STUDENTS' VIEWS TOWARDS THE USAGE OF SMART BOARD IN BIOLOGY LESSONS

By

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ABSTRACT

The aim of this study was to determine students' view on the use of smart boards in the tenth grade Secondary Education Biology classes. The research was carried out in a Public High School in Izmir with the participation of ten students. Data of the research were collected through a semi-structured interview and unstructured observation techniques. The data dump were subjected to content analysis in the analysis stage and the results were presented by grouping according to the content properties for study purposes. Students interviewed in research results that facilitate smart board to learn, improve their success, while providing the advantage of changing attitudes towards use; disruptions due to non-availability and remote emergence of technical problems during the use of smart boards as their disadvantages.

Keywords: Students' Views, Smart Board, Biology, Photosynthesis.

INTRODUCTION

Education, in all areas of our life, in industry, in the army, commerce, medicine, psychology and others are located in all branches of science. Education is a process that builds skills and knowledge transfer as well and distribution of knowledge is basis in this process. Therefore, education must open the door to any technology that affects information. In general, Information Technology and computers in the private are teaching-learning process serves as an auxiliary tool (Kocasarac, 2003). In such a wide field of education, technology has become a requirement in Education. In the changing living conditions, students just being in the classroom; but rather they want to take education from different teaching environments.

In the technological development from technology developed until today, it has not been developed mainly for education purposes. Today, this approach began to change slowly. Basically, "How do I teach?" Especially, the size of the Educational Technology environment looking for answers to the question of discipline has become more modern and expanding the size limits (Karahan, 2001). When we look at definition of Education in the literature, when considering the process bring about the desired behavior in individuals of into education definition within the

last time (Alkan, 1997). It is also a statement aimed at growing the individuals to reach the desired information in the informatics society (Ekici, 2008). This perspective has changed the perception of technology development and education according to the definition. For this purpose, there are studies stating that, education in the use of technology has many benefits (Alkan, 1997; Lopez, 2010). In these studies, in the general lesson, the use of technology, which allows a better understanding of the lesson, which embodies the teaching direction to increase the students' motivation and interest in lessons findings are determined.

The teaching environment equipped with technology for individuals with different learning features, offering different learning environments and opportunities for individuals brings positive motivation. Tandogan (1998) in his research explains the use of technology in education to teachers, students, educational institutions and the education system has been talking about the benefits it provides. To summarize the benefits to teachers; during the preparation of lesson plans to ensure that information's easy access, it saves time when students stated that assessment. To summarize the benefits to students, individualization of teaching, ensuring the permanence of learning by

computer, has stated that, simulation and games help students to motivate for the lesson and ensure their active participation and help them in the development of problem solving skills. Lopez (2010), stated that, the use of different teaching materials in education for classroom, contributes to students' learning easier. The use of technology in education by creating a different learning environment to all students, it helps students to create learning environments according to the learning levels.

The use of technology in educational activities is important in terms of efficiency in education (Lopez, 2010). Technology supported tools are intended to facilitate the learning process. For this purpose, calculators, overhead projector, computers and recently smart or interactive boards has been used in schools (Uzun, 2013).

FATIH (Increasing Opportunities and Technology Improvement Act) project with smart boards are being used in Schools in our Country. With this project in our country, the expansion of the smart board technology, visual, auditory, tactile provide a combination of the presentation content, the applicability of various teaching techniques, ensure the use of the software on board and for many features such as online resources to quickly reach the teaching technologies, which can be said to be very effective (Solak, 2012).

There are benefits for teachers and students using the technology of smart board in the classroom. Loschert (2004) stated that, students an better understand the lessons together with the use of smart boards in classes and smart boards offer students opportunity to record lessons and repeat it later and also reported that, lessons are more enjoyable with smart boards. Marzano (2009) in his research stated that, with the use of smart boards in education, students better understand the lessons, of what the teachers draw the shapes on board which is more understandable, visual and audio materials that assist to better understand the topic and increase motivation towards the lessons. Glover and Miller (2001) stated that, the results of research obtained by observation in a primary school, in lessons the use of smart boards increase students' motivation and attention given to the lesson. Smart boards are providing possibilities of interaction to students, and

also providing enhanced concentration and attention towards the lesson, thus it showed that, students' achievements, motivation and learning abilities have been developed.

Abstract and elusive concepts when describing, students' use of teaching activities that develop visual and mental structures that can be mobilized is very important (Kose, Ayas and ve Tas, 2003). Visual materials, the orientation of the person concentrating, can play a major role in the analysis and synthesis. Presentations made using such materials, can provide an understanding of the words, but it cannot be alone created for education and also it can make easier to remember. Smart boards are capable for presenting visual materials supported with sound and animation. They provide a more permanent learning and remembering. If learning by seeing and hearing is considered to be more persistent, smart board is emerging as a very important tool (Ekici, 2008).

Literature Review

On examining the literature regarding the smart board technology in Science and Technology area, Oztan (2012), Zengin, Kırılmazkaya and Kececi (2011), Olgun (2012), in mathmatics area Akcayır (2011), Ekici (2008), Uzun (2013) or in other areas Akdemir (2009), has determined the useful studies. When in literature, investigated research done on the smart board that is in biology class, did not reach research related to the use of smart boards. Therefore, it has been thought that, their positive and negative effects of the use of smart boards in biology by making of such a study. Also, determination of opinions of students in biology classes regarding the smart board to teachers and it is expected to contribute to the experts who developed the material on this lesson. The mentioned features of the smart board on the above, has impacts on the results to be used in the class, evaluation by students and according to this view, the regulation of education is expected to increase success in lessons.

Scope of the Study

In this context, the aim of this study was to determine students' views on the use of smart boards in the tenth grade in Secondary Education biology classes.

Method

Research Model

This study aimed to determine the opinions of students regarding the use of Smart Board in Biology class. Semi-structured interviews were conducted with methods depending on qualitative research approach. This study was conducted as a content analysis during the analysis of data. Content analysis is a theoretical sense of non-specific themes and if there is any sub-theme, the analysis is carried out by forming (Yıldırım and Simsek, 2006).

Research Group

The study group of research, in a Public High School in the province of Izmir, constitutes ten students in the 10th grade. Using the smart boards, as a school is the scope of the pilot schools are taken for the research. Participants after the preliminary talks stated that, they participated voluntarily in the study. To each of the students in the experimental group, according to the use of gender instead of their real names, coding is made. E1, E2, E3, E4, E5 codes for male students and K1, K2, K3, K4, K5 codes for female students.

Improving Data Collection Tool

An interviewer at the semi-structured interviews, prepares the protocol meeting including the questions he planned to ask in advance. Nevertheless, researchers depending on the flow of the interview may affect the flow of meeting with various aspects or sub-questions and can provide to open and detailing of the answers for a person. If the answers to certain questions were answered by the person, while other researchers cannot ask the questions (Turnuklu, 2000).

Literature studies were examined related to the smart board when preparing the interview questions by the researcher. Considering the data obtained and characterization of the study, 11 of the interview questions were prepared. Prepared interview forms a content validity which would be presented to the expert level in terms of compliance and the time for the implementation of questions. Questions has been noted when preparing a simple, understandable and a proper literature. As a result, the answers given by the experts removed 4 questions from the meeting form. Again, the same expert opinions has

been taken for preparing the interview forms and was finalized to a meeting form.

Before beginning the study on the application, on consultation and people with similar properties, it has made the original interview which is open and understandable of the interview questions and the required time has to be allotted for the interview. The preliminary results of the interviews has determined that, 25 minutes time was sufficient for the interview.

In this study, the experimental group students for smart boards, were prepared to be asked for their intended interview protocol containing the questions. Depending on the flow of the interview, it affected the flow of meeting with various aspects or sub-questions and have been asked to open and detail the answers for the person. Every person who participated in the study were asked the same question with the same word and in the same way.

Data Collection Process

Students will not be disturbed before collecting the data, but it must set an empty class which will not affect the data collection process. Each student will not affect the time periods set for the school time and the lessons. Each audio recording made by taking permission from them also was conducted interviews in approximately 25 minutes.

Data Analysis

According to analysis of the data obtained from the interview, consecutive affecting and determining was carried out under the three step activities. The reduction of data verification is done with inference and presentation of the data (Turnuklu, 2000).

Audio recordings obtained as a result of interviews with the students are transformed into individual written texts. The obtained data were reduced as a coded data and the important parts of some data was recorded to be used as direct quotations. After the obtained raw data, it was organized according to specific categories such short quoted data as structured abstract; thus, the reader can display the matrix involving communication diagram or sentence (Turnuklu, 2000). These parts are located in the sub-themes of the keywords in which, the student has been selected and presented in tables that use these keywords.

The findings obtained in this study are listed in accordance with the questions in the form of interviews.

In order to ensure the reliability in the interviews, the students were divided into categories of data that is encoded by two different researchers. Coding consistency has been calculated by two separate coding and its reliability has provided in this way. The average percentage concurence for interview questions in this study has been calculated as 83% of the encoders. Yıldırım and Simsek (2006) states that, if the percentage of coding concurence is 70%, then the coding is reliable.

Results

This part of the research findings obtained under the theme created an inline with the responses to questions from the students' opinions which are given under direct quotes made and reviewed.

Findings for the Question-1 in a Semi-Structured Interview

In this study, the first question asked to the students is "Do you think the use of smart boards benefit? Can you explain? "

Each of the students stated their beneficial use of smart boards in classes. As previously they themselves, and their friends have worked on computers in classrooms, and now they are accustomed to teaching the lesson in a manner similar like smart boards features, that stated the lesson process is more useful and content. The students talked about different features of the smart board. Students' grouped responses to this question are presented in Table 1 by forming sub-themes.

The benefits of smart boards have discussed with the students when the authors were grouped in the sub-themes, and common statements have emerged. These statements are defined as visual, permanence, consolidation and fluency. Some examples of the views of students on the benefits of smart boards are given below.

E1: "*Yes. Because, the study with visual materials becomes more memorable. Just like being at home on my*

Sub-theme	Student
Visuals and Permanence	E1, E3, E5, K1, K2
Fluency	E4, K3, K5
Consolidation	E2, K4

Table 1. Smart Board Table Indicating the Benefits to Students

computer to connect to the internet was carried out by experiments on the topics."

K1: "*I think it has been useful. Because, the study topics the visually, has led to its being much more in our minds."*

K2: " *Yes. We saw with our eyes like a microscope, we can see things with smart board. Applications are similar to the smart board application that we have made in classroom."*

E3: "*Yes. Because, it helps me to consolidate the topics, animation and etc in such a biology lesson. Unlike the results of experiments in computer environment, it was to discuss the possibility in classroom environment."*

E4: "*I think it is definitely helpful. Because the lesson is processed more fluently".*

Findings for the Question-2 in a Semi-Structured Interview

In this study, the second question asked with the students is "How did this affect your interest in lesson processing towards the lesson with a smart board? Can you explain?"

Two female students and two male students from an interview stated that, their interest increased towards the Biology lessons. Two male students and one female student stated that, teaching the topic of photosynthesis increase their interest in the lesson, but there is no change in attitudes towards the biology lesson with smart board. Two male students and two female students also stated that, there is no change in attitudes towards the Biology lesson with smart board. Students' group responses to this question are presented in Table 2 by forming sub-themes.

Student's statement regarding the interest towards the lesson with smart boards have common statements where it is grouped in sub-themes, emerged. These statements are "*my interest has increased towards the biology lesson*", "*my interest in the topic has increased, but did not change my interest in biology lesson*" and "*my interest did not change in biology lesson*" respectively. Some examples of

Sub-theme	Student
My interest has increased towards the biology lesson.	E3, K1, K2
My interest in the topic has increased, but did not change my interest in biology lesson.	E1, E2, K3
My interest did not change in biology lesson.	E4, E5, K4, K5

Table 2. Table Indicating the Interest of the Students towards the Lesson of the Processing Lesson with Smart Board

the views of students towards the lesson with smart boards are given below.

E1: " Biology lesson is not a lesson that I like very much because, it involves complex concepts. That's why solutions except sample questions on the topic are my interests in the lesson which has not been much change."

E2: " My interest in the topic has increased, but, still I do not have interest towards the biology lesson."

E3: "I'm interested in the lesson the way it is easier to understand, because it has increased slightly."

E5: "Because, I dislike about the biology lesson has not changed my interest in the lesson with processing of smart board."

K1: "Of course, for being visual to make some of the activities, it increased our interest in our lesson. We need not be in a passive state, but we can be active in the lesson."

K2: "It has affected on good direction. It has prevented the loss of less time typing the text in lesson."

K3: "My interest increased towards the topic. Graphics, visuals and animations helped me understand more about the lesson. Even though, I dislike the biology lesson, it has not changed my interest towards the lesson."

Findings for the Question-3 in a Semi-Structured Interview

In this study, the third question asked to students is "How do smart board influence the lesson processing? Can you explain?"

Three female students and three male students from interview students stated that, explaining the lesson with smart board has positive effects in the lesson processing. One male student and one female student stated that it disturbed the classroom, because of dim in some days. One male student and one female student stated that, when explaining the lesson with smart board, the topics move faster, and it is less than understanding the lesson.

Sub-Theme	Student
Fast	E 1, K2
Successful and Enjoyable	E2 , E3, K3, K4
Dim Environment	K1, E4
Negative	E5, K5

Table 3. Smart Board Lesson Table Indicating Sub-Themes Related to the Teaching Process

Students' group responses to this question are presented in Table 3 by forming sub-themes.

When grouped in the sub-themes of the lesson processing with smart board, it has emerged common statements. These statements has been identified as fast, negative, dim environment, successful and enjoyable. Some examples of the views of students towards the lesson processing with smart boards are given below.

E1: " Lessons goes faster and fluently. Lesson related shapes or drawings are done more properly. Teachers do not get bored while listening."

E2: "Positive affect in that direction. I think the collection of animation for attention successful in this regard."

E3: " Lessons pass more fun. Show abstract concepts in the subjects of our teacher and helps us to understand better."

K1: "Some days classroom were dim because we have to shut down the lights when the lesson is in progess. Therefore, my eyes pain after a while."

K4: " When a teacher processed the lesson with a smart board, lesson has a positive impact. Lessons are more fun, and we are actively involved in the lessons."

K5: "Topics move quickly because, usually teachers process the lesson faster with smart board. In this case, some of our friends can not understand exactly the topics."

Findings for the Question- 4 in a Semi-Structured Interview

In this study, the fourth question asked to the students is "In biology, "Photosynthesis: Connecting the Energy" Are you about to explain the impact the use of smart boards?"

Two female students and two male students from the group of interview students stated that, in lessons, the use of smart boards, provides them to focus on topics and the use of the visual materials attracted the attention towards the lesson. Three female students and three male students have stated that, it helps to understand them easily by using the subject of animation and practical tests carried out. Students' grouped responses to this question are presented

Sub-Theme	Student
Visuality	E 1, E5, K3, K4
Easy and Retention	E2, E3, E4, K1, K2, K5

Table 4. "Photosynthesis: Connecting the Energy "About the Table, Indicating Sub-Themes of the Effects of Using Smart Boards.

in Table 4 by forming sub-themes.

"Photosynthesis" is the method of connecting the Energy "when we grouped the sub-theme about the effects of using the smart boards has emerged common statements. These statements are; visuality, easy and retention. Some examples of the views of students towards the use of smart boards are given below.

E1: "Better remains as visuals in our minds, where photosynthesis takes place in which creatures. Chloroplast structure still remained in my mind with more animation. As described abstract concepts in biology lesson and laboratory applications we make our vision on smart boards and it was good."

E3: "There were many experiments about the photosynthesis. We have smart boards with animation through them. In this way, the lesson was easier to understand."

K1: "I understood better the sequence of events and the formed flow with animations. Class environment has completed the understanding of the subject in class activities. Working papers were good for the consolidation of topics to be discussed immediately after the lecture."

K2: "Explaining with smart board a difficult subjects such as photosynthesis has reduced our anxiety towards smart boards. Also we can see the structure of the leaves and experiments has provided retention and more of the subject."

Findings for the Question- 5 in a Semi-Structured Interview

In this study, the fifth question asked to the students is "What do you recommend on behalf of more efficient use of smart board in lessons?"

Two female students and one male student from the interviewed students stated that, teachers are required to take training on the use of smart boards. Two female students stated that, smart boards can be used remotely in need. Two male students and one female student stated that, the animation and experimental should receive much more attention in the lesson content. Two male students stated that, should be more experimental in the context of the animation used in smart boards. Students' grouped responses to this question are presented in Table 5

Sub-Theme	Student
Teachers must be trained	E5, K4, K5
The remote can be used	K1, K2
Animation and should increase the number of experiments	E1, E2, K3
Should be sound effect	E3, E4

Table 5. Table for more Efficient Use of Students Stating Their Views Towards the Smart Board

by forming sub-themes.

The more efficient use of smart boards in classes of students and when we group in the sub-themes, common statements have emerged. These statements are defined as "teachers must be trained", "the remote can be used","animation and should increase the number of experiments" and "should be sound effect." Some examples of the views of students more efficient the use of smart boards are given below.

E1: "All content of the lesson has been prepared on smart boards. Part of the lesson can be described on smart boards in writing as a text."

E2: "The lessons consisted of all the materials of the prepared animation. Videos from the Internet about the topics other than these materials and sometimes teachings can be provided with visual elements such as animations."

E4: "The materials were prepared on smartboard increased the interest towards the lesson. We were very curious about applications and experiment ends of the topics. There may also be more sound effects in the context of prepared materials."

E5: "Should be given seminars on how to use of smart boards and computers for teachers. Because our teachers prefer to use smart board as a plain expressive method for efficiency they use prepared the texts found on the Internet."

K1: "When teachers describe the lesson on the smart board they have to be near the smart board and because of this they can not maintain a control in the classroom."

K3: "I think animations and experiments increased the interest towards the lesson and therefore may be more animations and experiments during the lesson teaching with smart board."

Findings for the Question-6 in a Semi-Structured Interview

In this study, the sixth question asked to students is " Would you like to use the smart board in your other classes? Why?"

Three female students from the interviewed students stated that it eliminates the time loss caused by writing on the board along with the use of smart boards in other lessons. Two male students and two female students stated that, the verbal expression of the abstract concepts found to be available in the lesson, showing these concepts on the smart board that provide a better understanding. Three male students stated that, in the animation of the lesson content and the increased participation in the lesson of the experiments carried out to increase the motivation and active participation in a class. Students' grouped responses to this question are presented in Table 6 by forming sub-themes.

Student' views towards the smart board in other lessons when are listed grouped in the sub-themes, common statements have emerged. These statements are defined as "prevent the loss of time", "abstract concepts can be seen, permanence "and" active participation. "Some examples of the student's views towards the use of smart board in other lessons are given below.

E4: "Because we learn the best by experimenting the abstract concepts, I would also like to use at different times, in each lesson with more permanence for information given as well as a visual except verbal."

K2: "I would. Because it increases the efficiency of lesson. We are able to actively participate in the classes. In addition, lessons are being processed more pleasurable and without loss of time."

K3: "I want the question in the book will be solved on the smart board. Because the lesson has not enough time to resolve the question."

Findings for the Question-7 in a Semi-Structured Interview

In this study, the seventh question asked to the students is "Could you compare the use of smart board the lesson processing by the whiteboard?".

Two male students and two female students from the interviewed students stated that, the advantages of using smart boards achieved current information by connecting to the internet during lesson. Two male students and one female student stated that, the topics can be saved to a smart board in lesson and it is important to share these informations with themselves. One male student and two female students stated that, it is important to offer the opportunity to practice in the lessons with smart board. Students' grouped responses to this question are presented in Table 7 by forming sub-themes.

Student' views towards the lesson processing with smart board and whiteboard in lessons when we grouped in the sub-themes, some common statements have emerged. These statements are defined as " current information", " repeat" and "applied". Some examples of the student's views towards the lesson processing with smart board and whiteboard in lessons are given below.

E2: "We cannot interpret the notes regarding only the lesson in our minds with whiteboard, but we can provided this possibility with these smart boards. We have learned informations without memorization with seeing and applying."

E4: "We save what we have written on to the smart board during the lesson and teacher uses these notes when needed in our next lesson or shared with us has been very good. This is our opportunity to repeat the lecture notes faster in our computer at our home. The whiteboard does not have such a possibility."

K2: "Use of the smart board and teaching the lesson on it is more useful than a whiteboard, and also fast and effective. As a result topics are well understood."

K3: "It is possible to reach the current information by

Sub -Theme	Student
Prevent the loss of time	K3, K4, K5
Abstract concepts can be seen, Permanence	K1, K2, E3, E4
Active participation	E1, E2, E5

Table 6. Table of Student' Views Towards the
Use of Smart Boards in Other Classes

Sub-Theme	Student
Current information	E1, E3, K2, K3,
Repeat	E4, E2, K5
Applied	E5, K1, K4

Table 7. Table of Student' Views Towards the Lesson
Processing with Smart Board and Whiteboard

connecting to the internet during the lesson with smart board and it provides permanence of information also increase of interest in the lesson by seeing it live. We have the information as the teacher taught on the whiteboard."

Results and Discussion

The aim of this study was to determine students' views on the use of smart boards in the tenth grade in High School Biology classes. As a result of interviews related to students who are participating in the research, reached the following results according to the findings.

Students who participated in this study, stated that, the use of smart board in the lesson is beneficial to themselves. When we grouped in the sub-themes for the students the benefits of the smart board those are visuality, permanence, creativity, consolidation and fluency. Ates (2010) supported the findings of this study, that the authors have achieved. His interview with the students the teacher's writing and drawing along with the use of smart boards has become more understandable and better understanding of the topics with the visual and audio materials in classes. They stated that, they have the opportunity to learn from different sources and more on the topics. Inci and Erten (2011) stated that, the benefits of the use of smart boards for students and the emergence of creativity and increase their confidence. They stated that, students may have access to more information with saving time because problem solving and developing their ability to focus the attention on a problem. Students stated that, the use of smart board in lesson processing is faster, successful and enjoyable. Akbas and Pektas (2011) supported the findings in the study that the authors have achieved. They stated that smart boards were used in the classroom, so the students can participate more to the lessons and that their lessons become more exciting and enjoyable. Sungur, Arabacı and Sanlı (2012) in their study stated that, smart boards attracted the attention of the students and facilitated learning. Students who participated in the study stated that, they enjoy learning from the use of smart boards. However, unlike this study, the authors have obtained the findings about new information with technology of teaching and would help to have a good job.

Some students also mentioned that, they do not like much the continued use of smart boards. For example, some students have stated that, dim environment effects negative learning, because sometimes the teachers need to turn off the light during the lesson. This application make the lesson environment dim, and some students do not like this environment.

Students stated that, the smart boards are to be used in other lessons. Because, they stated when used with smart board, it will prevent the loss of time consisting of writing to the board in lesson and the lesson content can be seen in the abstract environment. Also they stated that, the smart boards lessons are more enjoyable. When the authors examine the studies done about the smart boards in different lessons in literature, (Oztan, (2012) Science and Technology; Olgun, (2012) Physics; Akcayır, (2011) Mathematics; Sen, (2013) English; Akdemir, (2009) Geography) stated that, students exhibit positive attitudes towards the use of smart boards in the lesson. However, some of the students in our study did not specify a positive opinion in that sense, or have expressed that, increasing the interest in topic does not affect the interest in the lesson. The reason for this difference is that, some students dislike the biology lesson due to be abstract and unpopular topics.

In addition, student stated that the lesson processing process and content with smart board more useful according to white board. Oztan (2012) supported the findings in this study that, the authors have achieved. During the meeting with the students, the students stated that writing with chalk instead of writing on the smart board is very enjoyable.

Students stated that, they have not changed their interest in biology lessons; but, increased the interest in topics. Because, the students stated that, explanation of the topics of photosynthesis with smart boards, is an abstract subject, which makes the subject become more concrete. Students can not find the opportunity to practice the portions of leaf as experimental. Students also stated this is a good that process the experiments related to the subject for permanence of the lesson. Yakısan, Mutlu and Yel (2009), describe the extensive content of biology lessons,

mostly due to the abstract and dynamic structure, and moving image materials and they have stated that effective teaching can be done with computer animation. However, Sen (2013) stated that, they have not had a statistically significant difference in their studies towards the biology lesson for pre-test to post-test attitude scores. However, Zengin, Kırılmazkaya and Kececi, (2011) stated that, the increase in the positive direction that the use of technology towards the attitudes lesson in the course. Students' attitudes towards biology lessons due to the limited lesson processing process with smart board have concluded that, it did not change too much in this study. Because, the application of biology lessons done in this study, students are prejudice towards the biology lessons and they think they understand this lesson not easily.

Students are able to use the smart board lessons more efficient, as they stated that, teachers are required to take training on the use of smart boards. Sanlı, Altun and Tan (2015) also supported the findings in this study that the authors have achieved. In their studies, they stated that, the teachers should be supported and trained on how to use smart boards in the classroom. Because, teachers stated that they are not interested too much about use of the smart board. The reason, the lesson content have not enough for the smart board and the teachers are think that a waste of time occurs due to technical problems in lesson. Also they stated that the lesson content should be included with more animations and experiments. They stated that, students actively involved in the learning process with experiments and animations in lesson and therefore learning is more permanent and easier. Lowe (2003), stated that, smart boards create a positive impact on learning, because showing abstract events and interactive animations. In addition, students have stated that, smart boards must use remotely. Therefore teacher can control better in classroom management most of the time.

Conclusion

In this study, the students obtained the findings and the investigation relevant literature has an impact to the course of the smart board: visual, interactive, abstract concepts can be seen, active participation and updated informations in terms of students learning and permanence of the information have been identified that have positive effect. In this context, the smart board makes an important contribution to increase the impact of the course.

Recommendations

Considering the data obtained and the relevant literature from this study may have following suggestions to make use of smart boards more effective.

- Related to the use of smart boards in-service training should be given for the teachers.

- Ready materials must be submitted.

- In-service training should be given to the teachers for the use of smart board about material preparation.

- The pre-service prospective teachers to use smart board under the name, information technology and lesson should be prepared for preparation and material.

Suggestions for Further Studies

- Related to the smart board activities, the studies should be done in other topics of biology or lessons for examine the effect of smart board in lessons.

- Related to the use of smart boards in the course, the studies should be done for the lesson permanence.

- Students of Secondary Education in different level can research the views towards the smart boards.

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