INTERACTIVE WHITE BOARD

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Project Report

Description & Goal

The goal of this project, is to assist university lecturers who are interested in new technologies, and to help them find ways to incorporate them into their various disciplines. With the challenges, that have arisen since the implementation and creations of these interactive white boards in the universities, this project is also aimed to investigate obstacles faced by the lecturers, conduct research, and discover solutions to the obstacles. In addition, the learning benefits of adopting a smart board in the university is evaluated.

Many professional lecturers in Estonia had never used ICT-based learning methods as learners themselves, nor as trainees. They have no prior teaching experience with high-tech tools such as Interactive Whiteboards (IWBs). The task is significantly more challenging for these teachers. This is because the technological setting in which classroom activities take place is rapidly changing. When it comes to implementing Interactive Whiteboards, University lecturers do have some issues. They experience difficulties in integrating it into teaching and implementing it in their subjects.

Stakeholders Involved

Teachers

Students

University/ Schools.

Teachers want practical solutions to the growing issues that new technologies such as the interactive whiteboard pose to the teaching profession.

Project Research and Methodology

Purpose

The purpose of this project was to assist lecturers in Estonian Universities in integrating the SMART Board into educational and higher institutions. We studied how effectively students were able to learn the material when the technology is included in the traditional lecture sessions of coursesIn the past, we have seen evidence (Marzano & Haystead, 2009) for statistically significant differences in pre/post test scores on exams taken both traditionally and on the interactive board that reflect subject differences. We used selected test items to look for any subject differences in test scores for course material taught with and without the SMART Board. We also developed and administered an attitude survey to measure student response to the SMART Board.

Background

As we read student lab reports and exams, we observed that there is poor student understanding for several topics in higher educational courses. Students in physical science courses find it difficult to plot graphs and formulas during the lectures and students in arts/ social sciences find it difficult to follow through on presentations due to complaint of sometimes the presentational screen being too small and not fully clear. We wished to apply the SMART Board technology to class activities and find out if it could decrease these student difficulties.

Class Activities

We taught a course including both science and social science students, that required students to visualize data for graphs and presentations such as the cycle of deforestation in various countries a for the past 10 years. We used the SMART Board to develop class activities for country maps with the highest rates of deforestation, We integrated a web site (https://www.globalforestwatch.org/) into the lecture on country maps. The site has maps of deforestation together with graphs. We downloaded the latest country data and introduced students to drawing graphs of the map. After the instructor drew in one or two graphs, student volunteers came up to draw in additional graphs. Students used different colours to emphasize differences in different continents. Since class size was small, almost every student could participate in the process. Even students who were not drawing on the SMART Board gave suggestions as to how to change or improve a graph. The instructor saved the student graphs presentation and then downloaded the detailed country data graph and saved it to SMART Notebook as well.

As the instructor switched back and forth between the official country deforestation graphs and the student graphs, students could compare how well they constructed the graphs. Since the instructor had saved the previous day's graphs also, students could compare how fronts moved in the past 24 hours. At the end of the lecture, students took home an assignment that asked them to revisit the web site, print a country deforestation data and then draw a complete set of graphs. They applied their knowledge from the class and interpreted the data to describe the deforestation in various countries. Later in the semester, students took an exam which included three questions on deforestation graph. The same exam questions were administered to the two control groups of students who had the same homework assignment but who did not have the SMART Board during the lecture on deforestation

Results and Evaluation

Studies of Student Knowledge Gain We administered the test questions on weather maps to four sections of students. Two test sections of Science and Arts students used the SMART Board during lecture and two sections did not use the SMART board. We looked at the test results for each question and calculated the fraction of students who had it correct. We performed an analysis of variance (Var) on several combinations of the data. For each test section, we found no statistically significant difference in the fraction of science students who had the question correct as compared with the art students who had the question correct. For each traditional section, we also found no statistically significant difference in the fraction of science student who had the question correct as compared with the fraction of art student who had the question correct.

Attitude Survey of Students Who Used SMART Board

We administered the same attitude survey to all sections of students who had used the SMART Board during a class. The survey (Appendix A) asked four questions and allowed a free response to two questions. Histograms of student responses are shown in --------- Arts and social science students agreed that class presentations that included the SMART Board were interesting to them. Science students believed that the SMART Board helped them remember more of the lecture. The students who enjoyed writing on the SMART Board were the science students and no students found the Board to be a distraction. Engineering students liked the drag and move option while the social science students were neutral about it. All groups students felt that the use of colour helped them better understand ideas. In general, students disagreed with the statement that they would have preferred that the instructor use the SMART Board less often.

Conclusions

As we look at the data, we find that the use of SMART Board may help students from various background gain knowledge in their different classes. In addition, most students surveyed had a positive response to the SMART Board. Students self-reported that lectures featuring the Board were more interesting and that the use of colour helped them understand ideas better. It may be obvious, but if the students find the class interesting, they may retain more of the information.

Have you ever used or been in contact with an interactive board?

Legend: ● Yes ● No

72,7% 27,3%

83,3% 16,7%
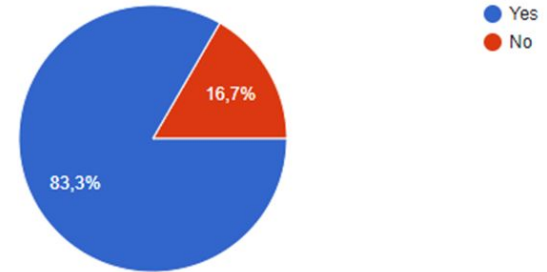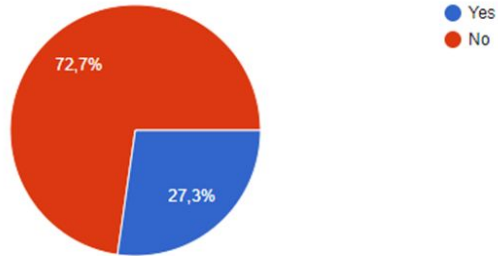
Do you see any potential use for IB's in learning environments?

Legend: ● Yes ● No

83,3% 16,7%

81,8% 18,2%
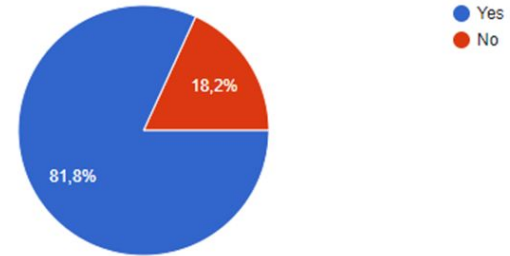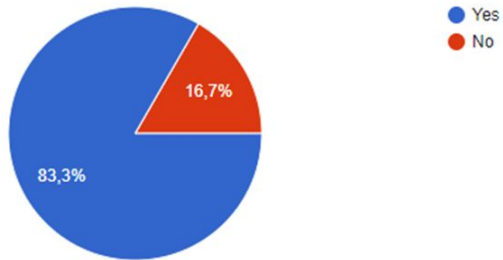
Students, Sample size : 110   Teachers, Sample size : 6

Skills & expertise of Team Members

Researcher

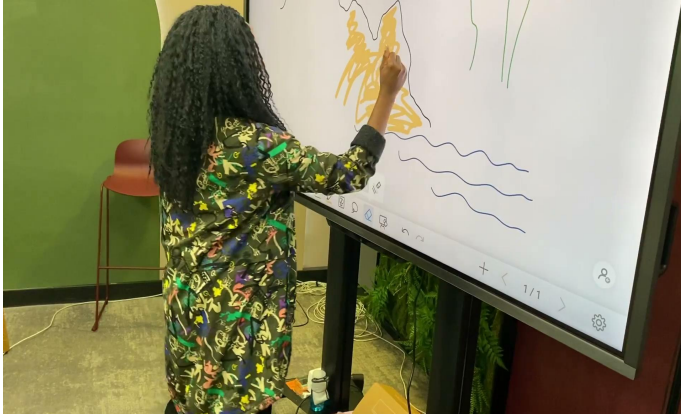Team Leader

Administrator

Marketing Guru

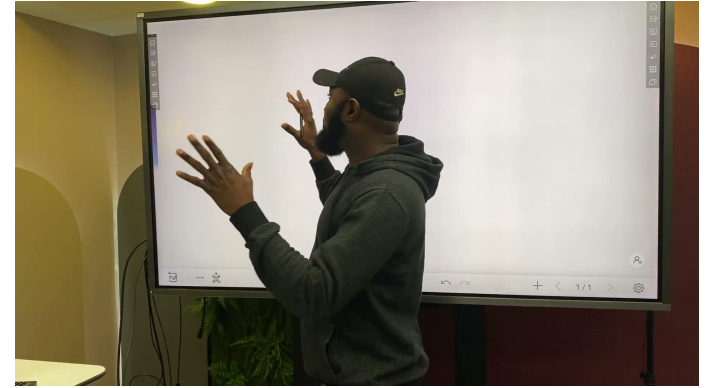# Project Action Plan

Detailed Project Action Plan

https://drive.google.com/file/d/1qoHjesogco_PitppiWGChPU4bsTo8oHO/view?usp=sharing

Media Coverage

Activity Process

Video recording taken during one of our project meetings, to share with some University students to explain better on the features of the Interactive Board.

Video recording taken during the project meeting, to share on social media and personal media, promoting the awareness of the Interactive Board technology.

Self-reflection From Team Members

Martha O. Onyilokwu

The project's original goal was to help university instructors who are interested in new technology discover methods to incorporate them into their respective specialties. Coming from an engineering background and presently studying social entrepreneurship at Tallinn university, my background in project management gained from my entrepreneurial degree assisted me in understanding the research and methodology to be followed in completing this project successfully. When the project began, there were difficulties, including the loss of nearly half of the team, but I remained optimistic, believing that with perseverance and hard effort, we would be able to complete the project. I had never seen or used an interactive board before, so working on a project to promote this course, as well as conducting and testing various theories on how the project will be carried out to increase the number of lectures and students interested in using the interactive board at Estonian universities, was extremely exciting. I gained a lot of interactive and training skills from conducting training seminars and this Project experience is one which I look forward to having again.

Chiedu Kenechukwu Anonye

The Project, Interactive board has been an interesting one. We learned about the invention, its uses and features and we had to introduce the Interactive board to schoolteachers and showed them how to use it. We started this project in September 2021, we had several meetings, which we all partook in, in person, or through zoom, we had several meetings with some Ph.D. students, Larisa helped to organise this, and we showed the students how to use the board, and the benefits of using it to teach the students. They were quite enthusiastic about learning the features the board could offer, and they asked for more meetings, in order to enable them to learn more things. The challenge with schools introducing the interactive board is the cost of acquisition, installation and continuous maintenance.

Klaus Martin Vare

This LIFE project has certainly been an experience, but it absolutely was not a 100% positive experience. Most of the obstacles came from unfortunate circumstances, as people were leaving the project for various reasons week after week. At one point I didn't even know if there was any point in dividing responsibilities, as there was no way of knowing if that person is even going to be working on the project next week. The project itself had a pretty clear goal and was reasonable. Saying that, I believe that we did not 100% achieve what we wanted, as some of the activities planned at the start of the semester never came into fruition. The project somewhat improved my leadership skills; at some point I just had to do everything in my power to actually get the project moving in some direction. At times it became very overwhelming but I believe we finished our project on a passable note.

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