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Impact of Using Interactive Smart Boards on Academic Achievement of Secondary School Students

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Abstract: *The interactive smart board has made the developing system more innovative and sensible. The main goals of the review were to determine the effects of the interactive smart board on science learning among low achievers in school, interactive smart board on science learning among high achiever students in school, and to compare how science students do when using a smart board rather than the traditional whiteboard. There is no significant difference in low achiever and high achiever students in learning science when using an interactive smart board; there is no significant difference in low achiever and high achiever students in learning science when using a traditional whiteboard. A pre-test and post-test control group design was used. There were 66 students, and the control and experimental groups were selected using a random assignment. A 30-item test was created and administered as a pre-test and post-test. The analysis provided concrete evidence that the interactive smart board was superior to the conventional whiteboard for the learning and development experience.*

Key Words: Interactive Smart Boards, Academic Achievement, Secondary Students, Education

Introduction

There have been a few late developments in the scholarly field in the current time of data innovation. Numerous mechanical gadgets assist scholarly branches with working in an additional intelligent habit and they outwardly enhance educating meetings. The start of the innovative period changed the school system by making the growing experience more important for understudies while permitting educators to get additional assets.

Scholastic achievement is straightforwardly relative to the nature of the instructing materials. The utilization of mechanical items as showing helps might build the quality and achievement pace of instructing. It very well may be seen that the creation and mix of mechanical gadgets are expanding continuously. The impacts of these improvements can be seen in different ways in Pakistan. Close by these turns of events, sequentially schools started to utilize the projector, and shrewd sheets (Çiftçi, Taşkaya & Alemdar, 2013).

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The new apparatus, the savvy board, entered the scholastic climate lately. Known as the shrewd board, it is otherwise called the intuitive whiteboard, or electronic board and is a whiteboard. An Interactive Smart-Board (ISB) is a cutting-edge mechanical contraption in the field of training. It is otherwise called Interactive Board or Interactive White Board (IWB). Interactive Smart-Boards permit instructors to take standard illustrations and transform them into intuitive exercises. Understudies have some good times while they learn. This furnishes instructors with inventive ways of showing a similar subject material. Along these lines, understudies learn better and recollect more (Katrancı, & Uygun, 2013).

The Interactive Smart-Board makes the growing experience more viable and intriguing. Involving brilliant innovation in the homeroom can assist with raising grades, further develop understudy learning, improves education, helps mindfulness, and increments cognizance, to give some examples. The twenty-first century is regularly alluded to as the technology era. Technology now plays a significant part in our lives. Displacements are no longer an impediment to education, and it is only via technology that this is achievable. The effect of technology may be seen in a variety of fields, including education. In general, Education is a style of expertise where the information, abilities, and a group's habits are transmitted to the next generation through teaching, training, and research. Because of using information and communications technologies, the function of instructional technology within the classroom is now more vital than ever (ICT).

Educational technology is the systematic application of contemporary technologies to improve educational quality. It is a systematic approach to conceptualizing, implementing, and evaluating the learning system, i.e. pedagogical practices, and it aids in the use of current pedagogical teaching strategies. The document is a speculative attempt to investigate the changing functions of technology within education, which has evolved into more than simply a single medium as previously characterized (Lee, 2010). Intuitive use of the smart board is further enhanced and developed as students explore the computed structure and related skills (Harrison 2013). The Smart Board's ability to coordinate diverse mixed media and encourage alternating focused practice is the primary reason for such a sheet's fame in educational institutions.

With intuitive smart boards in study rooms, students can perform many learning tasks such as presenting, shading, or stamping on the significant substance, and move back and forth to examine past content that provides review strategies for better understanding. They can also use the images for discussion and exchange of ideas, compose cooperatively, attract and show their peers, tackle problems cooperatively, contribute ideas and rehearse the self-test of lesson content, look through a spotlight or screen for the unexplained part of the image that hides errors in learning materials and corrected" (Türel & Johnson, 2012).

There are several advantages to adopting a smart-boards in education. The trend towards more and more institutes deploying interactive whiteboards is about more than just using technology in the classroom: Interactive whiteboards have been shown to be incredibly useful in the classroom. Technology is all around us. This cannot be rejected or overlooked. Some elementary school pupils now have cellphones, and laptops and tablets are available in preschool courses. Students now are more gadgets than many professors, and they are virtually always better at utilising a specific device than their parents.

Teachers have been grappling with what they should do about technology interruptions in the classroom for some years. Mobile phones, MP3 players, tablets, and other devices are making their way into classrooms, hindering pupils from focusing on courses and achieving most of their classroom time (Feldmann, & Geisbert, 2011).

After so many years of attempting to prohibit mobile phones and other technological gadgets in education, educators began to rethink their perspective and look for methods to bring technology to the classroom in good ways as well as enlightening ways. There are several methods to be using technologies to enhance the instruction of science, English, math, and other subjects. Technology integration, in particular, in scientific classes, can be essential for keeping the spirit up, engaged, and engaged in activities. It may also be used to conduct tests, provide lectures, and do other things. These are the most effective methods we've discovered to employ technology to improve scientific instruction (Digregorio & Lojeski 2010).

Today, there is a shared purpose of increasing student achievement while utilizing technology to support them. Senators and educators are reaffirming their commitment to educational programs and practices that have the greatest impact on learning and results. Because computers are so widely used in today's world, integrating technology into education is crucial if researchers want to have a long-term impact on how children learn. With the implementation of the Prevalent Course Of Study and its dependence on modern technologies, the adoption of technology within the classroom will become even more important (Fast, Harlin, & Åkerman, 2016).

Technology has a favourable impact on student learning. Technology facilitates student participation. As a result, children usually retain more information. Technology is crucial to students because developing technologies are being more widely used across the world. Relevant learning possibilities are made possible by technology. Technology also allows for hands-on learning, which may be implemented into many elements of the curricula, including math, literacy, science, and world history, among other academic subjects. Allows students to collaborate with their friends, resulting in mutual learning. When these aspects are integrated, they can have a positive influence on how kids learn and motivation.

As a result, interconnectivity in public education is becoming more vital. Students must now be more comfortable utilizing technology. Furthermore, the Common Core Criteria include numerous objectives that require children to use technology to fulfil the standards beginning in Kindergarten. The further argument why technology is so important in increasing learning is that it is becoming such a vital part of our daily lives. Most employment nowadays necessitates the employing of technology. Furthermore, kids and adults utilize technology every day in a number of ways to share information and receive information. The pervasiveness of electronics in people's everyday life, in general, makes it highly relevant to pupils and establishes a link that substantially helps student learning.

Technology may make a substantial contribution to learning when used to increase student interaction in a topical and intellectually honest curriculum. Innovation is only a means to an end. It should be picked if it is the most effective way to teach children. Technology may be a very useful tool for English learners, as well as for increasing the engagement of children with impairments. Elementary school students should begin using common advanced technologies as a component of their education. Teachers should use technology to enrich the curriculum so that kids would see how to navigate technologies correctly and benefit from more complicated apps that they will use independently as they become older (Harrison, 2013).

Data was collected by using a test comprised of 30 test items in MCQs form. Analysis was made to address the null hypothesis i.e. There is no significant difference in the learning of science between low achiever and high achiever students who are taught by Interactive Smart Board. The results are given on the next page:

Table 1

Comparison of Students' Learning in Low Achiever and High Achiever Students in Experimental Group

Learning Level	Students	N	Mean	Std. Dev.	t-value	*p.*
Learning Level	Low achiever	33	7.939	2.346	-8.083	.002
	High achiever	33	21.788	4.381		

Table 1 indicates a comparative analysis between low-achiever students and high-achiever students who were exposed to the intervention of experimentation to see the effectiveness of interactive smart board-supported teaching. Students were divided into low achievers and high achievers on the bases of their overall marks. The mean of students with low achievement was 7.939 with SD 2.346 and the mean of students with high achievement was 21.788 with SD 4.381 which displayed a high dissimilarity between both groups i.e. low achiever and high achiever students. The significance level of .002 quantified a significant impact of interactive smart boards on the learning achievement of students at the secondary level. These results provide empirical proof that interactive smart boards improved the learning level of high-achiever students more than low-achiever students. These results highlighted that the null hypothesis "There is no significant difference in the learning of science between low achiever and high achiever students who are taught by Interactive Smart Board" was rejected. Therefore, the researcher is quite confident to say that the difference is significant due to the interactive smart board.

Figure I

Comparison of Students' Learning in Low Achiever and High Achiever Students in Experimental Group

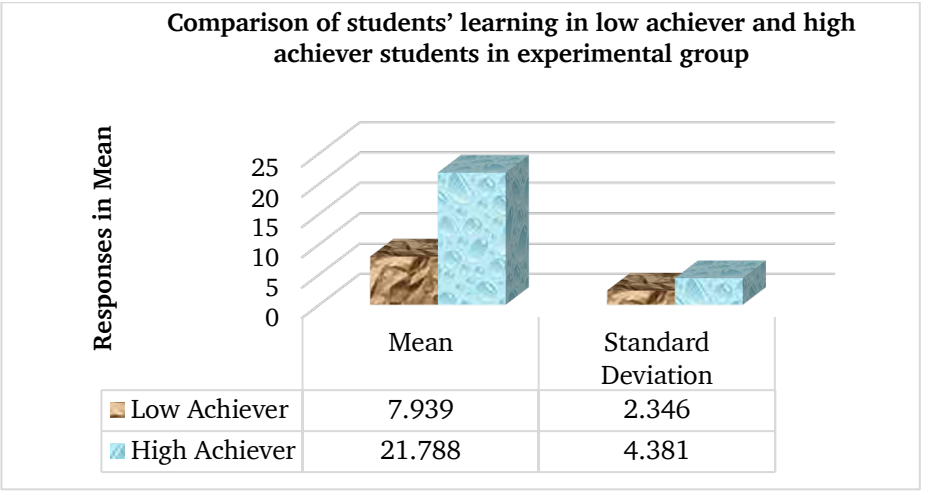


Table 2

Comparison of Students' Knowledge Level Learning in Low Achiever and High Achiever Students in Experimental Group

Learning Level	Students	N	Mean	Std. Dev.	t-value	*p.*
Knowledge level learning	Low achiever	33	4.489	1.291	-7.391	.012
	High achiever	33	7.819	2.891		

Table 2 indicates a comparative analysis between low-achiever students and high-achiever students who were exposed to the intervention of experimentation to see the effectiveness of interactive smart board-supported teaching at the knowledge level according to Bloom's taxonomy. Students were divided into low achievers and high achievers on the bases of their overall marks. The mean of students with low achievement according to knowledge level was 4.489 with SD 1.291 and the mean of students with high achievement was 7.819 with SD 2.891 which displayed a high dissimilarity between both groups i.e. low achiever and high achiever students. Significance level.012 quantified a significant impact of the interactive smart board on the learning achievement of students at the secondary level. These results provide empirical proof that interactive smart boards improved the learning level of high-achiever students more than low-achiever students. These results highlighted that the null hypothesis "There is no significant difference in the learning of science between low achiever and high achiever students who are taught by Interactive Smart Board" according to knowledge level was rejected. Therefore, the researcher is quite confident to say that the difference is significant due to the interactive smart board at the knowledge level.

Figure 2

Comparison of Students' Knowledge Level Learning in Low Achiever and High Achiever Students in Experimental Group

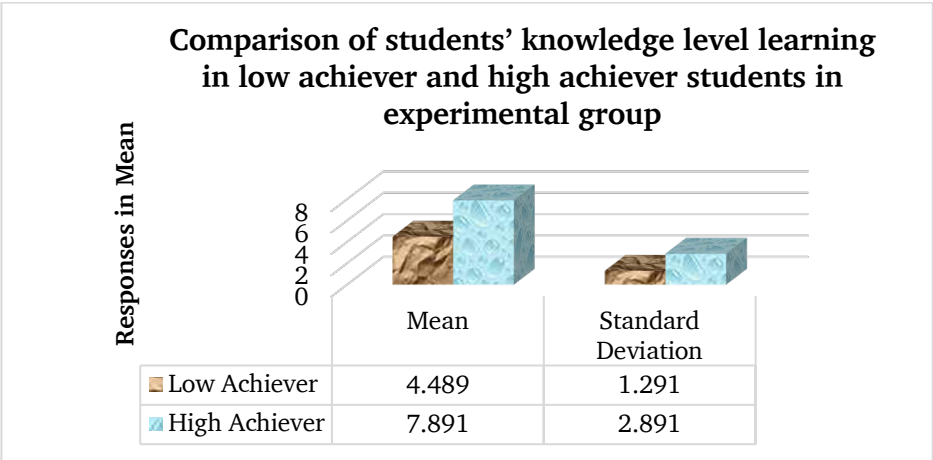


Table 3

Comparison of Students' Comprehension Level Learning in Low Achiever and High Achiever Students in Experimental Group

Learning Level	Students	N	Mean	Std. Dev.	t-value	*p.*
Comprehension level learning	Low achiever	33	4.939	1.346	-7.381	.007
	High achiever	33	6.788	2.381		

Table 3 indicates a comparative analysis between low-achiever students and high-achiever students who were exposed to the intervention of experimentation to see the effectiveness of interactive smart board-supported teaching at the comprehension level according to Bloom's taxonomy. Students were divided into low achievers and high achievers on the bases of their overall marks. The mean of students with low achievement according to comprehension level was 4.939 with SD 1.346 and the mean of students with high

achievement was 6.788 with SD 2.381 which displayed a high dissimilarity between both groups i.e. low achiever and high achiever students. Significance level.007 quantified a significant impact of the interactive smart board on the learning achievement of students at the secondary level. These results provide empirical proof that interactive smart boards improved the learning level of high-achiever students more than low-achiever students. These results highlighted that the null hypothesis "There is no significant difference in the learning of science between low achiever and high achiever students who are taught by Interactive Smart Board" according to comprehension level was rejected. Therefore, the researcher is quite confident to say that the difference is significant due to the interactive smart board at the comprehension level according to Bloom's taxonomy.

Figure 3

Comparison of Students' Comprehension Level Learning in Low Achiever and High Achiever Students in Experimental Group

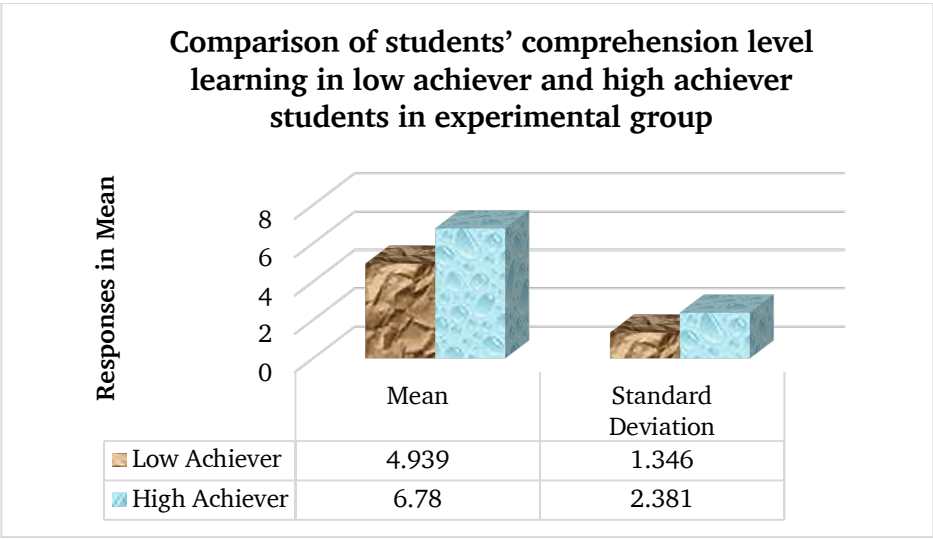


Table 4

Comparison of Students' Application Level Learning in Low Achiever and High Achiever Students in Experimental Group

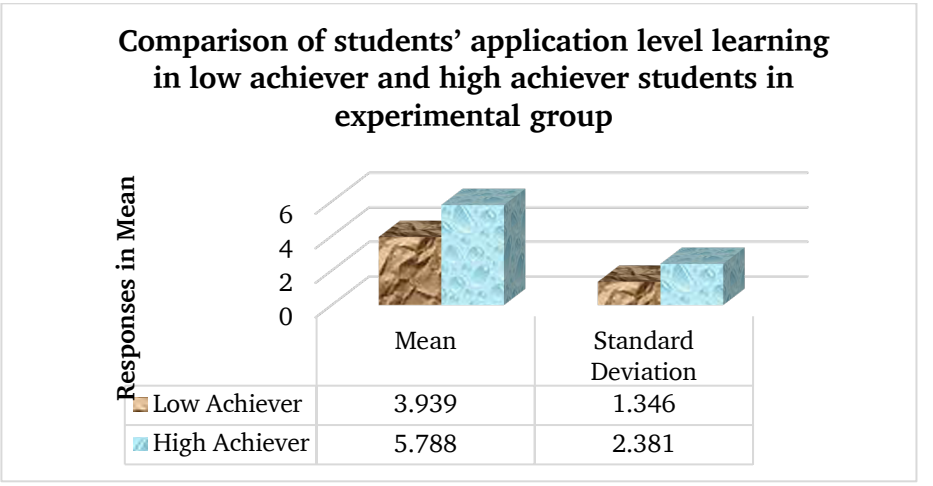
Learning Level	Students	N	Mean	Std. Dev.	t-value	*p.*
Application level learning	Low achiever	33	3.939	1.346	-6.982	.000
	High achiever	33	5.788	2.381		

Table 4 indicates a comparative analysis between low-achiever students and high-achiever students who were exposed to the intervention of experimentation to see the effectiveness of interactive smart board-supported teaching at the application level according to Bloom's taxonomy. Students were divided into low achievers and high achievers on the bases of their overall marks. The mean of students with low achievement according to application level was 3.939 with SD 1.346 and the mean of students with high achievement was 5.788 with SD 2.381 which displayed a high dissimilarity between both groups i.e. low achiever and high achiever students. The significance level of .000 quantified a significant impact of interactive smart boards on the learning achievement of students at the

secondary level. These results provide empirical proof that interactive smart boards improved the learning level of high-achiever students more than low-achiever students. These results highlighted that the null hypothesis "There is no significant difference in the learning of science between low achiever and high achiever students who are taught by Interactive Smart Board" according to application level was rejected. Therefore, the researcher is quite confident to say that the difference is significant due to the interactive smart board at the application level according to Bloom's taxonomy.

Figure 4

Comparison of Students' Application Level Learning in Low Achiever and High Achiever Students in Experimental Group



The main findings of the study were: Mean of students with low achievement was 7.939 with SD 2.346 and the mean of students with high achievement was 21.788 with SD 4.381 which displayed a high dissimilarity between both groups i.e. low achiever and high achiever students. The mean of students with low achievement according to knowledge level was 4.489 with SD 1.291 and the mean of students with high achievement was 7.819 with SD 2.891 which displayed a high dissimilarity between both groups i.e. low achiever and high achiever students.

The mean of students with low achievement according to comprehension level was 4.939 with SD 1.346 and the mean of students with high achievement was 6.788 with SD 2.381 which displayed a high dissimilarity between both groups i.e. low achiever and high achiever students. The mean of students with low achievement according to application level was 3.939 with SD 1.346 and the mean of students with high achievement was 5.788 with SD 2.381 which displayed a high dissimilarity between both groups i.e. low achiever and high achiever students.

On the bases of the findings, it is recommended that Government should make the purchase of interactive smart boards compulsory for all high and higher secondary schools from non-salary budgets to ensure the availability of interactive smart boards. On the other side, headmasters/principals should ensure the availability and use of interactive smart boards in their respective schools for quality teaching and learning process.

References

Çiftçi, S., Taşkaya, S. M., & Alemdar, M. (2013). The opinions of classroom teachers about Fatih project. *İlköğretim Online (Elektronik)*, *12*(1), 227–240. https://acikerisim.erbakan.edu.tr/handle/20.500.12452/1963?locale-attribute=tr

DiGregorio, P., & Sobel-Lojeski, K. (2010). The Effects of Interactive Whiteboards (IWBs) on Student Performance and Learning: A literature review. *Journal of Educational Technology Systems*, *38*(3), 255–312. https://doi.org/10.2190/et.38.3.b

Fast-Berglund, Å., Harlin, U., & Åkerman, M. (2016). Digitalisation of meetings – from white-boards to smart-boards. *Procedia CIRP*, *41*, 1125–1130. https://doi.org/10.1016/j.procir.2015.12.120

Feldmann, H., & Geisbert, T. W. (2011). Ebola haemorrhagic fever. *The Lancet*, *377*(9768), 849–862. https://doi.org/10.1016/s0140-6736(10)60667-8

Harrison, N. (2013). Using the interactive whiteboard to scaffold a metalanguage: Teaching higher order thinking skills in preservice teacher education. *Australasian Journal of Educational Technology*, *29*(1). https://doi.org/10.14742/ajet.48

Katrancı, M., & Uygun, M. (2013). Classroom teacher's perspectives about using technology in Turkish lessons. *Adıyaman University Journal of Institute of Social Sciences Special Issue of Education and Teaching of Turkish,* 6(11), 773-797. https://doi.org/10.14520/adyusbd.460

Lee, M. (2010). Interactive whiteboards and schooling: the context. *Technology, Pedagogy and Education*, *19*(2), 133–141. https://doi.org/10.1080/1475939x.2010.491215

Türel, Y. K., & Johnson, T. E. (2012). Teachers' belief and use of interactive whiteboards for teaching and learning. *Educational Technology & Society*, *15*(1), 381–394. http://galleries.lakeheadu.ca/uploads/4/0/5/9/4059357/whiteboards.pdf