THE USE OF MULTIMEDIA IN THE TERTIARY CLASSROOM INSTRUCTION: THE COLEGIO DE SAN JUAN DE LETRAN - INTRAMUROS, MANILA EXPERIENCE

Darwin Rungduin
Rene Nob
Sharon delos Santos
Marjory Ignacio
Psychology Area, Colegio de San Juan de Letran

Abstract

This study examined the perception of the academic community of Colegio de San Juan de Letran in the use of multimedia presentation in classroom instruction. In particular, this research focused on the use of overhead projectors, LCD, and computers in the presentation of lessons and discussions of teachers in the collegiate level. Five hundred and seventy six (576) college students, twenty seven (27) professors, and nine (9) area chairpersons responded on the researcher-made questionnaire, measuring their perception towards the use of multimedia in the classroom. The measurement covered the preparation of materials, implementation, interaction, learning motivation, and learning outcome. One-way analysis of variance revealed no significant differences on the perception of the groups of respondents in the use of multimedia in the classroom.

Key words: multimedia presentation, instructional technology, learning motivation and learning outcome

INTRODUCTION

During the last decade of the previous millennium, the world has witnessed the surge of technological innovations and advances made available for public consumption. To name a few, there were the internet, cellular phones, personal computers, computer software, laptops, and PDAs, among others. The extent of assimilation of these technological tools to popular culture has been so immense to the point that some of them have become almost a necessity for people in some countries. In the Philippines alone, a significant portion of the households have personal computer. Almost everyone, even those who are within the poverty line, have mobile phones. To the more affluent families, even children as early as those in the third grade, have cellular phones of their own. In most areas of the country, may it be urban or rural communities, internet access is likewise available. Indeed, a new era has apparently emerged –the digital era.

These changes pose great implications to the humanity. In almost every aspect of their waking lives, technology has seemed to found its way through and influenced the manner of living. Technology has positioned itself as a bedrock of business, engineering, communication, agriculture, and yes, even education and learning.

From the traditional methods of chalk-talk lectures, classroom scenarios now are far more different. Although lecture, as a methodology, is still here to stay, the facilitation of technology has rather introduced innovations in teaching and learning. Most people recognized such move befitting since students now have different needs than the students of past generations.

Colegio de San Juan de Letran, one of the oldest educational institutions in the Philippines, seems to be ready to take on the challenges of the digital era. In keeping with one of Colegio's visions: to be responsive to the needs of the 21st century, the Colegio is determined to ride on the waves of technology, and offer students the best that the digital age can offer. It has been quite a while since Letran has made available for teachers the technological resources such as overhead projectors (OHP), television and VHS/VCD/DVD players. The use of these materials has been encouraged and has

been instructed to be part of the teaching process. In the past three years the school has been pushing it even further, most especially in the collegiate department. Laptops have been purchased, new OHPs have been brought in to replace the old ones, and LCD projectors have been installed in majority of the rooms. The faculty members, on their end, showed openness to these changes by maximizing the use of these facilities during their classroom discussions. At present, a significant percentage of the professors deliver their lessons through the aid of PowerPoint presentations and instructional acetates.

Having these changes embraced by the academic community of the Colegio, the researchers intended to determine their perception on the use of these facilities, particularly in the classroom. This serves as a feedback mechanism for the effort of the school to provide quality education to students. This also contributes in the assessment of further development that the Colegio needs to extend in achieving its institutional objectives concerning the development of technological facilities, particularly on the use of overhead projector (OHP), LCD, and computers as instructional materials in the collegiate level.

STATEMENT OF THE PROBLEM

The present study assessed and evaluated the perception of area chairpersons, professors, and students from the Collegiate Department of the Colegio de San Juan de Letran - Intramuros as regard to the use of multimedia resources in classroom instruction. Particularly, this study answered the following questions:

1. How did the groups of respondents perceive the use of multimedia as regards to:
   1.1 Preparation
   1.2 Delivery
   1.3 Student-Teacher Interaction?

2. What was the extent of effectiveness in using multimedia as regards to:
   2.1 Learning Motivation
   2.2 Learning Outcome?

3. Were there significant differences on the perception of the groups of respondents on the use of multimedia in the classroom?

4. Were there significant differences on the perceived effectiveness of groups of respondents on the use of multimedia in the classroom?

REVIEW OF RELATED STUDIES

Over the years, information technology has been changing the "traditional" mode of instruction in the classroom. In this regard, faculty members continuously seek for better presentation of lessons to guarantee the transfer of learning to the students. Although there are some "traditional" classroom instructions that are still in use, and yet they are considered equally effective to students.

In the work of Isleta, et. al. (2004) regarding learning preferences of freshmen students of Colegio de San Juan de Letran, they reiterated that on the faculty instruction, activities should appeal to different forms of intelligences. As such, it is important on the part of the faculty to ensure the manner of presenting their lessons to the students.

Discussion and multimedia take part in classroom instructions for learners. *Discussion* has been used as an instructional strategy that uses teacher-student and student-student interactions. It acts as the primary vehicle for learning (Kauchak and Eggen, 2003). Multimedia has been used to describe audiovisual teaching aids since the early 1960s and today have become closely associated with the computer-controlled and instructional delivery systems (1997).

According to Kauchak and Eggen (2003) to effectively do a discussion in the classroom, one must do all of the following:

1. Focus the discussion. A primary role for the faculty members is to keep the class on track.
2. Encourage thoughtfulness. In conducting discussions, faculty members must be skilled in using questions that solicit alternate

points of view, relationships between ideas and analysis of different points of view.

3. Maintain momentum. Discussion must be monitored constantly to ensure that momentum is maintained.

According to Bitter and Pierson (1999), in spite of whom your students are or what lessons you are going to present, multi-media or computer hardware and software facilitates clear and effective presentation of ideas. One has to understand the differences in possibilities technology presents over those of traditional presentation methods in order for one to present all types of information confidently.

To work with multi-media instruction effectively, Kallick and Wilson III (2001) suggested that faculty members must develop new coaching skills. Over and above that skill, they must exhibit:

1. a level of comfort with technology
2. a willingness to learn with students
3. flexibility with time and scheduling
4. a willingness to accept more self-directed learning

Determining the attitudes of students and teachers was the focus of study made by Guice, Litcher, & McCoy (1999). Using the five classes from two high schools, approximately seventy students, they determined the effectiveness of technology on learning and performance of and by students and teachers. The results showed that at least 80 percent of the participants reported that they would like to see more technology used in the classroom; however, teachers reported that they would like to use computers as a teaching aid but they were limited by the lack of equipment in their classrooms. Likewise, teachers recognized that students would like and would benefit from the use of technology.

In the study of Oh and French (2003), they examined preservice teachers' perceptions of an introductory instructional technology course in their prospective classrooms, and whether they valued technology in teaching practice. Using a 29-item-survey instrument with three-point Likert scale, 80 undergraduate students enrolled in an introductory instructional technology course measured their perceptions. The findings showed that students enrolled in the course

believed that they were adequately prepared to implement technology in their teaching and learning practice. They felt that they had the basic skills and concepts to operate computers; they could design lesson utilizing technology for the need of diverse learners; that they could apply technology enhanced curriculum to support higher students' thinking skills and creativity; they could evaluate the appropriateness of students' use of technology resources. Furthermore, they also believed that use of technology adds value to the curriculum and affects the quality of teachers hired.

Min Liu and Yung-Ping Hsiao's (2001) study focused on the investigation of research practice of engaging middle school students to be multimedia designers using a project-based learning approach. Sixteen students in an elective multimedia class from middle school were the participants of the study. Through the quantitative and qualitative analyses, Min and Yung-Ping found that students recognized the value of learning multimedia skills, and liked what they have accomplished. They were particularly excited about the opportunity of learning multimedia professional software, and working like multimedia professional, and felt confident about their abilities. However, multimedia presentations do not always bring positive effects on learners' motivation and outcome as presented on previous studies. In Moreno's (2001) two experimental studies of 64 and 79 college students did not provide evidence in confirming an image effect in program ratings, recall, and transfer of learning. Findings, further elaborated that students who learn with the voice of an agent rate the lesson more favorably, recall more, and are better able to use what they have learned to solve problems than students who learn the same verbal information as on-screen text.

METHODS

To achieve the objective of this study, the researchers made use of the descriptive-evaluative research design, which is, presenting the current views of the different members of the academic community of the Colegio and provide a general impression on how these individuals perceive the use of multimedia in the classroom in particular, and in the learning process in general.

Procedure

Pre – Survey

Lists of teaching methods were asked to be ranked by selected professors from the two colleges of the Colegio de San Juan de Letran – Intramuros - the College of Liberal Arts and Sciences (CLAS) and the College of Business Administration and Accountancy (CBAA). Their ranking was based on the most frequently used methods in delivering their lessons and their preferred teaching methods. Teaching methods were given operational definitions for their easy reference. After the pre-survey instrument had been retrieved, teaching methods were analyzed to determine the methods to be evaluated in this study. As a result, the use of multimedia appeared to be a consistent choice on the most frequently used and preferred teaching method.

Data Collection and Analysis Technique

After the instruments had been designed, coordination with the Dean's offices was made for easy retrieval of the data. Assistance from the area chairperson and their faculty members were solicited, particularly the list of classes for each of the class sessions for the Monday/Wednesday and Tuesday/Thursday schedules were requested at the CLAS Dean's office for randomization of the student-participants.

Questionnaires for area chairpersons and faculty members were distributed and retrieved personally by the researchers. Trained research-assistants, on the other hand, collected data from student-respondents. They also scored and encoded the data for processing. After gathering the data, the mean, standard deviation, and one way analysis of variance (ANOVA) were applied.

Participants

There were three groups involved in this study: the area chairperson, the collegiate faculty members, and the collegiate students from the two colleges. The area chairpersons evaluated the teaching methods from the perspective of the one observing and evaluating professors; faculty members, evaluated the teaching method on the aspects of using the multimedia in the classroom; and students became the focus of the learning process. Student-

respondents composed of 576, which was lesser than the original collected data because of incomplete responses, 27 faculty members, and 9 area chairpersons. Table 1 illustrates the profile of the respondents of the study.

In terms of the selection of participants, all area chairpersons participated in the study, since they were small in number compared with the other groups of participants. The faculty members were selected in proportion with the total number of faculty members from each of the colleges. Students on the other hand, were randomly selected. Two sections for each class session during Monday/ Wednesday and Tuesday/Thursday schedule were selected to respond to the questionnaire.

Table 1. Profile of the respondents

Respondents		Variable	f (%)
STUDENTS (N = 576)	**Sex**	Male	334 (57.99)
		Female	242 (42.01)
	Age	Younger than 17	133 (23.09)
		18-19	262 (45.49)
		20-21	136 (23.61)
		22-23	39 (6.77)
		Older than 24	6 (1.04)
	Academic Year Level	First year	183 (31.77)
		Second year	175 (30.38)
		Third year	136 (23.61)
		Fourth year	82 (14.24)
FACULTY (N = 27)	**Sex**	Male	11 (40.74)
		Female	16 (59.26)
	Age	26 – 30	7 (25.93)
		31 – 35	9 (33.33)
		41 – 45	5 (18.52)
		46 – 50	3 (11.11)
		Older than 50	3 (11.11)
	Academic achievement	Units earned in master's	3 (11.11)
		Master's degree	17 (62.96)
		Units earned in doctorate	6 (22.22)
		Doctorate degree	1 (3.7)
	Years in College Teaching	Less than 1 one year	1 (3.7)
		1 – 3 years	5 (18.52)
		4 – 6 years	12 (44.44)
		7 – 9 years	6 (22.22)
		More than 10 years	3 (11.11)
AREA CHAIRPERSONS (N = 9)	**Sex**	Male	2 (28.57)
		Female	7 (77.77)
	Age	26 – 30	
		31 – 35	3 (33.33)
		41 – 45	1 (11.11)
		46 – 50	4 (44.44)
		Older than 50	1 (11.11)
	Academic achievement	Units earned in master's	
		Master's degree	4 (44.44)
		Units earned in doctorate	5 (55.55)
		Doctorate degree	
	Years in College Teaching	Less than 1 one year	
		1 – 3 years	
		4 – 6 years	1 (11.11)
		7 – 9 years	1 (11.11)
		More than 10 years	7 (77.77)

Instruments

Researchers used a researcher-made instrument. It consists of two parts: the Profile sheet and Perception on Multimedia Scale. The profile sheet determined the demographic characteristics of the respondents. There were different profile sheets for each group of respondents because of the different roles that they perform in the learning process.

The Perception on Multimedia Scale is a 47-item-4-point-likert instrument which measured the extent of perception of the respondents in the use of multimedia in the learning process. It is likewise divided into 5 parts measuring the following: (1) Preparation of Multimedia Preparations, as regards to choice of materials and setting-up of materials; (2) Implementation of Multimedia; (3) Student-Teacher Interaction, as regards to interpersonal, intellectual and physical interaction; (4) Learning motivation; and (5) Learning Outcome. Table 2 illustrates the table of specifications of the scale and the interpretation for each of the component.

Table 2. Table of specifications of the Perception on Multimedia Scale

Components	Number of Items	Criteria and Verbal Interpretation			
		very low	low	high	very high
Preparation of Multimedia Materials	7				
Choice of materials	4	4.00 – 7.00	7.01 – 10.00	10.01 – 13.00	13.01 – 16.00
Setting up of materials	3	3.00 – 5.25	5.26 – 7.50	7.51 – 9.75	9.76 – 12.00
Implementation	8	8.00 – 14.00	14.01 – 20.00	20.01 – 26.00	26.01 – 32.00
Student-Teacher Interaction	18				
Interpersonal	7	7.00 – 12.25	12.26 – 17.50	17.51 – 22.75	22.76 – 28.00
Intellectual	7	7.00 – 12.25	7.00 – 12.25	7.00 – 12.25	7.00 – 12.25
Physical	4	4.00 – 7.00	4.00 – 7.00	4.00 – 7.00	4.00 – 7.00
Learning Motivation	9	9.00 – 15.75	15.76 – 22.50	22.51 – 29.25	29.25 – 36.00
Learning Outcome	6	6.00 – 10.50	10.51 – 15.00	15.01 – 19.50	19.51 – 25.00
Total	48				

RESULTS and DISCUSSION

1. Perception of groups of respondents on the use of multimedia as regard preparation, delivery, and student-Teacher Interaction.

Table 3. Levels of perception of groups of respondents on the use of multimedia in classroom

	STUDENTS		FACULTY		AREA CHAIRPERSONS	
	Mean (SD)	Interpretation	Mean (SD)	Interpretation	Mean (SD)	Interpretation
Preparation						
Choice of Materials	13.580 (1.756)	High	14.111 (1.805)	Very high	13.778 (2.682)	High
Setting up	9.821 (1.613)	Very high	10.148 (1.321)	Very high	10.444 (0.882)	Very high
Implementation	24.47 (3.233)	High	24.77 (2.965)	High	23.44 (3.208)	High
Interaction						
Interpersonal	21.148 (3.215)	High	20.630 (3.553)	High	19.889 (2.619)	High
Intellectual	21.288 (3.043)	High	20.556 (3.117)	High	19.889 (3.516)	High
Physical	10.905 (2.245)	Low	10.074 (2.147)	Low	10.444 (2.248)	Low

The table 3 indicates that majority of the respondents had high considerations when it comes to the use of multimedia in the classroom. Particularly, the implementation of the planned presentation was consistently perceived to be an important aspect. In terms of the interaction, both the interpersonal and intellectual components were perceived to be highly evident during the use of multimedia presentations. In the extremes, setting up was perceived to be very significant, while physical interaction appeared to be less observable, as shown by the consistent responses of the different groups of respondents. Varied responses of the respondents only appeared on the choice of materials, where faculty members tend to put great importance on the graphics and animations used while students while area chairperson had lesser emphasis on such.

2. The extent of the perceived effectiveness in the use of multimedia as regards to learning motivation and learning outcome.

Table 4. Level of perception of groups of respondents on the learning motivation and outcome

	Student		Faculty		Area Chairperson	
	Mean (SD)	Interpretation	Mean (SD)	Interpretation	Mean (SD)	Interpretation
Learning motivation	28.379 (4.580)	High	29.259 (4.825)	Very high	28.404 (4.569)	High
Learning outcomes	19.059 (8.263)	High	18.444 (3.178)	High	19.019 (8.054)	High

Table 4 shows that, when it comes to the learning motivation and learning outcome, college students, faculty members and area chairpersons perceived multimedia as a teaching method that enriches motivation and outcome. Furthermore, faculty members had the strongest belief that multimedia presentations motivate students to learn, as suggested by the mean on the component. Their perception on the influence of multimedia on the learning motivation and learning outcome were the most consistent among the other groups of respondents, having the lowest standard deviation values.

3. Differences on the perception of groups of respondents on the use of multimedia in classroom.

Table 5. Comparison on the perception of the respondents on the use of multimedia in classroom

Variable	F value	Significance value	Inference
Preparation of Materials			
Choice of Materials	1.20	0.30	No significant difference
Setting-up	1.19	0.31	No significant difference
Implementation	0.58	0.56	No significant difference
Interaction			
Interpersonal	0.70	0.50	No significant difference
Intellectual	0.39	0.68	No significant difference
Physical	1.34	0.26	No significant difference

To investigate the differences of responses of the different groups, the analysis of variance (ANOVA) was employed. There were no significant differences in the preparation of material for the use of multimedia, particularly in choosing the materials to be used and setting up the said materials F (2, 609) = 1.20, p = .05 and F (2, 609) = 1.19, p = .05, respectively. The same result was that of implementation of the presentation, showing no significant differences among the responses F (2, 609) = 0.58, p = .05. The perception of the groups of respondent likewise did not significantly differ on the level of interaction that multimedia presentation brings about when it is used in classroom. These findings were consistent on the three identified components of the interaction, namely, interpersonal F (2, 609) = 0.50, p = .05, intellectual F (2, 609) = 0.39, p = .05, and physical F (2, 609) = 1.34, p = .05.

4. Difference on the perceived effectiveness of groups of respondents on the use of multimedia in classroom.

Table 6. Comparison on the perceived effectiveness of respondents on the use of multimedia in classroom

Variable	F value	Significance value	Inference
Learning motivation	0.680	0.507	No significant difference
Learning outcomes	0.120	0.887	No significant difference

Looking into the differences of groups of respondents' perception of effectiveness of the multimedia, it shows in perception of both learning motivation F (2, 609) = 0.680, p = .05 and outcomes F (2,609) = 0.120, p = .05, did not significantly vary from one another; despite of the higher perceived effectiveness of teachers on the use of multimedia in classroom as illustrated in their mean score.

Discussion

The different groups of respondents generally have a favorable perception about the preparation of materials for multimedia presentation, especially on the aspect of setting up. Students, faculty

members, and area chairpersons relatively find it essential that multimedia presentations be well prepared. Likewise, it may be implied that respondents perceived that the knowledge and the capabilities of faculty members to setup multimedia presentations vital in classroom instruction. Honey (in Guice, Litcher & McCoy, 1999) emphasized that teachers' personal beliefs about technology played a vital role in how they chose to incorporate technology in classroom. This was also one of the problems identified of Freiwald (in Lui & Yu-Ping, 2001), particularly the misuse of technology. This principle also focuses on how aware teachers are on their technological skills. As teachers become more effective in developing materials that are highly attractive to students, one is likewise being challenged to become fully aware on the technical know-how especially those that are being frequently used in the classroom, such as connecting LCD to computer.

Nevertheless, it is interesting to highlight that faculty members tend to perceive choice of materials is a very vital aspect of multimedia presentations. When teachers prepare the presentation, they tend to exert much effort on how they could make it more attractive to their students, during discussion and during classroom observations, to their area chairpersons, although in Moreno's (2002) report, he found out that image effects do not necessarily facilitate recall, in particular, and transfer of learning in general. He further stipulated that it may even possibly result to detrimental learning rather than neutral learning. This similarity of responses may indicate that students and area chairperson may not be much after with the graphical aspect of the presentation but much more on the other important aspects of the lesson. Thus Lui and Rutledge (in Lui and Yu-Ping, 2001) challenged teachers in keeping the interest of the students, so as to keep them focused on the lesson.

The groups of respondents had the same view on the implementation of the use of multimedia. They all agreed that students become more attentive whenever multimedia presentations are used. It allows students to become more empowered on how they learn their lessons. They showed consistency on their perception that lessons that are presented in multimedia become more organized and required less elaboration. However, because of that, students would most likely not to take down notes because of the readiness of

information. It is in this context that one should consider the need to use other types of method/s to complement multimedia presentations. Furthermore, respondents perceived that teachers appeared to be more confident and able to keep on track in the presentation of lessons when multimedia is used. This result may be a positive response on the challenges and concerns posted to teachers in integrating technology into teaching and learning activities and becoming comfortable in doing so (Ho and French, 2004). Comfortability in this context illustrates the ability of teachers to use technology without compromising the objectives of the lesson.

In terms of student-faculty interaction, participants believed that multimedia presentations foster interaction especially on the intellectual and interpersonal components. Having teachers' lessons presented in multimedia, students are challenged to become critical about it (Min & Yu-Ping, 2001; Guice, Litcher & McCoy, 1999). It becomes a venue for students to go further on the visual materials into a broader spectrum of learning process (Moreno, 2002). It gives support for intellectual exchange of opinions, judgments, and beliefs regarding the topic. The group of respondents believed that through the use of multimedia in classroom, the learning atmosphere is more conducive for students to become critical in the lessons presented to them and eventually, with other necessary situational cues, share their realization. Since multimedia is an instructional aid that attracts students' attention and makes teachers comfortable during the learning process, it becomes a way for both of them to develop positive relationship towards the attainment of instructional objectives. Swanson and Pearson (in Ho & French, 2004) even called implementation of technology as catalyst in the process of empowering learning. Through this approach, learners become more responsible on their learning behavior and develop a learning style that suits to the level of their capability. It was only in the physical component that respondents had reservation on the positive role of the multimedia in classroom. When teachers use this approach inside the classroom, it may be perceived that teachers become stationary because of the effort they devote to the operation of their presentation. It further limits them to go around the classroom and allow themselves to oversee activities of students during the discussion.

As for the learning motivation and learning outcome component, the different groups of respondents apparently believe that students become motivated to learn when the lessons are presented through multimedia means. That is, students become more interested about the topic and able to experience learning in a more meaning way. In spite of this claim that students are perceived to become motivated and yield higher learning outcome, Min and Yu-Ping (2001) reported that students may have the tendency to develop boredom and thus decreasing the motivation of students to become actively involved in classroom discussion.

IMPLICATIONS

Technology can be used within the education system to support curriculum, instruction and assessment, as well as professional development. It can be used to increase productivity, facilitate communication and collaboration, to encourage the building of community and a connection with parents. It offers a chance for promoting diversity and equity of access. In each role, the newest forms of technology intended for classroom use, strengthen and facilitate the networks of information and knowledge exchange, which are integral to learning.

There are several key considerations that should be examined before implementing multimedia technology as an educational tool. First, the teacher should determine the purpose or expected outcomes that one hopes to achieve by using multimedia. The flexibility of multimedia could be capitalized to offer the learner opportunities to modify and influence the nature of the learning process itself, by providing problems, scenarios, and simulations that allow the learner to progress along various levels of thought, manipulate the basic parameters of the situation, and test alternatives that might not otherwise be possible with traditional instructional methods.

In the use of multimedia, teachers should exert conscious effort in preparing their lessons as students find the medium as advantageous to their learning. Given the idea that multimedia presentation is an alternative instructional tool, teachers should not be deceived, however, by the attractiveness of what their presentation

may bring on the enthusiasm from students. But instead, one is ought to further enrich its content. Instructional tools, such as the use of multimedia, are venues to make the delivery of instruction and transfer of learning easy for both teachers and students; and would not compromise the entire meaning of the learning process.

Educational institutions are likewise challenged to encompass an attempt for continuous contribution to the use of multimedia. Since teachers have been aware on the use of various software and hardware in relation to multimedia presentation of their lessons, institutions may further improve this knowledge by providing more access on trainings that positively contribute on their use of the said approach.

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