Classroom video conferencing: Its contribution to peace education

Lydie D. Paderanga*

MSU-Iligan Institute of Technology. Iligan City Philippines

Abstract

This study examined the educational workability of using classroom video conferencing (CVC) as an instructional approach in teaching peace education. It also aimed to develop appreciation on the use of technology among the students utilizing a quasi-experimental research design to compare the effect of CVC to the traditional approach of teaching peace education. Students in the CVC group were taught using video and audio transmissions, a technique heavily dependent on means of communication and technology. Analyses of the students’ learning performance taken upon the completion of the treatment suggested that the CVC had a significant effect on students’ posttest scores. The CVC group’s performance in the pretest and posttest was highly different revealing that the treatment had significant effect on students’ posttest scores. There was a difference between posttest academic performance of students taught with the traditional approach and those taught with CVC approach, in favor of the CVC group. With reference to respondents’ relationship between their test scores and the instructional approach, the CVC approach was seen as a factor affecting the performance of the students.

Keywords: Classroom video conferencing; Peace Education; ICT Integration

1. Introduction

Video conferencing had become an essential component of the business world. Today, it had penetrated into the classroom and has been accepted as a mode of instruction. New technologies such as video conferencing brought new ways for teachers to work with students and encouraged the development of strategies more consistent with the emerging technology. Video conferencing utilized synchronous two-way audio and two-way compressed video via the Internet. Utilizing special cameras, viewing monitors, and microphones at each location where faculty and

* Corresponding author. Tel.: +0-000-000-0000 ; fax: +0-000-000-0000 .
E-mail address: Lydiedean55@yahoo.com
students are able to interact with each other at distant sites as easily as those located at their home campus. They receive instruction and information on any topic, allowing them to exchange information and ask questions from other participating sites.

One of the greatest instructional benefits of video conferencing includes improved communication skills, and presentation skills among students. Instead of just reading textbooks and other printed materials, video conferencing allows students to interact with real people outside of one’s country. In this capacity, video conferencing allows students to learn from exciting speakers and educational tours without even leaving their classrooms. As a result, students learn about the culture and current events of other countries rather than reading outdated text books, looking at pictures or hearing from the teacher about the country. Through video conferencing teachers may bring the outside world into the classroom in a very real way.

Though considerable interest has been expressed in the use of classroom video conferencing (CVC) for teaching, being fairly new, little has been known how to use this new medium in the classrooms. One possible use is building peace through classroom video conferencing. In the Philippines, this cutting edge technology on online exchanges was introduced by Peace Tech in bringing together young people to build cultural bridges in an effort to improve mutual understanding between cultures.

Pursuant to DepEd Memorandum No. 469, s. 2008, and Executive Order No. 570, otherwise known as “Institutionalizing Peace Education in Basic Education and Teacher Education” the Department of Education (DepEd) mandates to actively promote a culture of peace in the educational system by incorporating peace education concepts, skills and values in the learning content of basic education. Peace education, as cited by Johnson and Johnson (2011), aimed at teaching individuals the concepts, attitudes, values, and behavioral competencies needed to resolve conflicts without violence and to build and maintain mutually beneficial, harmonious relationships.

Peace Tech is a non-profit organization that builds peace among the world’s youth. Peace Tech’s programs include: (a) High-school classes in partnership with the Department of Education; (b) Video conferences between Muslim and non-Muslim youth in Southeast Asia; (c) Peace Tech’s youth movement called “Peace Tech Embassy;” (d) Workshops; and (e) the Peace Tech online community: www.peacetech.net. Peace Tech recognizes the need to promote an understanding of the causes and consequences of conflicts in the Philippines and the common challenges encountered by young Filipinos. With this, Peace Tech hopes to eliminate prejudices and build better understanding between and among Muslims and Christians who are being separated by distance, religion, and cultural backgrounds through the use of technology (www.peacetech.net).

2. Theoretical Framework

This study was anchored on theories that were particularly relevant to learning processes which have impact on the design and use of computer-based instructional technologies. First, is B.F. Skinner’s stimulus-response-reinforcement theory (Skinner, 1974) as cited in by Chen, et.al (2005). Under this paradigm, the assumption of learning was that a learner will gradually develop responses to specific stimuli, when such responses were followed by a particular reinforcement. Basically, behaviorism advocated that a learner was primarily a product of conditioning, and that the learner was controlled by factors outside of himself.

In this model of learning, the primary task of a teacher was to provide stimuli and reinforcement to students following desired response. An example during the video conferencing was to give the student the first “opportunity to speak in front of the camera” if he or she answers the situational question correctly. The situational question was the “stimuli”, the student’s answer was the “response” and the opportunity to speak in front of the camera was the “reinforcer”. Since in video conferencing, students had the opportunity to recite in front of the camera. Skinner argued that since it was not possible to prove the inner processes with any available scientific methods, researchers should concentrate on cause-and–effect relationships within empirical observation (Robleyer, et al., 1997) as cited in by Chen, et al., (2005).
Second, is Lev Vgotzky’s (1978) Social Development Theory which stressed the fundamental role of social interaction in the development of cognition, as he believed strongly that community plays a central role in the process of "making meaning." As cited by McLeod (2007), much important learning by the child occurs through social interaction with a skillful tutor. The tutor may model behaviors and/or provide verbal instructions for the child. Vygotsky referred to this as co-operative or collaborative dialogue. The child sought to understand the actions or instructions provided by the tutor (often the parent or teacher) then internalize the information, using it to guide or regulate their own performance (http://www.simplypsychology.org/vygotsky.html).

In relation to the use of technology in teaching peace education, Vygotsky placed more emphasis on culture affecting or shaping cognitive development of a child. As he theorized, the learner involved in classroom video conferencing might have valuable inputs in promoting the culture of peace according to what one had learned from his or her cultural background through the sharing process. The learner’s answers to the extent of their understanding of peace might differ from the socio-cultural environment that they had at home. Thus, Vygotsky’s theory referred to the learner, the technical process, the product and the community within which the learner functions in order to carry out an activity.

Two of the research theories used in the context of peace education cited by Johnson and Johnson (2011) are the Social Interdependence Theory and the Constructive Controversy Theory. Social Interdependence Theory underlies the development of cooperative relationships. In order to create and maintain consensual peace, relationships among relevant parties must be dominated by cooperation, not competition. Social interdependence exists when the accomplishment of each individual’s goals is affected by the actions of others. As cited in by Johnson & Johnson (2011) the basic premise of social interdependence theory is that the way in which interdependence is structured determines how individuals interact and the interaction pattern determines the outcomes of the situation (Deutsch, 1949, 1962).

Constructive Controversy Theory on the other hand, focused on effective political discourse, creative problem solving, and decision making on difficult issues. A controversy existed when one person’s ideas, opinions, information, theories, or conclusions are incompatible with those of another and the two seek to reach an agreement. The process through which constructive controversy creates positive outcomes depends on the conditions under which controversy occurs and the way in which it was managed; controversy may result in positive or negative consequences. (Johnson & Johnson, 2011).

Both the cited theories of Johnson & Johnson (2011) had essential concepts to help the learners understand the importance of seeking out new learning from the cultural diversity present in every classroom and to contribute to the rich exchange of cross-cultural learning within each classroom through nonviolent communication and will function as socio-oriented citizens doing more than participating in established systems and community structures but also exploring strategies for change that addresses root causes of injustice and inequality and acting to solve injustices and inequality problems within their community.

3. Methods

This study utilized a quasi-experimental research design which tried to compare the workability of video conferencing approach and the non-video conferencing approach of teaching peace education among the respondents. The measurable endpoints of the study were the pretest and posttest scores of the respondents between groups through a teacher-made test.

The subjects were 222 third year students of Iligan City National High School, drawn from twenty one (21) sections chosen to become participants of the Peace Tech’s Classroom Video Conferencing program. These students came from four sections currently handled by the teacher who acted as facilitator of the classroom video conferencing program. She had undergone the Peace Tech’s CVC’s training and was expected to apply the ideas and concepts learned during the CVC’s sessions. Two sections were selected as the CVC group using the technological approach or video conferencing approach in teaching peace education and another two sections for the traditional group who used the conventional method of teaching peace education.
The researcher acted as the facilitator to both groups involved in the study. The students were evaluated utilizing a researcher-made test based on peace education. This was subjected to an item analysis to determine its index of difficulty and clarity. Out of the 30 test items made, four items were modified. This instrument was vital to know the achievement levels of the control and experimental groups based on the pre-test and post test results. A questionnaire was also developed to determine the attitudes of students who underwent the treatment towards the use of CVC.

4. The Treatment

The treatment employed was classroom video conferencing (CVC). The one-and-a-half to two-hour classroom video conference (CVC) was integrated in the Values Education, *Araling Panlipunan* (Social Studies) and Technology and Livelihood Education subjects held once a week for a month at selected schools in Mindanao and Manila. Mass video conferences were also conducted at the end of the program to reinforce the lessons and further build solidarity among the students. Participants were then trained on youth leadership and started their own technology projects as peace ambassadors.

Before the start of the experimentation, the subjects were briefed on the mechanics of the classes during an orientation program. The CVC participants were scheduled for four sessions to interact with their partner-schools in Manila, in particular, the Rajah Solaiman High School. In the case of Iligan City National High School, the CVC group was scheduled every Tuesday for a month. The four meetings lasted for an hour or more. After this, the CVC group interacted at the Peace Tech website together with their partner school to promote friendship and to understand one’s culture with the hope that they become advocates for peace using technology as their communication. Some of the selected students of the CVC were also made to join as live reporters in the Community Reporting Activity, thus becoming members of the peace clubs created in every participating school. They became participants of a mass video conference which involved a greater number of CVC participants to include other high schools of Iligan City, together with the Manila CVC students.

5. Results and discussion

Analyses of the students’ learning performance taken upon the completion of the treatment are presented below.

5.1. Pretest and posttest scores of the non-video conferencing group

Table 1 show the performance of the respondents in the pretest and posttest where non-video conferencing instructional approach was used. With fifty percent, almost a quarter (23.3%) of the students failed and almost half (40%) barely passed the pretest (15-18). Twenty five percent performed satisfactorily while only 11.7% performed very satisfactorily. Based on their highest scores, the traditional group performed satisfactorily in the posttest as compared to the pretest where most students barely passed. However, there was an increase of student performance in the posttest. Only 3.3% failed while 30% performed very satisfactorily. Majority (41.7%) of the students in the traditional group performed satisfactorily.

| Scores | Performance category | Pretest | Posttest |
|--------|-----------------------|---------|----------|
| 27-30  | Excellent             | 0       | 0        |
| 23-26  | Very Satisfactory     | 7       | 18       |
| 19-22  | Satisfactory          | 15      | 25       |
| 15-18  | Fair/Pass             | 24      | 15       |
| 0-14   | Fail                  | 14      | 2        |
| Total  |                       | 60      | 60       |

Table 1. Pretest and posttest scores of the non-video conferencing group
Table 2. Paired differences on the pretest and posttest scores of the respondents in the non-video conferencing group

| Paired variables | Non-video conferencing group | Mean | SD    | Paired mean difference | t-value | p-value | remark   |
|-----------------|------------------------------|------|-------|------------------------|---------|---------|----------|
| Pretest         | 16.88                        | 4.22 |       |                        |         |         |          |
| Posttest        | 20.42                        | 3.04 |       | -3.53                  | -11.352 | .000    | significant |

Note: Analysis is based on Paired T-test  SD-standard deviation **-significant at 0.01 level

Table 2 illustrates the presentation of difference between the respondents’ pretest and posttest scores when associated to the traditional classroom instruction or the non-video conferencing approach used by the researcher in discussing peace education. Over-all results show that there is a highly significant difference from the pretest to posttest as far as scores obtained by the respondents are concerned since the result yielded a value of 0.000. The mean performance of the traditional group indicated that they performed better in the posttest. This implies that the presentation and discussion of the topic before the test was administered has caused students to understand the concept of peace education. According to Acain (2010), a probable cause may be the effect of direct instruction in addition to the learning style of the students. Thus, traditional face-to-face instruction is still comparative to any innovative instruction.

5.2. Pretest-posttest scores of the CVC group

Table 3 shows the pretest and posttest scores of the CVC group. Twenty percent of the group failed while barely three percent scored very satisfactorily in the pretest. Majority of the students performed satisfactorily (41.7%). However, there was an impressive increase in their posttest scores with no one failing or barely passing. All students in the CVC group either performed satisfactorily (33.3%) or very satisfactorily (66.7%).

Table 3. Pretest and posttest scores of the video conferencing group

| Scores | Performance category | Pretest | Posttest |
|--------|----------------------|---------|----------|
|        | F        | %       | F        | %       |
| 27-30  | Excellent           | 0       | 0.0      | 0       | 0.0      |
| 23-26  | Very Satisfactory   | 2       | 3.3      | 40      | 66.7     |
| 19-22  | Satisfactory        | 25      | 41.7     | 20      | 33.3     |
| 15-18  | Fair/Pass           | 21      | 35.0     | 0       | 0.0      |
| 0-14   | Fail                | 12      | 20.0     | 0       | 0.0      |
| Total  |                      | 60      | 100.0    | 60      | 100.0    |

The CVC group performed very satisfactorily (67%) in the posttest, which was an increase in their pretest performance from satisfactory. This is consistent with Greenberg’s study (2009) where he found out that technology has a profound impact on the availability and quality of the educational experience of the students. He also stressed that interactive videoconferencing and video streaming technologies can be extremely effective media for delivering quality education to a broad, geographically dispersed student population.

Table 4. Paired differences on the pretest and posttest scores of the respondents in the video conferencing group

| Paired variables | Video conferencing group | Mean | SD    | Paired mean difference | t-value | p-value | remark   |
|-----------------|--------------------------|------|-------|------------------------|---------|---------|----------|
| Pretest         | 17.27                    | 3.57 |       |                        |         |         |          |
| Posttest        | 23.23                    | 1.62 |       | -5.97                  | -12.663 | .000    | significant |

Note: Analysis is based on Paired T-test  SD-standard deviation ***-significant at 0.001 level

Table 4 presents the difference between the respondents’ pretest and posttest scores when associated to the video conferencing instructional approach used by the researcher in teaching peace education. The result yielded less than 0.05 level of significance and is interpreted as highly significant. This implies that there is a significant difference in the performance of the respondents in the pretest and posttest. In fact their performance in the posttest is better compared in the pretest.
5.3. Posttest scores between the traditional and CVC groups

Table 5 presents the posttest scores of the traditional and video conferencing groups. As shown, the video conferencing group performed better than the traditional group.

| Posttest scores | Performance category | Non-video conferencing group | Video conferencing group | Total |
|-----------------|-----------------------|------------------------------|--------------------------|-------|
| 27-30           | Excellent             | 0                            | 0                        | 0     |
| 23-26           | Very Satisfactory     | 18                           | 40                       | 58    |
| 19-22           | Satisfactory          | 25                           | 20                       | 45    |
| 15-18           | Fair/Pass             | 15                           | 0                        | 15    |
| 0-14            | Fail                  | 2                            | 0                        | 2     |
| Total           |                       | 60                           | 60                       | 120   |

When posttest scores were compared, it was found out that the CVC group performed better than their non-video conferencing counterparts. The video conferencing group performed very satisfactorily (66.7%) while the non-video conferencing group performed only satisfactorily (41.7%).

Based on their highest grades obtained, it can be said that the CVC group performed better than the traditional group. Sixty seven percent of the CVC group performed very satisfactorily as compared to the traditional group where only 42% performed satisfactorily. It is evident that the CVC group performed better in the posttest compared to their traditional counterparts demonstrating that video-based lectures were effective compared to standard teaching lectures. The use of video, video streams or video-web communication has spanned the educational curriculum in a range of fields such as mathematics (e.g., Seago, 2004); science (e.g., Constantin and Papadouris, 2004); language (Jauregi and Banados, 2008; Wagener, 2006) and others (Goldman et al., 2004). Even from the students’ perspective, studies have shown that video can be a more effective medium than text to enhance their satisfaction and motivation during the learning process (e.g., Choi and Johnson, 2007; Shyu, 2000). According to Andrews & Klease (2009), teaching by video-conferencing "is a unique method of providing real time face-to-face interaction that enables immediate peer and teacher interaction and feedback".

Table 6. Differences on the posttest scores of the respondents between the non-video conferencing and video conferencing group

| Group            | Posttest scores | Mean difference | t-value | p-value | remark |
|------------------|-----------------|-----------------|---------|---------|--------|
| Non-video Conf.  | 20.42           | 3.04            |         |         |        |
| Video Conf.      | 23.23           | 1.62            | -2.817  | -6.328  | .000   |

Note: Analysis is based on Independent T-test SD-standard deviation ns-not significant at 0.05 level

Table 6 draws the presentation of difference on the respondents’ posttest scores when associated with the two instructional approaches used by the researchers in discussing peace education. Over-all results show that there is a highly significant difference on the posttest scores obtained by the respondents. A value of 0.000 interpreted as highly significant was generated and condensed the performance of the respondents on the test about peace education.

6. Effect of the CVC approach in teaching Peace Education

ANCOVA analysis indicated that there was a significant relationship between the scores obtained by the respondents in the test on peace education and the approach used in discussing the lesson. This implies that there is a strong evidence to suggest that the video conferencing approach could improve the performance of the students. According to Paula Fitzgibbon (2003), the need for instructors to understand and acknowledge that using video conferencing as a delivery mode will have an impact on teaching styles and methods. Even though the term
"interactive video-conferencing" is often used when discussing this type of technology-based teaching. Successful interaction does not take place unless instructors plan and understand how the medium will alter their teaching approaches.

6.1. Impact of Classroom Video Conferencing in teaching Peace Education

The use of CVC created an impact in teaching peace education especially in increasing the awareness level of the students. It also made a positive impact on the students’ self-esteem. According to Mamhot (2012), people who portray their life as a normal individual in a certain video clip can help themselves find meaning in their lives. Students in the CVC group indicated that watching the experience of others through video clips gave them moral lessons allowing them to think, to decide and to apply the things they have learned in their own real life. Adolescents tend to see most everything as realistic and attainable. Students are more likely to emulate the images portrayed in the video they have seen. They will attempt to model themselves through their actions, after the images viewed. They look to the video presentation to define how they should deal with problems in life, how their past experiences would help them to become strong individuals and how to deal with trials and hardships that would come their way. As cited in by Libunao and Legaspi (2003), students then applied newly discovered knowledge from the video conferencing to new situations, a process for making their knowledge applicable to real life situations. Through this experimenting process, students validate, modify and generalize the acquired concepts and principles (Navarro, 1988).

Classroom video conferencing helped the students in having positive outlooks on the following statements: “ICT can help promote understanding”, “issues and concerns that affect me also affect other youth regardless of location, race or religion”, “peace can be better achieved by identifying and resolving issues that are within one’s self”, “peace education in school curriculums will help make the Philippines and Mindanao more peaceful”, “an individual has an impact on making the Philippines and Mindanao more peaceful in the future” and “Muslims and Christians live in the same communities”.

7. Conclusions

This paper has presented a comparative analysis of the use of CVC approach in teaching peace education. Results indicated that CVC can increase the efficiency and effectiveness of teaching peace education. It also allowed students the opportunity to relate with their peers from distant schools, develop social and communication skills resulting to a higher self-esteem which would have been not possible in the regular classroom.

As shown in the study, the use of ICT such as video conferencing may eventually change the roles of teachers. Instead of being the source of knowledge, they become facilitators, guide, mentor, knowledge navigator, consultant and even co-learner with the students. Teacher’s role shifted from information dispenser to curriculum planner. Thus, teachers need to be trained to use ICT in the classroom and to adapt this new technology to their pedagogy. As such, an adequate preparation during pre-service to develop the needed skills is deemed important. Teacher-training institutions should provide student and faculty access to the modern classroom tools. As for the teachers who are now in the service, the best response is to assume a proactive and dynamic role in facilitating and managing students’ learning.

ICT tools make information exchange easier, faster and cheaper as experienced by the students under the CVC group. When used effectively, ICT can improve students’ motivation, enhance student learning and even improve their self-esteem as shown in this study. The results of the study have ramifications for curriculum planning, not only to high school students in big cities but also to rural high schools with indigenous peoples in the Philippines.

7.1. Recommendations

Given the findings of this study, three recommendations for research emerged. First, it is important to examine how school principals and Deped administrators can be encouraged to support the integration of ICT such as video conferencing in the classroom. Second, this study indicated teaching peace education can be effectively taught with
the use of video conferencing. Yet little is known about the ICT initiatives of teachers undertaking such studies. Therefore, it is important to investigate these activities to shed light on how these approaches can be improved.

Third, the importance of school-wide consultative forums, school support of local officials, community leaders working with the school illustrate that a common thread in the development, implementation, and monitoring of ICT integration is the development of teacher engagement. Hence, research should address in-depth teacher involvement in the integration of ICT in the curriculum.

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