teachers' performance inside classrooms.	• 1. Teachers emphasize that learners' motivation is low. • 2. Learners choose not to participate in interactive whiteboard's activities. • 3. Teachers emphasize that more than thirty percentages of learners do not utilize Smart Board in learning. • 4. The majority of students do not access educational websites. • 5. 60% of learners know better than teachers do about technology. They are competent users of technology. They can change Smart Board setting to disrupt the English language classes. They do not help teachers in troubleshooting too.

Perhaps, no one of those factors by itself is a determining factor, the interaction of them; however, has a very profound effect on teachers' performance. Those factors are considered key challenges by the researcher.

Teachers can take the better part of a year to become completely comfortable with the InterWrite board (Villano, M. (2006). pp 16-20).

The study about tools for adaptive learning and learning styles (Josef M., Kateřina K., Milan C.. (2016) presents a short overview of the development of the adaptive learning concept, shows its contribution to effective learning and teaching and introduces trends of its further development which – in the form of adaptive e-learning – are related to the use of the ever-developing ICT. It also presents the current ICT system tools. Furthermore, it provides information about the research and design results of the “Ostrava School” of adaptive e-learning. The results, together with a number of other inputs, will provide the content framework for the specialized educational module “Tools for Adaptive Learning and Learning Styles” within the MOOC course “OCI Tools for E-leaning”, which is being developed as an output of the IRNET international project.

Preparing future teachers for teaching science in elementary and primary school. The study about Using Smart Boards and Manipulatives in the Elementary Science Classroom (Martin S., Shaw E., Daughenbaugh L., (2014), pp 90–96) summarizes the results of a survey administered to 48 elementary schools in the largest school district in a south-eastern U.S. state, conducted by university faculty to evaluate the use of SMART Boards and handsome experiences, the objectives of which were to identify preparedness of elementary classroom teachers in teaching elementary Science, in using SMART Boards and in using manipulatives for teaching in the elementary Science classroom, as well as to identify frequency with which elementary classroom teachers use SMART Boards and/or manipulatives and reasons for using or not using SMART Boards and/ or manipulatives in the elementary Science classroom. Results of the survey will be used to address areas of needed improvement among pre-service teachers, to identify areas in which early career teachers need additional training or information and how best to improve the quality and training of the Elementary Science component of the education degree (Martin S., Shaw E., Daughenbaugh L., (2014), pp 90–96):

– 96.3% Of the participants had a SMART Board in their classrooms;
– 3% reported the available SMART Board as being un-mounted or portable.

Of the remaining participants, 2.5% did not have a SMART Board in their classrooms but did have access to one when they wanted to use it, while only 0.8% reported not having access to a SMART Board.

This availability of technology would suggest that all students are being taught with use of SMART Boards and similar interactive technology.

In fact:

– 83% of participants indicated that they use SMART Boards every day for delivery of instruction,
– 30.1% reported using it as their primary mode of instruction.
– Some participants (33.6%) said they used their SMART Boards for allowing students to problem solve.

This investigation shows the use of SMART Boards specific to the teaching of science. Note that during the course of a week, 24.4% claimed that they used the SMART Board at least three days per week for delivery of science instruction, while 22.2% used the SMART Board daily for science instruction. A small number (6.2%) said they do not use the SMART Board in any way. Only 7.2% reported having been trained as part of a university course.

This suggests that either more courses should incorporate training into their curriculum, or more student seminars should specifically relate to the practical application and scope of using SMART Boards in the classroom (Martin S., Shaw E., Daughenbaugh L., (2014), pp 90–96).

Design of interactive exercises by using the software SMART Notebook for students utilizing tablets. Though schools have much in common, in terms of learning objectives, each school is different in terms of its’ own unique blend of requirements, priorities, and challenges. When considering new technologies such as introducing tablets, school management and the ICT coordinating team should first consider school learning priorities and learning outcomes rather than just the technology aspects.

– As part of school self-evaluation process, identify overall school learning priorities and outcomes.
– School e-learning plans should form an integral part of wider school planning.
– Consider how ICT could help achieve these outcomes, and if tablets could support learning outcomes.

Tablets (Figure 3) seem to require less technical support than conventional desktops or laptops, and as such are being used increasingly in school situations where students ‘bring their own devices’ (BYOD).

Fig. 3. Tablets.

The model, which be describe in article (PDST Technology in Education, (2014), pp 1-7) also lends itself to students supporting their own devices. This is referred to as ‘bring your own support’ (BYOS). If tablets can support differentiated learning while significantly reducing the level of technical support required, this model could greatly benefits schools.

Educational Considerations Educational possibilities for enhanced learning with tablets clearly exist, and there is a growing view that, guided effectively by teachers, they offer the potential for a new and exciting era in education. Tablets offer new capabilities and opportunities for learning, mainly in terms of their flexibility, mobile capabilities, and ease of use. This model can provide students with a shared or individual multi-functional learning device ‘in their own hands’. This has the potential to support students’ independent, differentiated and personalized learning.

Teachers use the technology in a variety of lessons. During vocabulary lessons in some of the lower grades, they demonstrate a word using the StarBoard, and students mimic it on their BT-1 tablets, using the pen device. Student handwriting automatically converts into easy-to-read text, and teachers can walk around the classroom to see how each of the students performed. If they wish to, teachers can configure the StarBoard to display each of the tablet screens in sequential order, eliminating the need to move around the room.

Eshom says the technology has altered the classroom environment for the better. Instead of wondering if students have retained a particular lesson, teachers can use the StarBoard to get instant feedback. What's more, she adds, because the technology keeps students so intensely involved in every lesson, Casa Grande teachers have reported that they're spending far less time trying to get students motivated, and far more time doing what they're there to do: teach (Villano, M. (2006). pp 16-20).

Ability to update teaching children with special needs: visually challenged, deaf student, fine motor delay, autistic, mental and behavioral challenged. In the article (SMART Technologies ULC, (2009), pp 1-14) educator gives much attention for ability to update teaching children with special needs, creating classrooms for everyone and how interactive whiteboards support universal design for learning.

Universal design differed from barrier-free design as the latter solution was geared more toward retrofitting or adapting existing structures and environments than considering the needs of all people during the design process itself. Ron Mace, the founder of universal design, described his philosophy as “the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design” (Center for Universal Design, n.d.). For example, where accessibility might previously have meant adding a wheelchair ramp to an external set of stairs leading into a building, the universal design approach would be to design access to a building at street level or via a mild slope, which accommodates everyone with the same no stigmatizing solution.

In 1997, the Center for Universal Design at North Carolina State University published seven principles of universal design:

– Equitable use – the design is useful and marketable to people with diverse abilities
– Flexibility in use – the design accommodates a wide range of individual preferences and abilities
– Simple and intuitive use – use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level
– Perceptible information – the design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities
– Tolerance for error -- the design minimizes hazards and the adverse consequences of accidental or unintended actions
– Low physical effort – the design can be used efficiently and comfortably and with a minimum of fatigue
– Size and space for approach and use – appropriate size and space is provided for approach, reach, manipulation and use regardless of the user's body size, posture or mobility (Center for Universal Design, n.d.)

In 1984, a group of education researchers and clinicians founded the Center for Applied Special Technology (CAST), "to explore ways of using computer technologies to improve education for all children, especially those with disabilities". Influenced by universal design guidelines, CAST researchers explored how education could be individualized through a flexible approach to teaching methods and materials, which they called universal design for learning, or UDL. Their work led them to develop alternatives that would not only reduce barriers for individuals with special needs, but would also enhance learning for all students. According to CAST, "addressing the divergent needs of special populations increases usability for everyone".

In the course of their research, CAST developed three enduring principles of UDL:

1. Provide multiple means of representation – give learners various ways to acquire information and knowledge.
2. Provide multiple means of action and expression – give learners alternatives for demonstrating what they know.
3. Provide multiple means of engagement – tap into learners' interests, offer appropriate challenges and increase motivation.

Psychological aspects of using IWB in teaching children with different types of perceptual information: visuals, audials, kinesthetic, discrete. Many authors have noted that USING MULTIMEDIA BOARDS helps children to adapt in society with different types of information perception and development challenges. Interactive Whiteboards and Learning Improving student learning outcomes and streamlining lesson planning. Educators continuously strive to develop strategies and tools that will reach students with unique or diverse learning needs. Many of these learning styles – even the requirements of visual, hearing-impaired and other special needs students – can be addressed when lesson delivery and learning activities incorporate use of an interactive whiteboard (Martin S., Shaw E., Daughenbaugh L., (2014), pp 90–96).

– Visual learners benefit from notes taken on the interactive whiteboard in addition to diagraming and manipulating objects or symbols. As the interactive whiteboard is easy to use, it enables students of all ages to see their own writing and objects of their own creation.

- Kinesthetic or tactile learners are typically difficult to engage in traditional classroom activities that are usually more visual or auditory in nature. They are able to reinforce learning through exercises involving touch, movement and space on an interactive whiteboard.
- Deaf and hearing-impaired learners rely primarily on visual learning, and the interactive whiteboard facilitates the presentation of visual material with the use of sign language simultaneously in front of students.
- Visually impaired students with some vision ability can manipulate objects and use large text on an interactive whiteboard's big surface and participate in computer-based learning in ways that would not be possible on a smaller computer screen.
- Other special needs students with learning challenges, such as physical ability needs and behavioral issues, e.g., Attention Deficit Disorder, also find the large interactive surface helpful. Its large size and touch sensitivity facilitates ICT learning beyond the standard keyboard-and-mouse type of computer interaction, and its appeal can be used to promote good behavior.

Using the touch-equipments in kindergartens. The next study is devoted some using different touch-equipment in kindergartens and in elementary schools (Preston C., Mowbray L., (2008), 51-54).

The SMART Board provides teachers and students with a whole new interactive learning environment to share ideas, information, images, animations, audio or video. Learning is much more powerful if it is multimodal and the SMART Board supports several different learning styles - visual-spatial, auditory and kinesthetic.

Young students are highly motivated when content is presented on a SMART Board. It increases their enjoyment by being physically involved touching and moving objects and by the size of the screen which makes images large enough for everyone to see. The engagement and knowledge building of young children is fostered when they are given the opportunity to interact in a physical and mental way in the learning environment Kindergarten students are incredibly inquisitive and highly motivated towards science but lack the skills and ability to deal with multiple relations compared to older students.

Kindergarteners are able to predict what might happen in an experiment and can verbally describe their observations, having them record the results is more challenging. 5-6 year olds require considerable scaffolding and teacher modelling which is where the SMART Board becomes effective.

Many of the comments related to the hardware, the software, and the multimedia characteristics associated with the IWB. With regard to the hardware, the board itself was mentioned 50 times; these comments all related to improved visibility. Different aspects of the hardware mentioned were the link with video, DVD, scanner, and printer (Doe C., (2010), pp 30-34).

SMART Board allows simple touch of a finger or marker to the surface:

- open and close applications
- view files
- create new documents
- co-edit existing documents
- visit Web sites
- work with video
- write in digital ink over any image
- to maintain their entries in the document file format or in SMART Notebook ™ collaborative learning format for further use.

After connecting the SMART Board interactive whiteboard and the projector to the computer and with the computer image is projected on the interactive whiteboard surface.

Whiteboard durability and reliability.

SMART Board has durable steel base active region.

- Matte anti-glare hard and durable working surface, resistant to scratches and dents. Easy to clean, it can be used dry-erase markers.
- Support of operation markers, finger or an arbitrary object such as a pointer.
- Using the touch recognition technology Digital Vision Touch. Four digital cameras, one in each corner of the board, monitor the position of the finger or marker when you move it on the interactive surface.
- Software to create interactive slides SMART Notebook ™ 15 set. This unique software that allows you to easily and quickly create interactive slides and lessons. Anyone can additionally be trained to work with SMART Notebook ™ in our training center.
- Whiteboard supports multi-touch gestures. Using gestures, carried out with two fingers, the user can change the size of the object on the page, rotate the object, zoom in or out, and more.
- Interactive whiteboard supports Multitouch technology. This feature allows you to simultaneously work, to write, to move objects with their fingers or markers to multiple users independently.
- Interactive Whiteboard and the bundled software is compatible with operating systems: Windows, MacOs, Linux.

Work on board is similar to work with a tablet PC.

In 21st-century homes, schools and communities, our lives have been transformed by these technologies. We witness this in the articles (Edith M., Osnat D., Tal Berger T., Rachel Z., (2011), pp 249–273), (Armstrong V., Barnes S., Sutherland R., Curran S., Mills S. & Thompson I., (2005), pp 457-469) we explore how special educators employ such technologies, using:

- Desktop conferencing and collaboration software to develop international friendships between students and teachers in Ireland and the United States.
- An electronic whiteboard to assist students with autism spectrum disorders to develop social skills through social stories and self modelling.
- Multimedia slide show software to design individual or group learning activities that enhance motivation for and engagement in academic content.
- Multimedia presentation software to create an electronic word wall to teach students how to read and pronounce new vocabulary words.
- Document production software and web browsers as tools to create and manipulate digital text to support the development of reading skills.
- The animation feature in multimedia presentation software to create attention-getting devices and visual prompts in early literacy lessons for young children.

Although educators have enthusiastically embraced these technologies to support their personal and professional productivity, sadly, according to some recent research, they have been slow to adopt these technologies to enhance student learning.

Students were using these technologies to create more personalized learning experiences than their teachers could provide.

Yet, we realize ALL students must become fully proficient in using these technologies if they are to succeed in school and adult life in the Information Age.

Applicant`s scientific prognostication contribution to studying IWB usage in the forming of primary school teachers` methodical competence.

In 2010, the first group of Kyiv educators gathered in a large group of 20 people to undergo training on SMART in Institute of In-service Teacher Training.

In 2012, Borys Grinchenko Kiev University established a pilot project whereby smart classrooms were installed for use in five building. In this project, our University buy more than 70 Interactive White Boards (75% of the total number of classrooms in the University), laptops, internet connection, communication software and teacher training.

The Applicant`s WORK offers a description of the educational process research training of future primary school teachers in the Pedagogical Institute Borys Grinchenko Kyiv University using interactive boards. Plan described the process of creating science-based methods of interactive boards in the preparation of future primary school teachers and to create interactive educational training and verification exercises. The influence of this technique to enhance positive motivation of students to teaching activities.

SMART is pilot project for 4 years in order to examine the effects of integrating technology into instruction on teachers, students, and the school community. The findings indicated the following:

- student motivation and engagement in the learning process increased when studying with the IWB;
- teachers reported on their professional development and enhanced technology skills.

The findings also showed that the integration of technology into instruction posed some difficulties and challenges, such as a sense of over-burdening among teachers. The main conclusions were the following:

- there is a need to focus on the pedagogical training of the teachers, with an emphasis on the ways that technology can assist interactive teaching;
- in order to help relieve the over-burdening of teachers, a database of instructional tools should be established providing suggestions for lesson plans and instructional materials;
- accessibility to the technology should be extended to more teachers and students by adding smart classrooms to every school in the project.
- The Applicant has a number of tasks to perform their scientific work:
- Define SMART Technology and the ways of its usage in education.
- Substantiate competence approach while introducing SMART Technology.
- Explore the content and structure of forming of primary school teachers` methodical competence.
- Create and give a theoretical proof of ICT-competence in model for future teachers of primary school on the basis of SMART Technology.
- Conduct experiments to check effectiveness using multimedia boards in the forming of primary school teachers` methodical competence.

Today's priority tasks of personal Education are the formation of integral outlook, skills of effective communication and teamwork, ability to solve education and vital problem, critical thinking, activity, creativity and so on.

ICT and using interactive whiteboards became powerful and multifunction means of forming of primary school teachers` methodical competence. It is one of the most important parts of secondary education and their usage is considered to be play a significance role in solving the tasks and teach the pupils to be successful well informed in our society. They enhance formation of primary school teachers` culture and competence.

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