
Applying Activstudio Software and Activboard Interactive Whiteboard to Enhance the Quality of Teaching and Learning Geography at Grade 11 at Upper Secondary Schools

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Abstract

Activstudio software and Activboard interactive whiteboard are modern softwares and teaching aids in Activboard interactive teaching system. They are considered as useful tools for teachers in preparing lesson plans and teaching in classrooms in order to promote students' activeness and creativeness. Recognizing Activstudio software and Activboard whiteboard's positive effects, the researcher designed and checked lectures in the curriculum of Geography Grade 11 in some upper secondary schools in Hue city. Experimental teaching results revealed that using Activstudio software and Activboard whiteboard was truly an effective teaching solution, meeting the demands of current teaching method innovation.

Keywords: Activstudio software; Activboard table; Geography; Interactive; Enhancing the education quality

Introduction

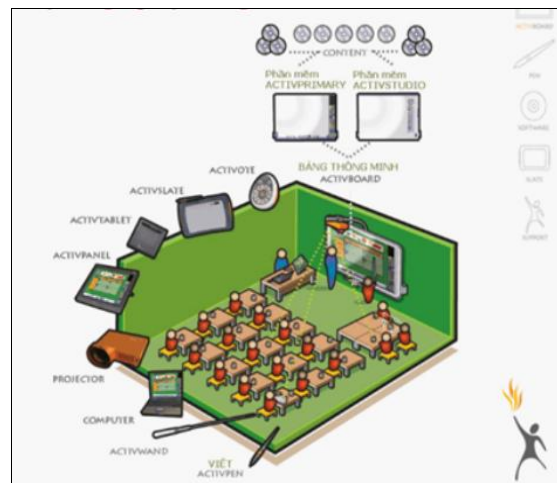
Applying information technology and advanced teaching aids to enhance the education quality is a current tendency of many countries in the world; especially of Vietnam (Bieu, 2011).

Activboard interactive teaching established by Promethean international education corporation (the UK), it is a modern education system applied commonly in developed countries. It includes Activboard interactive whiteboard, Activspire software, Activpen, Activwand, Activote system, Activslate, Activtable and Activpanel (Vsionglobal, 2009), in which, the two most important are Activboard whiteboard and Activinspire software (with two versions:

Activprimary for pre-school and primary students; Activstudio secondary schools and higher levels).

Activboard is an electromagnetic, hard and durable interactive board. It is a combination of a board in classroom and functions of a computer's monitor. An Activboard used in classroom is often 95'', 78'', 64'' and 50'' (inches). Activstudio software specially used for teaching includes electronic teaching aids, virtual mathematical tools, image and sound recording (Vsionglobal, 2009). This software may efficiently assist teachers in designing effective, practical and vivid lectures.

Figure 1. A Model of an Interactive Classroom System



According to the Promethean International Education Corporation (2012), Activboard interactive teaching system is being popularized in 128 countries all over the world. In many schools in developed countries such as Britain, the U.S., Japan, Germany, France, Sweden, Finland, Korea, India, etc teachers have applied Activstudio software and used Activboard with high educational effects in several levels and majors. In Vietnam, teachers and students have known about Activboard since 2009. In 2012, Ministry of Education and Training equipped 179 upper secondary schools in provinces and cities such as Ho Chi Minh city, Ha Noi, Da Nang, Hue, Da Lat, Hai Phong, Quy Nhon, etc with Activboard interactive teaching system. In Hue city, 5 upper secondary schools including Quoc Hoc, Nguyen Hue, Hai Ba Trung, Gia Hoi, Nguyen Truong To were equipped with Activboard. Teachers from these schools were trained to use Activboard and Activstudio. However, a few teachers use this tool in teaching. Investigation results of 122 teachers and 705 students of these five schools revealed that only 11.5% of total teachers used Activstudio in teaching some subjects (mainly Physics, Chemistry, Biology, and English). In term of Geography teaching, only two teachers of Quoc Hoc and Nguyen Hue upper secondary schools did not frequently use them and they have

applied these in demonstration teaching periods. Besides, these two teachers' application of Activboard was not highly effective in teaching because they did not promote fully useful tools and functions of Activstudio software in combination with Activboard. There are many causes of the results in this reality such as lacking of teaching facilities; teachers' unwillingness to learn about and use new teaching aids and softwares (most of them use PowerPoint to design their lessons); limits of time and capacity (elder and busy teachers).

There are a number of authors who have conducted research on the Activboard table application and software Activstudio in teaching certain subjects such as: using ActivInspire software design lecture portion Inorganic Chemistry program grade 10 of Tho Le (Le, 2011); using Activboard interactive teaching system teach chemistry at the high school Grade 10 of Hang Le (Le, 2011); learn ActivInspire and application design the computer system management lecture according to interactive teaching methods of Hue Nguyen (Nguyen, 2011). Overall, the authors have found some positive effects when applying Activboard interactive teaching system in high school teaching. Although the previous studies have given the usage and teaching sample of ActivBoard and Activstudio, and the effectiveness of applying Activstudio

software and ActivBoard tables on subjects, there is no author who has studied and applied this teaching system with Geography lesson.

Geography in upper secondary schools is an interesting subject which provides students with knowledge of natural and socio-economic?? geography. Geographical knowledge ranges from general issues to specific knowledge of some countries, regions and in the world (Nguyen, 2012). There are also several abstract concepts and knowledge, which require teachers to use appropriate teaching methods and teaching aids so that they can make their students interested in studying. With such characteristics, Geography has favorable conditions for teachers in applying Activstudio software and Activboard in order to raise teaching quality.

As a result of that, lectures of Geography for Grade 11 using Activstudio software and Activboard were designed. Then pedagogical experiments were carried out in some upper secondary schools. This helps stimulate teachers to learn about, use and promote the role of modern teaching aids.

Method

True experimental design used to verify the effectiveness of the research content (Le and Nguyen, 2007). The pupils were divided in two experimental and control groups which were involved in this process. Experimental group was taught by the Activboard lectures, and control group was taught by normal lectures that teacher still uses. Test results assessing the level of awareness of the two groups of students and share feedback lecture (teachers and students) are the criteria for evaluating the effectiveness of lectures design on Activstudio software and taught on Activboard table compared to the usual lectures.

Participants

Survey of the actual use of ActivBoard table and Activstudio software was done on 122 teachers and 705 students of five high schools in the city of Hue. These are 5 schools equipped with Activboard table including: Quoc Hoc, Nguyen Hue, Hai Ba Trung, Gia Hoi, and Nguyen Truong To high school.

Experimental process was conducted on 322 students from eight classes grade 11 of two high schools (Quoc hoc and Gia Hoi). The students selected have homogeneous relatively in age and cognitive level. Eight classes were divided into four experimental classes (160 students) and four control classes (162 students). This experiment was conducted in the second semester of 2012-2013 school year.

Materials

The survey questionnaire

The survey questionnaire was designed to find out the reality of using ActivBoard table and Activstudio software at high schools in Hue city. The questionnaire was designed separately for teachers and students with the various criteria to clarify the extent and effectiveness of Activboard table and Activstudio software into the teaching process at high schools nowadays.

Test

Design two 15-minute tests to check the level of knowledge obtained of two student groups in the experimental and control. Tests content related to the lesson was selected for experiment.

Feedback votes of teachers and students

After finishing experiments, both teachers and students in experiment class filled information on feedback votes about lessons. Feedback votes is designed according to the criterion to evaluate the influence of ActivBoard table and Activstudio software, the comprehension level of knowledge and skills practice of students, feel of teachers and students, effective teaching.

Data Analysis (Tran, 1999)

All data obtained from questionnaires and tests were processed and analyzed using statistical methods in Microsoft Excel. The formula used include: total value, percentage, arithmetic mean, standard deviation and variance.

Procedure

True experimental procedure was carried out according to the following steps: First, we designed lectures of Geography Grade 11 on Activstudio software and randomly selected two of them for experimenting. At the same time, we prepared two 15-minute tests and feedback votes for teachers and students as a basis for evaluation of experimental results. Second, high schools, students, teachers and experimentation time were selected. the researcher met, discussed and agreed upon the content with teachers attending the experiments. Third, experiments were carried out, checked and evaluated for experimental results. Experimental classes and control classes were taught by the same teacher with two

different lesson plans. In experimental classes, students were taught in accordance with our Activboard lecture. In control classes, students were taught in accordance with the teacher’s lesson plans. After teaching, students of eight classes were evaluated with two same 15-minute tests. After that, teachers attended experiments, carried out teaching observation and students would make comments on lectures through feedback sheets. Finally, the experimental results were analyzed. Test papers would be marked and mathematical formulas were used for giving final results. Teachers and students’ opinions and comments were totaled up through feedback sheets.

Results

Students Comprehended Knowledge from Activboard Lectures More Effectively Than from Normal Lectures

Totaling up students’ scores of experimental and control groups through two 15- minute tests were shown in Table 1.

Table 1. Classifying Scores through Test Papers in Experimental Classes

Times of testing	Class	No. of students	No. of students achieving X_i									
			1	2	3	4	5	6	7	8	9	10
1	Control classes	162	0	0	0	7	24	48	32	44	7	0
	Experimental classes	160	0	0	0	0	11	32	47	52	12	6
2	Control classes	162	0	0	0	3	14	31	59	43	11	1
	Experimental classes	160	0	0	0	0	2	28	49	57	16	8
Total	Control classes	324	0	0	0	10	38	79	91	87	18	1
	Experimental classes	320	0	0	0	0	13	60	96	109	28	14

Under collected scores, students’ levels through test papers were classified. The gap

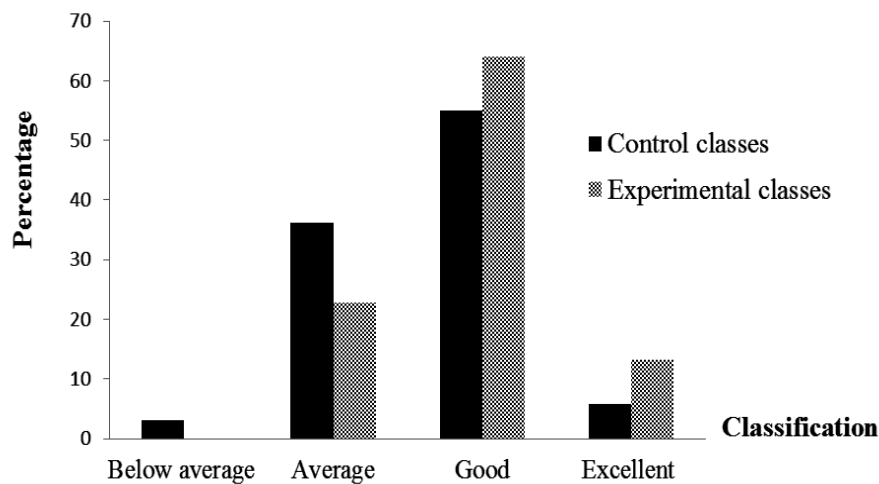
of students’ levels in experimental and control classes was presented in Table 2.

Table 2. Students' Level Classification through Tests Papers

Class	N	Below average (3-4 scores)		Average (5-6 scores)		Good (7-8 scores)		Excellent (9-10 scores)	
		No. of students	%	No. of students	%	No. of students	%	No. of students	%
Control classes	324	10	3,09	117	36,11	178	54,94	19	5,86
Experimental classes	320	0	0	73	22,81	205	64,06	42	13,13

Results of students' level classification between experimental classes and control classes were shown more clearly as in following chart (Figure 2):

Figure 2. Comparing Results of Students' Level Classification through Test Papers



With total scores of classes, we used statistical formulas to give the following table of parameters (see Table 3):

Table 3. Total Parameters

Tests	Class	N	\bar{X}	S	S ²	D
1	Control classes	162	6.64	1.26	1.60	0.60
	Experimental classes	160	7.24	1.17	1.38	
2	Control classes	162	7.00	1.14	1.30	0.51
	Experimental classes	160	7.51	1.08	1.18	
Synthesis	Control classes	324	6.82	1.22	1.48	0.56
	Experimental classes	320	7.38	1.14	1.30	

The above table revealed that the mean \bar{X} of experimental classes was 7.38 while the mean of control classes was 6.82. It could be seen that students from experimental classes got higher results than control classes. Similarly, students from experimental classes comprehended knowledge better.

Value of standard deviation in experimental classes was lower than that in control classes (experimental classes have the standard deviation of 1.14 and that of control classes is 1.22). The matter that dispersal level of students' scores around the mean \bar{X} was lower proved that lesson's effect and quality in experimental classes were better than those in control classes.

There was a clear gap in scores in two test papers between experimental classes and control ones. Average scores of experimental classes were lower than those of control classes (experimental classes 22.81% and control classes, 36.11%). Besides, good and excellent scores in experimental classes which occupied 77.19% were higher than those in control

classes, 60.8%.

Activstudio Lectures Contributed to Practice and Improve Student Necessary Skills

Through observation of teaching hours and information obtained from the feedback sheets showed that students in the experimental class showed proficiency in the use of equipment and learning facilities provided by the teacher in the teaching process as: Activpen, Activote test evaluation equipment and manipulation on Activboard table. Besides that, to join in teachers' activities, students had to cooperate with each other in groups to do their tasks. Therefore, the group work skill was also improved with lectures using Activboard. At the same time, lectures using Activstudio software in experiments were designed with many types of exercises and tasks such as multiple choices, puzzle words, etc to create conditions for students to practice thinking capacity and activeness in studying (see Table 4).

Table 4. Synthesis Table of the Level of Skill Training from Activboard Lectures *

Skill	Percentage
Fluency Activpen	92,6
Easy manipulation on the Activboard table	86,3
Use Activote assessment tool well	97,2
Enhanced teamwork skills	62,5
Enhanced capacity thinking through exercises, tests, games were designed in Activboard lectures	78,8

(Compiled results from the lecture feedback votes after experimental lessons, 2013)

Activstudio Lectures Created an Effective Environment of Teaching and Learning

By observing classes and analyzing feedback sheets, it is revealed that in experimental classes, students were more active than students in control classes. Class atmosphere was more exciting with assignments and tasks given by teachers. The interaction in lectures stimulated students' curiosity and activeness in

comprehending knowledge in class. This expressed that students were more concerned and interested in Activstudio lessons. 87% of students felt very interested in experimental lectures as they filled in feedback sheets. 84,6% students expected to learn more with Activstudio lessons, not only in Geography but also in other subjects. Two participating teachers taught experimental group and 11 teachers observation in the class commented that

Geography lessons using Activstudio software were very interesting. They revealed that there were several tools for teachers to create interesting tasks and games so that students could be more active in their lessons. They said that learner-centered activities made teachers' work less hard. Moreover, creating students' excitement in studying brought happiness to teachers during teaching process. Simple manipulation in designing and using Activstudio software and Activboard helped teachers save time and labor.

Discussion and Recommendation

Research results revealed that solid knowledge comprehension, active skills and studying behavior of experimental groups were higher than those of control groups. This proves that lectures designed in Activstudio software and teaching with Activboard have brought positive effects in enhancing teaching and learning quality of Geography Grade 11.

The results obtained have a homogeneous relatively than some research Activstudio software applications to teach Chemistry, Computer Science (Le, 2011 and Nguyen, 2011). Despite local differences in study, student subjects, study time and application subjects, what the experimental results have in common is: the average point of experimental classes was higher than that of control classes, the standard deviation of the experimental classes lower than the control classes, students of experimental classes studied more excited and effective than students of control classes, students of the experimental classes have more interactive activities and learning more actively than control classes... This showed that Activboard lecture brought real efficiency in the process of teaching and learning in high schools.

In addition to the positive results obtained, the research still had some limitation. Hue city and suburban only have 5 high schools used Activboard table which

limit location and audience research. Geography teachers at high schools do not know much about Activstudio software which also make it difficult to expand the empirical content. Due to time constraints, the study was only performed on two random lectures, not all disciplines lessons of Geography grade 11.

From the actual use of Activboard interactive teaching system and these research results, some following suggestions were suggested to promote efficiency of Activboard table and Activstudio software in teaching in high school in general and Geography subject in particular:

To Department of Education and Training, it is necessary to equip upper secondary schools and colleges of pedagogy with Activboard and a copyright software or help them to self-equip so that teachers and students could have the chances to access and use. The Department should hold training courses for teachers and students to use Activboard and the software. Also, the Department needs to organize competitions of e-lectures design using Activstudio so that teachers can exchange, share experiences and have a motivation in designing lectures using the software.

To teachers of upper secondary schools, beside solid professional knowledge, each teacher needs to practice skills of using appropriate teaching methods and teaching aids. To exploit fully effective functions of Activstudio, he/ she should learn carefully and use them frequently to design lectures. At the same time, he/ she should update the newest versions of the software and lectures for reference on the Promethean's website to enhance lectures' quality. He/she needs to search, update and add new information and knowledge to his/her lectures through materials, books, journals, Internet, etc to have effective activities of awareness and make students more interested in studying.

Conclusion

Experimental results verify the effectiveness of Activboard lectures in promoting students' activeness and creativeness, contributing to raise the quality of Geography's learning and teaching in upper secondary schools. The effectiveness was expressed in students' knowledge, skills and behavior. Those revealed that Activstudio software and Activboard are

truly modern software and teaching aid with favorable functions which can support teachers in teaching Geography in particular and other subjects in general. In the future, education sector should extend and popularize Activboard interactive teaching system to different educational levels and subjects to enhance the quality of education and integrate with the education trends all over the world.

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