Testing the effects of interactive courseware template for the learning of history among Form One students

Rossafri bin Mohamad, Balakrishnan Muninday, Malliga Govindasamy
(Centre for Instructional Technology and Multimedia, Universiti Sains Malaysia, Penang 11800, Malaysia)

Abstract: This article presents a study on the use of multimedia technology for the teaching of Form (Grade) One history, which is a form of narative subject in nature. Specifically, it is to study the viability of multimedia materials in supporting active learning for subjects which are in narative form. Due to the scarcity of interactive multimedia materials in the market for subjects in narative form as compared to mathematics, science or technical subjects, subjects in this form are generally taught using traditional approach, creating an imbalance in the use of technology supported learning environment between science and non-science subjects. Therefore, in order to create an active learning environment that impacts and stimulates students' thinking skill as well as to create provisions for growth in parity with science and technical subjects, this study proposes the use of multimedia courseware template for the teaching of subjects that are in narative form. Sample for the study consists of students from Form One in secondary schools. Collection and analysis of data were carried out quantitatively and qualitatively. T-test, One-way ANOVA (analysis of variance) and descriptive statisticsal analysis were used to measure the effectiveness of instruction assisted with multimedia materials. On the whole, all null hypotheses of the study were accepted. The findings also showed that all respondents unanimously agreed that the use of multimedia learning materials is able to improve the style, technique, method and quality of instruction, thus promoting motivation to learn and active learning environment.

Key words: interative multimedia courseware templat; Form One students; history subject

1. Introduction

The development of multimedia courseware to support the teaching and learning processes are overwhelming, however, there is a need to question whether these courseware in reality meet the varying teaching and learning styles of teachers and students respectively. As almost all courseware developed are in the proportion of "ready to use", provisions for modification are almost nil. Therefore, in order to compensate for the lack of modifiability, this study produces a courseware template in which the content of the courseware and the learning objectives determined by the teachers can be adjusted to suit students' varying cognitive levels without any reliance to the learning content as provided by the developer. The proposed template was tested with history, which is one of the core subjects in secondary schools. The presentation of history lesson in narrative form makes students feel bored

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Rossafri bin Mohamad, senior lecturer, Centre for Instructional Technology and Multimedia, Universiti Sains Malaysia; research field: ICT in education.

Balakrishnan Muninday, associate professor, Centre for Instructional Technology and Multimedia, Universiti Sains Malaysia; research field: ICT in education.

Malliga Govindasamy, Ph.D. candidate, Centre for Instructional Technology and Multimedia, Universiti Sains Malaysia; research field: ICT in education.

in history classes. This warrants for an active learning environment for the teaching of subjects which are in narrative form in nature.

The use of multimedia material for instructional purposes has become a trend in current educational settings. Multimedia materials which combine more than one media in computer environment are believed to facilitate students' learning. Text presented in combination with audio, video, graphic, visuals and animation paves way for an interactive and non-linear learning. Interactive courseware, digitalized audio-video packages, websites, web portals and presentation software are some of the instructional platforms that are dominated by multimedia materials. The courseware template created for the purpose of this study, utilizes all multimedia elements thus providing an enriched learning experience for students.

2. Rational

This study was carried out during the teaching of one history lesson to verify the effectiveness in using courseware template for instructional purposes. History as one of the core subjects in national curriculum and as a subject in the narrative form fulfilled researchers' rational for the selection of the subject for study purposes. Researchers reported that the learning of history can stimulate students' thinking, increase their cognitive ability and influence their attitudes (Dynneson & Gross, 1999). However, traditional teaching methods and monotonous teaching style practiced by teachers becomes a barrier in nurturing an active learning environment in history classes. Teacher's unenthusiastic attitude and lack of interest in improving their own knowledge, skills and techniques of teaching history further inhibit active learning in history classes. Effective teaching of history relies largely on teachers' attitude towards the subject as well as the knowledge and skills acquired. Empirical evidences documented that teachers can make history lessons more interesting and exciting by using multimedia materials, which are inherent with the potential to exploit the verbal and visual channels of learning (Hiebert, Wearne & Taber, 1991; Mayer & Gallini, 1990). Historical events are antecedents and as such, students are unable to visualize them clearly in their mind. In this context, multimedia materials with images, visual and graphics depicting the historical events can bring to the life students experience, paving way for a better comprehension of the lesson presented.

3. Research problem

History is one of the core subjects students sit for in PMR (Lower Certificate Education) and SPM (Malaysian Certificate Education) examination. Learning of history promotes inetelectuality among students. Students are able to conceptualize abstract knowledge, generalize, hypothesize and make inferences on past, present and future events. History lesson also nurtures patritosime amongs students. Findings from an interview session carried out with teachers and students in local educational settings on the factors that impede learning of history revealed that, students generally find history a boring subject because: (1) It invloves a lot of rote memorization of facts, evidences and dates; (2) Avenue for the application of knowledge acquired in day to day life is almost nil; (3) Traditional teaching with no variance in teaching method and style practiced by teachers decreases students' motivation to learn; (4) Though a core subject, yet the limited interaction time (3 lessons of 60 minute each) to cover a vast scope entails time constraint factor. Teachers are more concerned about completing the designed syllabus before examination rather than creating an engaging learning experience for the students. These findings were substantited by Weiner (1995), who reported that the unpopularity of history as a subject is

mainly due to its nature which involves tedious memorization of facts, evidences and dates and also the knowledge acquired could not be related to present situation.

In an earlier study, School Council (1968a) reported that students generally regard history lessons as boring with no cognitive value. History lesson is also unpopular among students (Bryant, 1972), and has lost its standard in school curriculum (Howard & Mendenhall, 1982). This shows that the wearying nature of history lesson has long been discussed by researchers, however, a concrete solution for the problem is yet to be defined. Merely blaming the teachers for this persisting problem is not right. Teachers seldom integrate ICT technologies in the teaching of history simply because of the inavailability of courseware for this subject as compare to science and matematics that are developed and distributed by the Ministry of Education. As such, the development of this courseware templat is believed to provide an alternative for promoting interest, motivation and quality of instruction in history classes.

4. Research questions

The research questions are as follows:

(1) Does the use of courseware template increase students' motivation towards history?

(2) Does the use of courseware template improve students' methods, techniques and style of learning history?

(3) Does the use of courseware template improve the quality of instruction for history from traditional to computer-assisted instruction?

(4) Does the use of courseware template promote self-accessed learning among students for better comprehension of History lesson?

(5) Is the use of courseware template able to address the time constraint factor exists in the teaching and learning of History?

(6) Does the use of courseware template nurture thinking skills and morale among students?

5. Research hypotheses

(1) Null Hypothesis 1

There is no significant difference in motivation towards learning history between the Form One boys and girls after being exposed to the courseware template.

(2) Null Hypothesis 2

There is no significant difference in the learning style (teacher dependent for input compared to self-accessed learning) between the Form One boys and girls after being exposed to the courseware template.

(3) Null Hypothesis 3

There is no significant difference in terms of students' cognitive level and motivation towards learning history between the Form One boys and girls after being exposed to the courseware template.

(4) Null Hypothesis 4

There is no significant difference in terms of students' cognitive level and learning style (teacher dependent for input compared to self-accessed learning) between the Form One boys and girls after being exposed to the history courseware template.

6. Methodology

A survey was carried out to address the research problems and research questions. The independent variable of the study were particinats' gender and cognitive level. Particiants responded to a questionaire that sought their opinions on the effectiveness of courseware template in promoting teaching and learning. Prior to that, a preliminary study was carried out. Discriptive data were collected through questionnaires, checklist and interview to identify problems inherent in the design and development of courseware template. Forty students responded to the preliminary study to establish the relibility and validity of the instruments used. Data from the preliminary study were analysed and computed an alpha value of 0.893. Following this, 120 students (60 boys and 60 girls) were selected randomly to participate in the actual study, which was intended to test the effectiveness of courseware template in the teaching and learning of history.

Research questionnaire was distributed to 120 students from Form One. Collected data were analyzed using dscriptive statistics such as mean and standard deviations and inferential statistics such as t-test and one-way ANOVA (analysis of variance). All data analyses were done using the Statistical Package for the Social Sciences (SPSS) software. All of the statistical analyses tests were computed at 0.05 ($p<0.05$) alpha level of significant. For the anaylisis of descriptive ststistics, a min value of 3.50 was set as the median for the analyses of strength and effectiveness of corseware template.

7. Findings from hypotheses

This section discusses the results obtained in relation to research hypotheses.

(1) Hypothesis 1

Independent-samples t-test procedure was used to establish hypothesis 1. The independent variable, which was the gender of the participants, was analyzed in relation to the dependent variable which was the motivation towards learning history after using the courseware template. As shown in Table 1, a t-value of 0.124 was obtained from the analysis and as such hypotheses 1, which states that there is no significant difference in the motivation towards learning history between the Form One boys and girls after being exposed to the courseware template, was accepted. The results show that both the boys and girls agreed that the use of the courseware template increased their motivation towards history lesson.

Table 1　Independent-samples t-test showing relation between gender and motivation

Item	F	Sig.	df	Sig.(2-tailed)
Courseware template increased my motivation towards learning History	2.404	0.124	118	0.784

Note: Significant at $p<0.05$.

(2) Hypothesis 2

Independent-samples t-test procedure was used to establish hypothesis 2. The independent variable, which was the gender of the participants, was analyzed in relation to the dependent variable which was the students' learning style (teacher dependent for input compared to self-accessed learning). As shown in Table 2, a t-value of 0.287 was obtained from the analysis and as such hypothesis 2, which states that there is no significant difference in the learning style preference (teacher dependent for input compared to self-accessed learning) between the Form One boys and girls after being exposed to the courseware template, was accepted. The results show that both

the boys and girls agreed that the use of courseware template improved their learning style, i.e., from being teacher dependent for input, they moved towards self-accessed learning.

Table 2   Independent-samples t-test showing relation between gender and learning style

Item	F	Sig.	df	Sig.(2-tailed)
Courseware template reduced my dependency on History teachers	2.404	0.287	110.07	0.784

Note: Significant at p<0.05.

(3) Hypothesis 3

One-way ANOVA procedure was used to establish hypothesis 3. The independent variable, which was participants' cognitve level, was analyzed in relation to the dependent varibale which was the motivation towards learning history. As shown in Table 3, a significant value of 0.928 was obtained from one-way ANOVA analysis and as such hypothesis 3, which state that there is no significant difference in terms of students' cognitive level influencing their motivation towards learning history between the Form One boys and girls after being exposed to the courseware template, was accepted. The results indicate that the students' cognitive levels (high or low) did not influence their motivation towards history. The high F-value of 0.075, shows a high strength of this courseware in promoting students' motivation to history lesson regardless of their cognitive ability.

Table 3   One-way ANOVA showing relation between students' cognitive level and motivation

Item	F	Sig.	df
Between group	0.075	0.928	2
In group	117		
Total	119		

Note: Significant at p<0.05.

(4) Hypothesis 4

One-way ANOVA procedure was used to establish hypothesis 4. The independent variable, which was participants' cognitive level, was analyzed in relation to the dependent varibale which was the learning style (teacher dependent for input compared to self-accessed learning). As shown in Table 4, a significant value of 0.610 was obtained from one-way ANOVA analysis and as such hypothesis 4, which states that there is no significant difference in terms of students' cognitive level influencing learning style (teacher dependent for input compared to self-accessed learning) between the Form One boys and girls after being exposed to the history courseware template, was accepted. The results indicate that students, regardless of their cognitive level, improved their learning style, i.e., from being teacher dependent for input, they moved towards self-accessed learning. The F-value of 0.497, shows the strength of this courseware in promoting students' self-accessed learning style.

Table 4   One-way ANOVA showing relation between students' cognitive level and learning style

Item	F	Sig.	df
Between group	0.497	0.610	2
In group	117		
Total	119		

Note: Significant at p<0.05.

8. Findings from research questions

(1) Research question 1

A Likert style questionnaire with 8 items was administered to answer research question 1 (see Table 5), "Does the use of history courseware template increase students' motivation towards history?". Descriptive analyses of the data collected showed a mean value of 4.60, which indicates that students generally enjoyed learning from the courseware template.

Table 5   Mean and standard deviation in relation to students' motivation (N=120)

No	Items	N	Min.	Max.	Mean	S.D.
S1	I enjoy using the multi-media courseware template.	120	4	5	4.72	0.45
S2	The multimedia courseware template increase my motivation towards history lessons.	120	2	5	4.48	0.66
S3	The multimedia courseware template help me to acquire more knowledge.	120	3	5	4.56	0.56
S4	The use of images and video promotes my interest to explore for more information.	120	4	5	4.68	0.47
S5	The background music stimulates my learning.	120	2	5	4.49	0.61
S6	The integration of text, images, animation, audio, video and graphic makes learning.	120	3	5	4.53	0.52
S7	I rewarded when I could answer the questions correctly.	120	4	5	4.66	0.48
S8	Feedback was when I answered wrongly.	120	4	5	4.67	0.47
	Total mean value	4.60				

(2) Research question 2

A Likert style questionnaire with 8 items was administered to answer research question 2 (see Table 6), "Does the use of history courseware template improve students' method, technique and style of learning history?". Descriptive analyses of the data collected showed a mean value of 4.66, which indicates that students can improve their learning style, technique and method when using multimedia courseware template.

Table 6   Mean and standard deviation in relation to learning style (N=120)

No	Items	N	Min.	Max.	Mean	S.D.
S15	This courseware gives me a new approach in my learning.	120	4	5	4.52	0.50
S16	This courseware helps create two-way interaction between me and the courseware.	120	3	5	4.57	0.51
S17	This courseware helps me work cooperatively with my peers.	120	4	5	4.60	0.49
S18	I'm able to self-access all information learned whenever I like.	120	4	5	4.78	0.41
S19	The information presented helped me understand Historical facts better.	120	4	5	4.72	0.45
S20	This courseware contains multimedia elements that promote my learning.	120	4	5	4.60	0.49
S22	This courseware help me acquire more knowledge.	120	4	5	4.59	0.49
S25	This courseware reduces my teacher dependency.	120	4	5	4.87	0.34
	Total mean value	4.66				

(3) Research question 3

A Likert style questionnaire with 5 items was administered to answer research question 3 (see Table 7), "Does the use of history courseware template improve the quality of instruction from traditional method to computer assisted instruction?". Descriptive analyses of the data collected showed a mean value of 4.35, which indicates that teachers can improve the quality of their instruction with the use of multimedia courseware template.

Table 7   Mean and standard deviation in relation to quality of instruction (N=120)

No	Items	N	Min.	Max.	Mean	S.D.
S9	This courseware help teachers achieve learning objectives.	120	4	5	4.67	0.47
S10	This courseware makes teachers' instruction more interesting.	120	3	5	4.41	0.63
S11	The use of this courseware shows that the teachers use varied teaching technique.	120	3	5	4.47	0.52
S12	The use of this courseware shows that the teachers are able to use current technology for instructional purposes.	120	3	5	4.08	0.74
S13	Teachers are not tied down with the old traditional method of teaching.	120	3	5	4.13	0.63
Total mean value		4.35				

(4) Research question 4

A Likert style questionnaire with 4 items was administered to answer research question 4 (see Table 8), "Does the use of History courseware template promote self-accessed learning among students for better comprehension of History lesson?". Descriptive analyses of the data collected showed a mean value of 4.43, which indicates that the use of multimedia courseware template promotes students' self-accessed learning for better comprehension of history lesson.

Table 8   Mean and standard deviation in relation to self-accessed learning (N=120)

No	Items	N	Min.	Max.	Mean	S.D
S14	This courseware help me access information independently.	120	3	5	4.15	0.71
S21	It is easy to explore the materials in this courseware.	120	4	5	4.48	0.50
S23	This courseware allows repetitive reading of facts that have already been studied.	120	4	5	4.53	0.50
S24	The navigations guide are organized for easier learning.	120	4	5	4.57	0.50
Total mean value		4.43				

(5) Research question 5

A Likert style questionnaire with 7 items was administered to answer research question 5 (see Table 9), "Is the use of history courseware template able to address the time constraint factor exists in the teaching and learning of history?". Descriptive analyses of the data collected showed a mean value of 4.65, which indicates that the use of multimedia courseware template can address the time constraint factor that exists in the teaching and learning of history.

Table 9   Mean and standard deviation in relation to time constraint factor (N=120)

No	Items	N	Min.	Max.	Mean	S.D.
S26	I can interact wit this courseware fast and easy.	120	4	5	4.57	0.50
S27	This courseware help me easily understand every topic.	120	4	5	4.50	0.50
S28	The content delivered is simple, compact and easy to understand.	120	4	5	4.68	0.47
S29	I can explore the contents in this courseware fast and easy.	120	4	5	4.69	0.46
S30	I can access the information at any time.	120	4	5	4.57	0.50
S31	The search for information can be done at any time without teachers' assistance.	120	4	5	4.73	0.45
S32	This courseware is suitable for use at any time.	120	4	5	4.78	0.41
Total mean value		4.65				

(6) Research question 6

A Likert style questionnaire with 8 items was administered to answer research question 6 (see Table 10),

"Does the use of history courseware template nurture thinking skills and morale among students?". Descriptive analyses of the data collected showed a mean value of 4.38, which indicates that the use of multimedia courseware template can nurture thinking skills and morale among students.

Table 10   Mean and standard deviation in relation to nurturing thinking skill and morale (N=120)

No	Items	N	Min.	Max.	Mean	S.D.
S33	Quiz is given at the end of every lesson.	120	4	5	4.68	0.47
S34	The Quiz tests my knowledge and skill.	120	4	5	4.67	0.47
S35	The Quiz help me develop my knowledge.	120	4	5	4.68	0.47
S36	I'm rewarded when I answer the questions correctly.	120	3	5	4.68	0.50
S37	This courseware instills moral values through the screen display.	120	4	5	4.62	0.51
S38	Patriotism is instilled through the information display screen.	120	3	5	4.79	0.70
S39	I can assimilate patriotic elements and value from this courseware.	120	4	5	4.78	0.41
S40	I can strongly understand the objectives of history education from this courseware.	120	3	5	4.13	0.63
	Total mean value	4.65				

9. Conclusion

The mean value obtained for all 40 items from the questionnaire was 181.05, with an average mean value of 4.53 as shown in Table 11. This value is close to the 5.00 mark, which indicates that the respondents were agreeable to the notion that the history courseware template is able to address problems that inherent in the learning of history such as overcoming students' boredom, time constraint factor and students' learing style that are from being teacher dependent to self-accessed learning and the quality of teachers' instruction.

Table 11   Total and average mean value for 40 items

Total mean for 40 items	Average mean for 40 items	Courseware strength
181.05	4.53	Excellent

Therefore, this study proposes that traditional teaching method should be replaced with technology-assisted learning environment specifically mutlimedia-based materials in order to create an interesting and engaging learning experience to students. Teachers also should empower themselves with knowledge and skills in compuetr technology to be in current with the evolving computer technology. The findings from this study can also be used by future researhcers and developers to design and develop multimedia materials that are robust and error free.

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