

“The Effect of Interactive Smart Boards on the Cognition and Motivation of Degree Students”

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Abstract- In recent years the research literature has explored technological developments in different areas that measure change. The current study focuses on the interactive smart board, and its purpose is 1. To examine the effectiveness of using smart boards as a mechanism of change, 2. To explore students' evaluation of it and its effect on them, and 3. To investigate how smart boards differ from any other board work. The study was conducted via a questionnaire completed by 300 respondents (boys and girls) in the final year students of Degree College in Kalaburagi district. Smart boards were now introduced in degree colleges in recent years. Our hypothesis was that interactive smart boards would enhance instruction. The study's key finding is that the variable of clarity has seen the most improvement since the introduction of smart boards, and a significant difference was discovered in favour of degree-seeking college students. Additionally, the variable of interest showed a substantial difference in favour of the girls. The success of the student and the enhancement of the student's learning process appear to be impacted by each of the four elements, which all appear to be interrelated. Through a case study of smart boards, which was shown by the study to be a significant criterion of successful teaching, the research findings highlight the significance of technology to education. The pedagogical contribution of technological advancements to teaching may be improved by looking at the various technological instruments in the context of their contribution to the research-proven elements of excellent teaching.

Key Words: Smart Board, Cognition and Motivation.

INTRODUCTION:

When it comes to knowledge and information technology, the role of school and university teachers has shifted. The emphasis is now on giving the student the opportunity to participate in the learning process (Guckel and Ziemer, 2002: 54). Furthermore, the emphasis is on empowering students to become self-directed students by providing them with the knowledge and skills to use and apply multimedia and communication technology in the learning process. Furthermore, information technology teaches students the necessary self-search skills required to successfully obtain information on the internet (Al Rewadia, 2011:66). As a result, it has become necessary to employ modern teaching methods in order to achieve the educational goal of improving and enhancing traditional educational techniques used in the preparatory year. This should be the primary goal, rather than academic achievements. Furthermore, using cutting edge multimedia and modern teaching techniques should assist the teacher in improving the natural teaching-learning process. That is, improving educational quality through the use of multimedia and modern teaching techniques such as smart boards.

The interactive whiteboard has been called a variety of names by its distributors, including the Electronic Whiteboard, the Interactive Whiteboard, the Smart Board, the Touch-Screen Interactive, and the Digital Board (Clark, 2012). The educational interactive board is characterized by helping the teacher to identify and simplify the main ideas, and ease of use with other visual, kinaesthetic and audio teaching aids (Hativa, 2015). There is an exchange and interaction between the teacher and the learner, and it is characterized by presenting the topic or idea in an integrated manner and in a logical sequence using pictures, drawings and simple shapes, which leads to more positivity for the learner, as well as positive participation and attention and arousing the interest of learners, and it is compatible with all stages and curricula, according to the educational content of the lesson, as well as the clarity of the fonts and writings used in them; Which helps to improve the learning process, saves time and effort, helps expand the learner's experiences, facilitates building concepts, arouses the learner's interest, and satisfies his need for learning, as it presents the material in exciting, interesting and attractive ways, which achieves fun and diversity in learning situations for the student, and increases learners interact with the medium during its presentation of their participation in its use; Which helps to stay longer for the learning effect (Davidivitch & Yavich, 2016; Batdı, 2017; Davidovitch & Yavich, 2017; Gündüz & Kutluca, 2019). The smart board can also be used and activated with students with learning difficulties, as it is possible to follow lessons in advance and add comments and notes during the explanation of the educational material, which enables the student with difficulties to interact with these contents by writing and moving them, and provides him with better opportunities for the learning process. The interactive whiteboard has received great attention from many studies in recent times, the results of which showed the growth and effective role of the blackboard in teaching and learning situations.

Advantages and Disadvantages of the Smart Board:

According to the theoretical foundation, smart boards play an important role in the learning process, especially when it comes to learning foreign languages. The following are some of the benefits of using a smart board:

Advantages:

1. The Impact of Smart Boards on Instructional Excellence

2. SB technology is critical in making whole-class teaching more effective, productive, and creative (Elaziz, 2008; Lan & Hsiao, 2011:87). Furthermore, SBs allow teachers to plan their lessons more effectively (Levy, 2002:43). Teachers can also use SBS to conduct lessons in a more organized and planned manner, as well as to facilitate reflective practices (Schuck & Kearney, 2007:51).

3. Smart boards indirectly support students' learning in terms of their direct contribution to instructional excellence, particularly through multimedia capability and a variety of sources (Beeland, 2002:10). Furthermore, it promotes learning by increasing motivation, student engagement and active participation in lessons, hands-on applications, interaction, attention, and taking into account individual differences.

4. Activities that Aid in Teaching SMART Board assists in the teaching of subjects in three ways:

- 1) It aids in the presentation of new linguistic and cultural elements
- 2) It encourages interaction with the class.
- 3) It promotes the teacher's organizational skills.

Activities Supporting Interaction with Students. The Smart Board facilitates teachers' roles in developing strong rapport with students. It enables the teacher to navigate from the board; he or she does not need to go to his computer, turn his back on the class, and be more focused on technology than on the students' learning process. This point is critical when teaching with a SMART Board and is especially important in subject classes. Every subject teacher understands how difficult it is to engage students in a relaxed conversation in the target subject. Because it allows a group to watch a document at the same time and focus on the same point of the classroom, the projection makes it easier to start a conversation on a topic. The advantage of using a SMART Board is that it improves conversation: Activities Supporting Teacher Organization When the teacher navigates the document from the board; he/she faces and interacts with the class. It allows the teacher to concentrate on the students' language production and conversations rather than technical issues

5. Teachers who use smart boards in class report an increase in teaching quality. This rise is facilitated by the ability to conduct multimedia rich lessons that capture students' attention and imagination in novel ways. The interactive whiteboard has the advantage of tailoring the study material to the students' individual learning styles (Becker & Lee, 2009:76).

Disadvantages:

1. Despite the fact that many studies show that using smart boards improves learning and makes teaching more meaningful, a study that compared the ability to solve problems and thinking skills among students in smart classrooms and students in classrooms with regular boards discovered that students in classrooms with regular boards performed better.

2. Students who studied in smart classrooms complained that there were frequently technical issues and that the teachers were insufficiently skilled. Nonetheless, students in smart classrooms claimed in a questionnaire on attitudes toward learning that the smart board encourages motivation to learn, increases concentration, and has a strong effect on behavior (Shuck & Kearney, 2007). Finally, the disadvantages and benefits appear to be rooted in the use of the smart board by the teacher and students. The effectiveness of smart boards is dependent on the teacher's careful use of them with the goal of making the material accessible to the students. Teachers must teach students how to use smart boards, prepare thoroughly for each lesson, and make use of all available aides (Hadad & Gazit, 2012:61).

In recent years the research literature has explored technological developments in different areas that measure change. The current study focuses on **“The Effect of Interactive Smart Boards on the Cognition and Motivation of Degree Students”**.

Objectives of the Study:

1. To examine the effectiveness of using smart boards as a mechanism of change,
2. To explore students' evaluation of smart boards and its effect on them, and
3. To investigate how smart boards differ from any other board work.

Benefits of the Study:

The research topic is a rich one, with a large body of research literature that takes the researcher too many areas of knowledge and diverse and interesting issues. Another advantage is the emphasis on colleges and universities from the same city, of different ages, and of the same religious background. This relative homogeneity allowed for a more accurate assessment of students' satisfaction with the change brought about by the introduction of smart boards, without being muddled by additional interfering variables.

This study may have a significant impact on key figures in the college system in general, as well as teachers who use smart boards to teach in particular, because it presents the various areas in which students feel an improvement as well as those in which the improvement is less noticeable. The findings may aid in the change that leads to greater improvement in all areas investigated in our study. Further research is suggested, including a sample of degree college students who previously studied with a regular whiteboard and now use a smart board, in order to compare the various board-based study methods. Unlike our study, which only provides an evaluation, such a study will allow key figures in the college system in general, and teachers in particular, to see the cost and benefit of the change that occurred with the introduction of smart boards. To summarize, we learned a lot about the changes that occurred with the introduction of technology and smart boards into the college system. We were given the opportunity to visit schools that use smart boards, see the work that is being done up close, and thus raise awareness of the change that is occurring.

Review of Related Literature:

Singh (2013) conducted research comparing the effects of regular and smart classes on secondary school students' achievement and attitudes. Students who were taught in smart classrooms performed better than those who were taught in regular classes. There was no noticeable variation in attitudes toward the utility and significance of smart classes based on gender or socioeconomic position. **Chittleborough (2014)** argued that teachers should be provided with training to handle technology. The findings were based on the research that the pre-service teachers undertaking a chemistry curriculum by adopting technology. The study reflected that in use

of technology in the chemistry teaching improved the basic knowledge for chemistry. The result focused that use of technology has been preferred by all the pre-service teachers in the classroom teaching. Author reported that there was an enhancement in the skill when variety of technologies had been implemented.

Osman Aznoora et al. (2015) tried to evaluate an intervention program using educational multimedia app. The app was to provide information and video of some techniques which could be helpful in reading for dyslexic children. First, the participants were pre-tested, and then treatment is given and finally, post-tested. Two instruments were administered; the first one was related to knowledge and second, was for self-efficacy belief in dyslexia, literacy intervention is done just before and after using the app. The result indicated that the level of self-efficacy belief and knowledge increased. The effect of the knowledge test exposed a mean score of pre-test = 126.57 and SD was 10.71, post-test = 132.93 and SD was 8.74. The result of self-efficacy belief was pre-test = 45.13 and SD was 4.62, post-test = 50.73 and SD was 4.2. The app was developed by incorporating two theories: the cognitive theory of multimedia learning and social cognitive theory (Meyer, 2009). The study was able to increase self-efficacy belief in Dyslexia and knowledge.

Pachaiyappan (2016) investigated the attitudes of higher secondary school teachers toward educational technology in terms of gender, educational streams, teaching experience and management style. To obtain pertinent data from 250 randomly selected higher secondary school teachers in and around Chennai, a survey method was used. The majority of teachers have a neutral view toward instructional technology. In comparison to male instructors, female teachers show a more positive attitude toward educational technology. In comparison to arts instructors, science teachers have a positive attitude toward instructional technology. With regard to teaching experience, there is no discernible variation in teachers' attitudes about educational technology.

Sharma and Anju (2016) in the study Effectiveness of EDUCOMP Smart Classroom Teaching on Achievement in Mathematics at Elementary Level. It was discovered that technology will become an intrinsic part of day to-day teaching and learning processes in schools as a result of the Smart Class concept. The introduction of smart classrooms has a positive impact. It does not imply that the traditional ways must be abandoned, but rather that the traditional ways must be reconsidered combining the ancient and the modern.

Oigara (2017) conducted research into the impact of using smart board technology on fifth-grade students' mathematics achievement. A total of 40 students were nominated and divided into two groups: an experimental group that used a smart board to study mathematics and a control group that used traditional methods and a chalkboard to study mathematics. Achievement tests were given to both groups. The data show that using a smart board improves pupils' mathematics achievement.

Methodology:

Sample:

The study was conducted via a questionnaire completed by 300 respondents (boys and girls) in the final year students of Degree College in Kalaburagi district. Smart boards were now introduced in degree colleges in recent years.

Research Tools:

In order to evaluate the students' overall satisfaction with smart boards and the level of order and organization, clarity, and interest, the Students' Motivation to Meaningful Learning in an Innovative Environment questionnaire (Dori & Kurtz, 2015:44) was administered. The original questionnaire was used online, and the current study used a printed version.

The number of questions was adjusted in accordance with the current hypotheses. The questionnaire contains ten items, and students were asked to rate the statements' accuracy on a scale of 1—"strongly agree" to 5—"strongly disagree."

Procedure:

The questionnaire was distributed to a large number of degree colleges of Kalaburagi city. The students were given instructions on how to complete the questionnaire before being asked to do so voluntarily. The responses of the students were statistically analyzed.

Statistical Analysis:

We ran a Pearson correlation on the questionnaire data to look at the relationship between the variables in the research hypothesis: order and organization, clarity, interest, motivation and overall satisfaction.

Results:

A questionnaire was administered to check Pearson correlations between the variables in order to investigate the relationship between the use of smart boards and students' engagement and achievement in relation to dimensions of outstanding teaching. The results of the analysis are summarized in the table below:

Table 1 shows the results of a questionnaire designed to elicit information about the relationship between the SMART board and student engagement and achievement.

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1-The Smart board allowed for more student participation than traditional teaching tools (i.e. whiteboard, overhead projector, etc.)	58%	29%	13%	0%	0%
2-SMART board can be used to create and deliver interactive lessons and activities that engage students' interest and promote their higher order thinking.	50%	48%	2%	0%	0%

3- I think it is difficult to use and deal with SMART board technology in the classroom.	5%	6%	34%	47%	8%
4- I feel that I am more attentive to the lecture presented on the SMART board than I would have been with more traditional teaching tools (i.e. whiteboard, overhead projector, etc.)	33%	48%	7%	2%	5%
5- I am not interested in using SMART board as a means of achieving teaching purposes.	2%	7%	3%	57%	31%
6-SMART board technology training should be required in all teacher education programs.	33%	42%	19%	6%	0%
7- I feel confident, I can start using SMART board technology in my classroom teaching as being teacher in future.	33%	57%	10%	0%	0%
8-SMART board is insufficient technical support for enhancing students' writing and listening skills.	12%	35%	28%	10%	15%
9-The SMART Board made it easier for the instructor to transition between different points in the lecture.	28%	55%	12%	0%	0%
10-SMART board should be served as being created, maintained, and contributed for online learning communities.	35%	33%	26%	6%	0%

According to the findings, the level of clarity increases with order and organization. One possible explanation is that the more organized and focused the student is on the lesson, the clearer the study material will be for him or her. There is also a positive relationship between interest, motivation and clarity, with the higher the level of interest, i.e., when the student is concentrated and interested in the study material, the higher the level of clarity. The greater the student's order and institute, simplicity, and interest, the better his or her overall satisfaction.

CONCLUSION:

Through a case study of smart boards, which was shown by the study to be a significant criterion of successful teaching, the research findings highlight the significance of technology to education. The pedagogical contribution of technological advancements to teaching may be improved by looking at the various technological instruments in the context of their contribution to the research-proven elements of excellent teaching.

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