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Computer-Assisted Instruction and Students' Comprehension of a Literary Text

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ABSTRACT

This study was conducted to compare the effects of Computer-Assisted Instruction (CAI) and Traditional Instruction (TI) on the reading comprehension of grade ten male and female students during the School Year 2015-2016. Seventy-six grade 10 students, three English teachers, and one English head teacher were the respondents of the study. The researcher used the random assignment of groups. The study used quasi-experimental design of research and it used teacher–made tests and evaluation questionnaire as major data collection tools. The researcher utilized weighted mean, frequency counts, percentage, standard deviation, analysis of covariance for the data analysis. The literary pieces discussed were the short stories The Gift of the Magi for pretest and The Last Leaf for posttest both written by O. Henry (William Sidney Porter). The obtained p-value of 0.000 showed that there was a significant difference on reading comprehension in the pretest and posttest of the CAI group. Also, it presented that the obtained p-value of 0.003 on the pretest and posttest of the TI group revealed that there was a high significant difference in the pretest and posttest. Both groups improved their reading comprehension after the discussion. Moreover, a p-value of 0.443 was obtained in the posttest of both groups which means that there was no significant difference in the reading comprehension of students after being exposed on the two methods of instruction. This signifies that students learn whether through CAI or the TI. The obtained p-value 0.591 indicates that there was no significant difference between male and female respondents in their reading comprehension; it stresses that both male and female respondents improved their reading comprehension on the literary text after the treatment within same level of understanding. Therefore, the use of CAI may serve as an alternative or complement in teaching literature.

Introduction

Life is full of changes. There is a vast manifestation of progress and development in terms of information and communication technology. Products of modern technology are very evident to give satisfaction as well as pleasure to people. Along with these modifications of the world is changing man's way of living from traditional to modern. Transformation is taking place in all kinds of human industries, particularly in education towards the teaching methods of the teachers.

Today in the academe, it has been seen that visual materials are used everywhere and students make use of technological tools like television and computers. As a result of supporting instructional materials with different voice, image and animations, more permanent, pleasurable, and effective learning occurs (Demirel, 2006).

A teacher who is modernized on the benefits derived from the use of appropriate technology such as computers, audiovisual devices, electronically operated and varied multimedia equipment could enhance skill in generating new information.

Advances in Information and Communication Technology (ICT) have dramatically helped teachers into a truly interactive mode of teaching and learning (Salandanan, 2005). Audio-visual materials capture the interests of learners; they build up learning experiences and increase the motivation to learn (Cruse, 2006).

In today's world, demands on the learner have increased substantially. In the traditional classroom, they view the teacher standing in front of the classroom while students sit and listen. Where once it may have been sufficient to learn rote experiences within given working environments, now the real world demands that individuals use higher-order reasoning skills to solve complex problems. Learners must now be viewed as proactive participants in learning, actively seeking ways to analyze, question, interpret, and understand the ever-changing environment (Carreon, Prieto and Vega, 2006).With the diversity of learners, breakthroughs in technology and multiple teacher perspectives, an innovative teaching is one of the answers to the global demands for quality education (Bilbao, Corpuz, Llagas and Salandanan, 2006).

The literature component was incorporated in the English Language syllabus with the main aim of enhancing students' language proficiency (Vethamani, 2007). For students with some and high English language proficiency, the literature component was a welcome as it added a dimension of enjoyment to their learning while developing their language skills. This is because "the reading of literary texts involves the development of complex skills and tools of inquiry and these skills and tools maybe interpreted to include the gathering of information related to an issue or problem, analyzing of personal values as they relate to the issue or problem, reflecting upon various options for solution, and selecting and applying the most appropriate option" (Ganakumaran, 2003) while Hall (2005) states that literature has experienced a revival with the advent of communicative approach in language teaching as it provides learners with authentic, pleasurable and cultural material.

Gliebe (2011) states that using a video as a tool, a child at an early age can learn numbers, alphabet and foreign language. Likewise, Walker (2000) claims that video is essentially motivating for it captures attention and it is exciting and dynamic way of exposing learners to language and literature.

Today's students are growing with visual tools like television, video, computer and internet. It is not possible to get these pupils' interest by Traditional Instruction (TI) method used in the past. Technological developments have resulted in a big gap between the ways of teaching methods at school and of getting information in the society because most of the students get the information via visual content like computers and television, which are used in daily life very much (London, 2005).

Layugan (2005), in her study on the effectiveness of Computer-Assisted Instruction in basic English in University of Baguio, showed that lecture or traditional instruction and computer-assisted instruction (CAI) have their own strengths and weaknesses as methods in language teaching.

Results of Morales, Nacpil, and Vidallon's (2008) study on the innovative teaching: a tool for effective learning showed that the innovative teaching method aroused students' interest in learning and developed students' knowledge and confidence needed in the effectiveness of utilization of technology in teaching.

Rapid technological advances in the last decade have sparked educational practitioners' interest in utilizing computer as an instructional tool to improve student learning. There is substantial evidence that using technology as an instructional tool enhances student learning and educational outcomes.

Liao (2007) said that there has been much research in Turkey and around the globe in terms of the use of computer-assisted instruction. Different results have been gained from these studies. Some of these studies revealed that CAI serves to establish more effective learning situations than traditional teaching methods which involve teacher presentation, question and answer techniques, and discussions.

Demirtas and Gulek (2005) examined the impact of participation in a computer program on student achievement. A total of 259 middle school students were followed via partners. The study revealed that computer students showed significantly higher achievement in nearly all measures after one year in the program.

Joseph and Kinzie (2008) surveyed 42 middle school students on their game activity preferences. The explorative mode of play was the most appealing for all students but particularly for girls. An example of a game that fosters exploration is Discover Babylon, in which students travel through Mesopotamian time using Math, reading and writing skills.

Ma (2007) conducted a study to investigate both learning outcome and learning of two versions of a computer-assisted vocabulary learning program for Chinese learners. The results of the study showed that both the learning outcome and the learning process were more satisfactory in the controlled condition than the uncontrolled condition.

Tiu (2009), in his study about the intensive ICT-Integrated Learning Strategy for Enhancing Student Performance in American Literature, communicative interaction between students and teachers as well as learning motivational and interest not only increased but also upgraded their performance.

Al-Menei (2008) studied the effect of computer-assisted writing on Saudi students' writing skill in English. The findings of the study showed that computer-assisted writing has a significant effect on EFL Saudi students' writing ability in two areas - paragraph writing and correcting grammar. Bhalla (2013) stated that developing countries had a responsibility not merely to provide computers for schools, but also to foster a habit of infusing a variety of ways in which computers can be integrated in teaching-learning amongst the end users of these tools.

The use of computers enhances students' participation and aids in presenting and saving lessons for students. Computer technology is rapidly changing the way the educators can interact with their students (Hammoud, et al. 2006). Computer-Assisted Instruction (CAI) materials have been found to significantly change people's learning processes. Results from a number of studies indicate that appropriately-designed CAI enhances students' learning performance and since the students use the computer in learning the English language and literature, their motivation and interest are enhanced (Layugan, 2005). Parkinson and Thomas (2000) stressed out that literature serves as a good model for good writing. It is memorable, non-trivial and challenging and it also helps assimilate the rhythms of a language, therefore, facilitating intelligence and sensibility training.

In 2010, Banegas expalianed the merits of literature are by no means confined to developing only writing skill, as well as to adopting a traditional approach to language teaching. It is further claimed that literature helps improve form and discourse processing skills together with vocabulary expansion and reading skills.

The literature reviewed suggested that computers play important roles in the classroom instruction in learning literature. Overall, the researchers showed that computer-assisted teaching resulted to more improved and interesting way of learning; thus, obtaining higher achievement from the lessons discussed, if not more effective than traditional methods in teaching literature.

Computer-Assisted Instruction (CAI) provides better learning environment in education (Chang, Sung and Lin 2006). Computer-Assisted Instruction (CAI) gives more exposure to the language through audio and visual presentations. It also gives the opportunity to the students to see the scenes of the story through video clips if available; hence, students can view the story in its video form.

The literatures and studies implied that CAIs are good supplementary tools for classroom instruction in the language. The difference of the present study with the other conducted researches is that it intends to evaluate the effects of CAI and TI on the reading comprehension of ESL learners.

The researcher of this study sought to establish the use of Computer–Assisted Instruction in teaching literature. Literature has been emphasized in the K-12 curriculum to understand the cultural diversity around the globe. Hence, this study would be an important part to the success of teaching literature as part of grade 10 English.

Methods

This research was conducted by using quasi-experimental method. The purpose of this research was to determine whether the students who were taught by using computer-assisted instruction had better reading comprehension in a literary text for the grade 10 students. This research used Pretest – Posttest Control Group Design. Pretest scores and posttest scores were then compared from experimental and control group to determine the improvement of students' reading comprehension by using CAI after giving the treatment.

The population of this research was the grade 10 students during the school year 2015 – 2016 of Justino Sevilla High School, Pampanga, Philippines. Students were chosen through random assignment of groups. These two groups were chosen from six sections handled by the researcher. They were consecutive sections after the break. One group was assigned as experimental group which was scheduled 09:20 a.m. to 10:00 a.m. while the other was the control group which was scheduled 10:00 a.m. to 10:40 a.m.

Two questionnaires were used to achieve the objectives of the study. The first questionnaire was a 25- item teacher-made test that was used as pretest to determine students' reading comprehension performance. The scope of the test was based on the story entitled The Gift of the Magi by O. Henry. The second questionnaire was a 25-item teacher-made test which was used as posttest to determine what they had learned after the discussion. The scope of the test was based on the story entitled The Last Leaf by O. Henry.

The pretest and posttest were already pre-evaluated by the panel of examiners. These questionnaires were further evaluated by five English teachers of Camba High School, Candating High School and Tinajero High School – Annex. The material for CAI was evaluated by the Information Technology officer of the Division of Pampanga. Pilot testing was done among forty grade 10 students of Candating High School, Pampamga Philippines to determine the time allotment for the test. The evaluators suggested deleting some phrases of the test items that made the questions confusing. The results of pilot testing were considered in editing the questionnaires and the comments and suggestions of the evaluators of the material for CAI were incorporated. As soon as face validity of the instruments was established, pretest was administered to both groups of grade 10 students. Retrieval of pretest questionnaire was done after the test and the data were tabulated.

The researcher used CAI in teaching the short story to the experimental group, while TI was employed to the control group. The same topic was discussed to both groups. A one-week lesson matrix that included the schedule of activities and the materials used for both methods of instruction was provided as guide. During the instruction, only the TI group had the copy of the story.

Audio-video recording of two instructions (CAI and TI) was done to monitor the delivery of discussion using the methods of instruction. A five-minute snap shot was done for the initial tasks using CAI and TI. The discussion of the story was observed by the teacher-respondents to check on the students' participation. Teacher-respondents evaluated the two methods of instruction. After the story had been discussed, posttest was administered to both groups. Students were given thirty minutes to answer the test. The posttest questionnaire was retrieved after the groups had answered the questions.

The researcher served as the teacher of the two groups. The students were treated with more or less the same environmental condition such as lighting and ventilation of rooms used and class schedules.

The data analysis was aimed at testing the hypothesis of the research. The scores of two groups, experimental and control were compared to determine the effectiveness of the treatment. Weighted mean, frequency counts and percentage were used to determine the scores of the respondents in their pretest and posttest. Furthermore, standard deviation, T-test and analysis of covariance were utilized to compare the effects of two methods of instruction. To assess the students' reading comprehension, the researcher used the following scale: excellent (23.50 – 25), very satisfactory (19.50 – 23.49), satisfactory (13.50 – 19.49), passed (11.50 – 13.49), unsatisfactory (5.50 – 11.49), and very unsatisfactory (0 – 5.49).

Findings and Discussion

Table 1 presents the data on the number and percentage of the students according to sex. There were 20 or 52.63% male students and 18 or 47.37% female students in CAI group while in the TI group there were 18 or 47.37% male students and 20 or 52.63% female students, for a total of 76 students in both CAI and TI groups.

Table 1. Distribution of students according to sex

Variable		CAI f(%)	TI f(%)	Total f(%)
Sex	Male	20 (52.63%)	18 (47.37%)	38 (50%)
	Female	18 (47.37%)	20 (52.63%)	38 (50%)
Total		38 (100%)	38(100%)	76 (100%)

Pretest and Posttest Scores of CAI and TI Groups

The reading comprehension performance of students using the CAI for the experimental group and using TI for the control were assessed and compared by looking at the pretest and posttest results of both groups.

Table 2.a shows the pretest and posttest mean scores of the CAI group. A descriptive rating of *passed* was obtained in the pretest and a *very satisfactory* in the posttest of the students. The highest score obtained in the pretest was 18 while in the posttest was 25. The standard deviation shows that there was less dispersed distribution of the scores of the students in the posttest as compared to their pretest.

This shows that the reading comprehension performance of the students of CAI group increased after the treatment.

Table 2.a Pretest and posttest mean scores of CAI group

Variable	Mean	SD	HS	LS	Descriptive Rating
Pretest	12.132	3.543	18	4	Passed
Posttest	19.605	3.333	25	11	Very Satisfactory

Table 2.b shows the pretest and posttest mean scores of the TI group. A descriptive rating of *unsatisfactory* was obtained in the pretest and *satisfactory* in the posttest of the students. The highest score in the pretest was 17 while in the posttest was 24. The standard deviation shows that there was less dispersed distribution of the scores of the students in the posttest as compared to their pretest.

This means that students obtained almost the same information on the literary piece during the discussion. The reading comprehension of the students in TI group also increased after the treatment. This implies that the students under CAI and TI groups were able to acquire the information on the literary piece presented after being exposed to both methods of instruction.

Table 2.b Pretest and posttest mean scores of TI Group

Variable	Mean	SD	HS	LS	Descriptive Rating
Pretest	9.632	4.136	17	3	Unsatisfactory
Posttest	17.816	3.540	24	11	Satisfactory

Difference between the Pretest and Posttest Scores of CAI and TI Groups

Table 3 shows the difference between the pretest and posttest scores of CAI and TI Groups. A mean of 12.132 was obtained by the CAI group in the pretest and 19.605 in the posttest while the TI group obtained 9.632 and 17.816 in the pretest and posttest, respectively. The obtained p-value of 0.000 showed that there was a significant difference in the reading comprehension in the pretest and posttest of the CAI group. Also, it shows that the obtained p-value of 0.003 on the pretest and posttest of the TI group revealed that there was a significant difference in the pretest and posttest.

This means that both groups improved their performance after being exposed to the two methods of instruction. This affirms the result of the study of Busarin, *et al.* (2015) that the computer-assisted instruction for an English subject has a good efficiency that could be used in an English class.

	Pretest Mean	Posttest Mean	p-value	Interpretation

CAI	12.132	19.605	0.000	Significantly different
TI	9.632	17.816	0.003	Significantly different

Table 3. Difference between the pretest and posttest results of CAI and TI groups

Difference between the Reading Comprehensions of the Students

Table 4 reveals the reading comprehensions of the students under the CAI and TI groups. The obtained p-value of 0.000 showed that there was already an initial difference on the reading comprehension of the students of both groups on the pretest. To disregard this initial finding on the reading comprehension on the pretest, the analysis of covariance was used to determine the significant difference on their reading comprehension after their exposure on the two methods of instruction.

A p-value of 0.443 was obtained in the posttest of both groups which means that there was no significant difference in the reading comprehension of students after being exposed on the two methods of instruction. This means that students can learn both in CAI and TI methods of instruction. This entails that the students in CAI group and TI group had gained more or less the same knowledge after the exposure to both methods of instruction. The study of Al-Mansour, *et al.* (2008) indicated that using computer-assisted English language instruction alongside the traditional method had a positive effect on the experimental group students' achievement.

Variable	p-value	Interpretation
CAI and TI Pretests	0.000	Significantly different
CAI and TI Posttests	0.443	Not significantly different

Table 4. Difference between reading comprehension of CAI and TI groups

Difference between the Reading Comprehension Results of Male and Female Students

Table 5 shows the difference between the reading comprehensions of male and female students on the posttest. The mean score of male students was 18.7105 while the mean score of female students was 18.7105.

In terms of the score distribution, it shows that female students had lesser dispersed scores than male student-respondent after the treatment. The obtained p-value 0.591 indicates that there was no significant difference between male and female respondents in their reading comprehension. This implies that male and female students can acquire the knowledge on the literary piece discussed regardless of the method of instruction used.

It is related to the results of the study of Lacsina (2013) that both sexes (male and female) were found to have no significant difference and no significant interaction to the method of instruction. It clearly means that both male and female can cope with different methods of instruction.

Table 6. Test results for the difference between the reading comprehension of male and female respondents in the posttest

	Male	Female
Mean	18.7105	18.7105
SD	3.50909	3.60111
p-value	0.591	
Interpretation	Not significant	

Conclusion

Comparing the effects of CAI and TI on the reading comprehension of grade ten male and female students during the School Year 2015-2016 was the primary aim of this study. The data collected have been treated statistically by calculation of t-test and analysis of covariance. The obtained p-value of 0.000 showed that there was a significant difference in the reading comprehension in the pretest and posttest of the CAI group. Also, it shows that the obtained p-value of 0.003 on the pretest and posttest of the TI group revealed that there was a significant difference in the pretest and posttest. Moreover, a p-value of 0.443 was obtained in the posttest of both groups which means that there was no significant difference in the reading comprehension of students after being exposed on the two methods of instruction. Furthermore, the obtained p-value 0.591 indicates that there was no significant difference between male and female respondents in their reading comprehension. This implies that male and female students can acquire the knowledge on the literary piece discussed regardless of the method of instruction used.

CAI and TI may be used to discuss literary pieces for they may be supplementary to each other to facilitate classroom discussion and interaction. Teachers should look for different teaching aids that may cater to the different learning styles of the students to improve their reading comprehension of a literary text. However, the current study is just limited to learning a literary text particularly short story. Future studies may be conducted using CAI focusing on other literary genres such as poems, novels, plays, and others.

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