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THE EXTENT OF USE, USAGE AND IMPACT OF MULTIMEDIA INSTRUCTION IN SELECTED BOARD COURSES IN THE COLLEGE OF NURSING

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***Abstract*— The study determined the extent of use, usage and perceived impact of Multimedia Instruction (MMI) in Nursing Care Management (NCM) 103 and NCM 104 courses in the College of Nursing. A descriptive research design was utilized wherein 28 permanent faculty members of the College of Nursing and 143 student nurses from Level III were chosen as respondents. The study found out that most of the respondent's extent of use of MMI for education/recreation related activities ranged from no use to moderate and no use to minimal with creative/innovative activities. For computer programs, there was an occasional usage by the teachers and frequent usage by the students. In NCM 103, the teachers' extent of use in education/recreation related activities had a positive strong significant relationship with the students' grades and between the teachers' extent of use in creative/innovative activities to the students' grades. In NCM 104, however, the study showed a strong and direct but no significant relationship with the teachers' extent of use of MMI in education and creative/innovative activities to the students' grades. Furthermore, the teachers identified that MMI had a very high impact in the teaching- learning process whereas, the students perceived that it only had a high impact.**

***Index Terms*— Extent of use, Extent of Usage, Impact, Multimedia instruction, Blended Learning**

I. INTRODUCTION

Today's learners are new generation of diverse individuals with greater needs and demands for learning. Indeed, because of this new breed of learners, educators are pushed to the limit and are challenged to adapt, innovate, and be creative in the teaching-learning process. The goal of teaching is not to impress but to be understood. However, teachers should be attuned with the new trend in conveying knowledge to students, hence, the creativity of the teacher is dared. This necessitates great impression to inspire and motivate learners. Traditional teachers today have different educational orientations in terms of instructional delivery that compel them to deal with the new breed of highly-technical individual learners.

Hart [1] described the new learner of today as someone most likely to be under 30 but might also be older than 30, a digital native connected 24/7 via a PC and/or mobile device, and a highly engaged user of a broad range of social media tools on a frequent basis. Thus today's new learner is labeled as a Web 2.0 Learner or Learner 2.0. Because of this new breed of learners, teachers are expected to adapt and innovate through the utilization of the different instructional media identified as multimedia.

Multimedia technology brought a huge impact on the lives of the people especially those from the field of education. Most importantly it does not only make teaching and learning easier and comfortable but interesting and motivating as well. It is described as the combination of five basic types of media into the learning environment [2]. These are the text, video, sound, graphics and animation that can be utilized alone or in combination with the other. Usually each works complementary in creating a lively and stimulating teaching and learning ambiance but when manipulated to the limits can be overwhelming to the students thus would not meet the objective of the course.

Furthermore, the creation of a learning material employing multimedia would demand equipments like computers, LCD projector, and speaker among others. It does only compel a user to possess these gadgets but requires knowledge and expertise to maximize its benefits. Since not knowing its operation would make things complicated instead of making teaching life manageable and effortless. More explicitly, Asthana [3] emphasized that the incorporation of the elements of multimedia and its tools to teaching is referred to as Multimedia Instruction (MMI). Thus when used in teaching can escalate a traditional learning environment hence referred to as blended learning modality.

A blended learning modality is a combination of face to face classroom methods with computer-mediated activities that forms an integrated instructional approach [4]. One of the identified computer-mediated activities is the online learning to which when combined with a face-to-face classroom method creates a blended learning environment. Online learning is also referred to as Web-based learning, e-learning, asynchronous learning networks [5]. This is a complementary technique that necessitates creative, functional, effective, and innovative strategies to meet the diversified learning needs of students. Specific to a nursing program, a blended learning teaching material can be developed and organized into an instructional manual described a small reference book that provides instructions or guidelines on the performance of a task [6]. It has an objective of assisting a nurse educator facilitate an effective and stimulating teaching-learning atmosphere for a particular course in nursing.

Within the scope of the Philippine Nursing Curriculum and the Philippine Nurse Licensure Examination (PNLE), it is imperative that nurse educators produce the best nurses. Nursing education in the country involves broad and complex subjects founded from the virtue of caring that emanate the core values for the love of God, compassion, competence, confidence, conscience, commitment, love of people and the love of country [7]. These foundations must be instilled within the nursing student and are incorporated in the nursing concepts considering that majority of the examination questions in the PNLE identified as Nursing Practice III, IV and V are derived from Medical-surgical which are within the confines of NCM

103 and NCM 104 [8]. Consequently, knowledge must be conveyed in the most interesting way to students through the utilization of various instructional media. This is why a blended teaching strategy is now a trend in education because of the present student nurses' fascination with the fast growing trend of technological gadgets.

It is therefore the purpose of this study to determine the teachers' and students' extent of use, usage and impact of MMI in NCM 103 and NCM 104 courses that desires to optimize the use of MMI in the teaching-learning environment.

II. MAIN TEXT

The Cognitive theory on Multimedia Learning [9] as shown in Figure 1 served as the theoretical guide for this study which is based on three main assumptions that there are two separate channels for processing information which are the visual and auditory; there is limited channel capacity; and that learning is an active process of filtering, selecting, organizing, and integrating information.

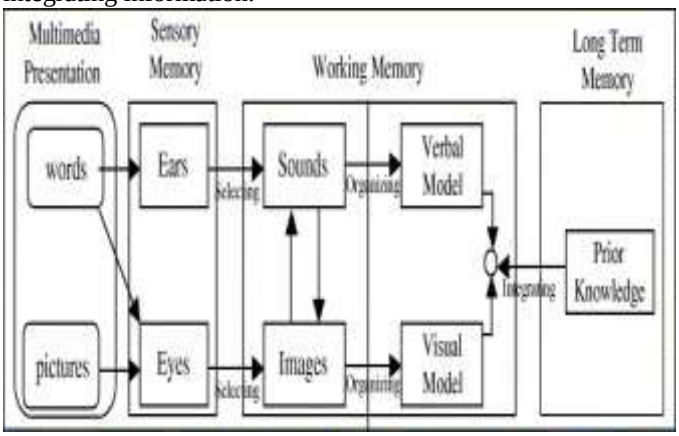

Fig. 1 Cognitive Theory of Multimedia Learning

The descriptive research and developmental design were utilized by using a five-phased questionnaire-checklist as the main tool for gathering the data. Twenty-eight permanent faculty members of the College of Nursing and the 143 student nurses from Level III officially enrolled during the 1st and 2nd semesters of SY 2011-2012 were chosen as the respondents of the study. Majority of the teachers were middle adults (f= 20; % = 71.4); female (f= 21; %= 75); belong to the rank of Assistant Professors (f= 9; %= 32.1); holders of Master's degree (f= 14, %= 50); with 1-10 years of teaching experience (f= 12, %= 42.9); and with an Average Extent of Knowledge in computer programs as utilized in education/classroom setting, research, and social networking (mean= 2.52). Meanwhile, the student respondents were all young adults (f= 143, %= 100); majority are female (f= 116, %= 81.1); and with a High Extent of knowledge in computer programs used in education, research, and social networks. Table I shows the respondents extent of knowledge in computer programs.

Computer programs	Teacher n=28			Students n=143		
	Mean	Rank	Description	Mean	Rank	Description
Education/Classroom Setting Related						
Email	3.64	2	HE	4.05	2	HE
Excel / Spreadsheets	2.71	4	AE	2.82	8	AE
Word	3.82	1	HE	4.40	1	VHE
Graphics	2.25	7	FE	3.13	5	AE
Instant Messaging	2.61	5	AE	4.00	3	HE
Powerpoint / Presentation Software	3.11	3	AE	3.90	4	AE
Creating Video Presentation	2.36	6	FE	3.03	6	AE
Online Forum	1.86	8	FE	2.73	9	AE
Video Conferencing	1.46	9	WLK	2.93	7	AE
Mean	**2.65**		**AE**	**3.44**		**HE**
Research related						
Web surfing	3.56	1	AE	4.52	1	VHE
Creating and Editing	2.54	2.5	FE	3.89	2	HE
On line Library sources	2.54	2.5	FE	3.27	3	AE
Course Management System	1.86	4	FE	2.87	4	AE
Mean	**2.62**		**AE**	**3.63**		**HE**
Social Networking related						
Yahoo Groups	2.79	2	AE	4.03	2	HE
Facebook	2.93	1	AE	4.50	1	VHE
Tweeter	1.82	4	FE	3.36	3	AE
Skype for allowable audience	2.14	3	FE	3.15	4	AE
Mean	**2.42**		**FE**	**3.76**		**HE**

Table I. Extent of Knowledge in Computer Programs

LEGEND:

1.00 – 1.80- With Limited Knowledge (WLK)
1.81 – 2.60- Fair Extent (FE)
2.61 – 3.40- Average Extent (AE)
3.41 – 4.20- High Extent (HE)
4.21 – 5.00- Very High Extent (VHE)

Statistically, frequency distribution, percentage ranking, mean, and Pearson r moment correlation were utilized in the analysis and interpretation of data. SPSS version 17 aided the researcher in the statistical computation and analysis of data.

It was found out in the study that in terms of the extent of use of MMI for Education/recreation related activities, majority of the teacher and student respondents moderately use (3-5 hours) it for classroom activities (53.6% of teachers and 37.8% of students); had minimal use (1-2 hours) for studying (46.4% teachers and 56.6% students), chatting (53.6% teachers and 44.1% students); and have no use (0 hour) for online shopping (89.3% teachers and 86.7% students). Comparatively, in playing computer games and yahoo group messaging, the majority of the teachers' (85.7% and 60.7% respectively) revealed no use while the students' extent of use was minimal (39.2% and 58% respectively). On the other hand, the majority of the teachers' (39.3%) downloading utilization ranged from no use to minimal use while the students' (43.4%) was minimal. In terms of surfing the internet for

education/recreational purposes, most of the teachers (39.3%) minimally use the program while most of the students' (46.2%) extent of use was moderate. Table II reveals the extent of use of MMI by selected faculty and students in the college of nursing related to education/recreation.

Activities	Frequency of use	Teachers (n = 28)			Students (n = 143)		
		Freq	%	Rank	Freq	%	Rank
Classroom activities	0 hours	2	7.1	4	7	4.9	4
	1-2 hours	6	21.4	2	52	36.4	2
	3-5 hours	15	53.6	1	54	37.8	1
	6-10 hours	5	17.9	3	30	21.0	3
Studying using an electronic device	0 hours	2	7.1	3.5	5	3.5	4
	1-2 hours	13	46.4	1	81	56.6	1
	3-5 hours	11	39.3	2	49	34.3	2
	6-10 hours	2	7.1	3.5	8	5.6	3
Playing computer games	0 hours	24	85.7	1	50	35.0	2
	1-2 hours	3	10.7	2	56	39.2	1
	3-5 hours	1	3.6	3	30	21.0	3
	6-10 hours	0	0	4	7	4.9	4
Downloading	0 hours	11	39.3	1.5	27	18.9	3
	1-2 hours	11	39.3	1.5	62	43.4	1
	3-5 hours	3	10.7	3.5	35	24.5	2
	6-10 hours	3	10.7	3.5	19	13.3	4
Listening to music or videos/DVDs	0 hours	7	25.0	2	3	2.1	4
	1-2 hours	17	60.7	1	55	38.5	2
	3-5 hours	4	14.3	3	60	42.0	1
	6-10 hours	0	0.0	4	25	17.5	3
Chatting with friends or acquaintances using instant messaging	0 hours	9	32.1	2	10	7.0	4
	1-2 hours	15	53.6	1	63	44.1	1
	3-5 hours	4	14.3	3	48	33.6	2
	6-10 hours	0	0	4	22	15.4	3
Surfing the Internet	0 hours	3	10.7	4	0	0.0	4
	1-2 hours	11	39.3	1	33	23.1	3
	3-5 hours	10	35.7	2	66	46.2	1
	6-10 hours	4	14.3	3	44	30.8	2
Online shopping	0 hours	25	89.3	1	124	86.7	1
	1-2 hours	2	7.1	2	17	11.9	2
	3-5 hours	1	3.6	3	2	1.4	3
	6-10 hours	0	0.0	4	0	0.0	4
E-mail	0 hours	4	14.3	3	16	11.2	2.5
	1-2 hours	17	60.7	1	107	74.8	1
	3-5 hours	5	17.9	2	16	11.2	2.5
	6-10 hours	2	7.1	4	4	2.8	4
Yahoo group messaging	0 hours	17	60.7	1	42	29.4	2
	1-2 hours	9	32.2	2	83	58.0	1
	3-5 hours	2	7.1	3	15	10.5	3
	6-10 hours	0	0.0	4	3	2.1	4

Table II. Extent of Use of MMI by Selected Faculty and Students in the College of Nursing Related to Education/Recreation

Legend: 0 hours - no use
1-2 hours - minimal use
3-5 hours - moderate use
6-10 hours - high use

In creative/innovative activities, most of teacher and student respondents' extent of use for creating, reading and sending email (57.1% teachers and 62.2% students), creating presentations (39.3% teachers and 52.4% students) and using library resources to complete a class assignment (71.4% teachers and 45.5% students) were minimal. Unfortunately, majority of them had no use for creating graphics (53.6% teachers and 42.7% students), creating and editing video/audio (64.3% teachers and 42.7% students), creating web pages (78.6% teachers and 85.3% students) and using course management system (60.7% teachers and 56.6% students). Table III presents the Extent of Use of MMI by the Selected Faculty and Students in the College of Nursing related to Creativity /Innovation.

Activities	Frequency of use	Teachers (n = 28)			Students (n = 143)		
		Freq	%	Rank	Freq	%	Rank
Creating, reading, sending email	0 hours	3	10.7	3	10	7.0	3
	1-2 hours	16	57.1	1	89	62.2	1
	3-5 hours	9	32.1	2	36	25.2	2
	6-10 hours	0	0.0	4	8	5.6	3
Writing documents (Word Processing)	0 hours	2	7.1	4	3	2.1	4
	1-2 hours	9	32.1	2	49	34.3	2
	3-5 hours	11	39.3	1	69	48.3	1
	6-10 hours	6	21.4	3	22	15.4	3
Creating spreadsheets or charts (Excel, etc)	0 hours	7	25.0	3	72	50.3	1
	1-2 hours	10	35.7	1.5	53	37.1	2
	3-5 hours	10	35.7	1.5	16	11.2	3
	6-10 hours	1	3.6	4	2	1.4	4
Creating presentations (Powerpoint, etc.)	0 hours	2	7.1	4	14	9.8	3
	1-2 hours	11	39.3	1	75	52.4	1
	3-5 hours	9	32.1	2	45	31.5	2
	6-10 hours	6	21.4	3	9	6.3	4
Creating graphics (Photoshop, Flash, etc.)	0 hours	15	53.6	1	61	42.7	1
	1-2 hours	7	25.0	2	47	32.9	2
	3-5 hours	6	21.4	3	30	21.0	3
	6-10 hours	0	0.0	4	5	3.5	4
Creating and editing video/audio (Director, iMovie, etc.)	0 hours	18	64.3	1	80	55.9	1
	1-2 hours	6	21.4	2	33	23.1	2
	3-5 hours	4	14.3	3	24	16.8	3
	6-10 hours	0	0.0	4	6	4.2	4
Creating web pages (Dreamwriter, FrontPage, etc.)	0 hours	22	78.6	1	122	85.3	1
	1-2 hours	5	17.9	2	10	7.0	2
	3-5 hours	0	0.0	4	7	4.9	3
	6-10 hours	1	3.6	3	4	2.8	4
Completing a learning activity or accessing information for a course using course management systems (WebCT, Blackboard, Desire2Learn@UW, etc.)	0 hours	17	60.7	1	81	56.6	1
	1-2 hours	6	21.4	2	44	30.8	2
	3-5 hours	4	14.3	3	14	9.8	3
	6-10 hours	1	3.6	4	4	2.8	4
Using Library resource to complete a class assignment (e.g., a library resource on your official university library web site)	0 hours	3	10.7	3	32	22.4	3
	1-2 hours	20	71.4	1	65	45.5	1
	3-5 hours	4	14.3	2	40	28.0	2
	6-10 hours	1	3.6	4	6	4.2	4

Table III. Extent of Use of MMI by the Selected Faculty and Students in the College of Nursing related to Creativity /Innovation

Legend: 0 hours - no use
1-2 hours - minimal use
3-5 hours - moderate use
6-10 hours - high use

The extent of usage of computer programs, specifically for education/classroom activities, similarly both the respondents were always (means= 4.36- teachers and 4.38- students) for Word; frequent for Instant Messaging (IM) (means= 3.46- teachers and 3.64- students), and PowerPoint/Presentation software (means= 3.79- teachers and 3.62- students); Occasional for graphics (means= 2.79- teachers and 2.93- students); and Seldom for Excel/spreadsheets (means= 2.57- teachers and 2.39- students), Online forum (means= 2.25- teachers and 2.37- students) and video conferencing (means= 2.29 teachers and 2.40- students). Quite differently, in Email the teachers' extent of usage was occasional (mean= 3.32) while the students' was frequent (mean= 3.64). In creating video presentation, the teachers' extent of usage was Seldom (mean= 2.57) whereas the students' was Occasional (mean= 2.69).

On the other hand, for Research related activities, both the respondents had an extent of use of Always for internet surfing (means= 4.29- teachers and 4.60- students); Frequent for Creating and Editing (means 3.82- teachers and 3.72- students); and Occasional for Online Library sources (means= 2.93- teachers and 3.02- students). However for Course Management System, the teachers' extent of usage was Seldom (mean= 2.50) while the students' was occasional (mean= 2.64. With Social Networking, both of them have similar extent of usage for Yahoo groups which was Frequent (means= 3.68- teachers and 3.79- students), Tweeter was Occasional (means= 2.93- teachers and 3.04- students) and Skype was Occasional (means= 2.71- teachers and 2.66- students).

In general, the teachers' and students' extent of usage for education/classroom related computer programs was Occasional (means= 3.04-teachers and 3.12- students); Frequent in Research related computer programs (means= 3.56 teachers and 3.70 students); and differs with Social Networking related computer programs wherein the teacher's extent of usage was Occasional (mean= 3.31) and Frequent (mean= 3.49) for students. To further conclude, the teachers' extent of usage for computer programs was Occasional with mean result of 3.31 while the students' was Frequent with mean result of 3.44. Table IV shows the Extent of usage of teachers and students of computer programs.

Table V and VI reveals the Significant Relationship of Teacher's Extent of Use of MMI and the Student Nurses' Academic Performance in NCM 103 and NCM 104 Courses. In NCM 103, the teachers' extent of use in education/recreation related activities had a positive strong significant relationship (r= 0.848, p= 0.008) with the students' grades at 0.01 level. A similar finding was revealed between the teachers' time spent in creative/innovative activities (r= 0.773and p=0.025) and to the students' grades which was significant at 0.05 level.

In NCM 104, however, the study showed a strong and direct but no significant relationship with the teachers' extent of use of MMI in education (r= 0.919 p= 0.081) and creative/innovative activities (r= 0.512 p= 0.488) to the students' grades.

Computer programs	**Teacher n=28**		**Students n=143**	
	Mean	**Description**	**Mean**	**Description**
A. Education/Classroom Setting Related				
Email	3.32	O	3.64	F
Excel / Spreadsheets	2.57	S	2.39	S
Word	4.36	A	4.38	A
Graphics	2.79	O	2.93	O
Instant Messaging	3.46	F	3.64	F
PowerPoint / Presentation Software	3.79	F	3.62	F
Creating Video Presentation	2.57	S	2.69	O
Online Forum	2.25	S	2.37	S
Video Conferencing	2.29	S	2.40	S
Mean	**3.04**	**O**	**3.12**	**O**
B. Research Related				
Internet surfing	4.29	A	4.60	A
Creating and Editing	3.82	F	3.72	F
On line Library sources	2.93	O	3.02	O
Course Management System	2.50	S	2.64	O
Mean	**3.38**	**O**	**3.50**	**F**
C. Social Networking				
Yahoo Groups	3.68	F	3.79	F
Facebook	4.00	F	4.45	A
Tweeter	2.93	O	3.04	O
Skype for allowable audience	2.71	O	2.66	O
Mean	**3.33**	**O**	**3.49**	**F**

Table IV. The Extent of usage of teachers and students of computer programs

LEGEND:
1.00 – 1.80 Not at All (NA)
1.81 – 2.60 Seldom (S)
2.61 – 3.40 Occasionally (O)
3.41 – 4.20 Frequent (F)
4.21 – 5.00 Always (A)

Variables	**Student's NCM 103 grades**				
Extent of use of MMI	**df**	**Computed r value**	**significance**	**P value**	**Decision on H_o**
Education/ Recreation related activities	6	0.848	**	0.008	Reject $H_{1.1}$
Creative/ Innovative Activities	6	0.773	*	0.025	Reject $H_{1.2}$

Table V. The Significant Relationship of Teacher's Extent of Use of MMI and the Student Nurses' Academic Performance in NCM 103 Course

LEGEND
* = significant at 5%
** = significant at 1%

Variables	Student's NCM 104 grades				
Extent of use of MMI	df	Computed r value	significance	P value	Decision on H_o
Education/ Recreation related activities	2	0.919	ns	0.081	Accepted H2.1
Creative/ Innovative Activities	2	0.512	ns	0.488	Accepted H2.2

Table VI. The Significant Relationship of Teacher's Extent of Use of MMI and the Student Nurses' Academic Performance in NCM 104 Course

LEGEND
ns = not significant

Table VII. The Perceived Impact of MMI to the teaching and learning process in NCM 103 and 104 courses

LEGEND

1.00 – 1.80	No Impact (NI)
1.81 – 2.60	With Impact (I)
2.61 – 3.40	With Moderate Impact (MI)
3.41 – 4.20	With High Impact (HI)
4.21 – 5.00	Very High Impact (VHI)

The Perceived Impact of MMI to the teaching and learning process in NCM 103 and 104 courses are shown in Table VII. The study found out that from the 10 identified indicators, both the teachers and the students confirmed that the use of PowerPoint Presentation in the delivery of the lessons (means = 4.43- teachers and 4.54- students), the use of Word and graphics in the enhancement of lesson presentation (means = 4.46- teachers and 4.79- students), the use of technology in reinforcing the lesson (means = 4.57- teachers and 4.52- students), the use of video presentation in enriching the lesson (means = 4.21- teachers and 4.48-students), and the use of technology in requiring the students to do research (means = 4.29- teachers and 4.24- students) have all provided a Very High Impact (VHI) on their teaching and learning process. Those with High Impact were the use of technology in social networking in giving assignments to students (means = 4.11- teachers and 3.87- students), the use of technology by students to comply with subject requirements (means = 4.18- teachers and 4.14- students), the use of technology in delivering online presentation of the lesson (means 4.14- teachers and 3.86- students), and the use of engaging students to discuss related issues in the class using online modality (means 4.00- teachers and 3.43- students). However, in the use of Excel/Spreadsheets in the computation of grades, the teachers affirmed that it had a Very High Impact (mean = 4.25) while the students attested that it only had a High Impact (mean = 4.10) on the teaching and learning process. Generally, the teachers identified that MMI had a very high impact (mean= 4.26) in the teaching-learning process whereas, the students perceived that it only had a high impact (mean= 4.20).

Indicators	Teacher n=28			Students n=143		
	Wt. Mean	Rank	Description	Wt. Mean	Rank	Description
The use of PowerPoint presentations in the delivery of the lesson/s.	4.43	3	VHI	4.54	2	VHI
The use of Excel/Spreadsheets in the computation of grades.	4.25	5	VHI	4.10	7	HI
The use of word and graphics in the enhancement of lesson presentation.	4.46	1	VHI	4.79	1	VHI
The use of technology in reinforcing the lesson	4.57	2	VHI	4.52	3	VHI
The use of technology in social networking in giving assignments to my students.	4.11	9	HI	3.87	8	HI
The use of technology by students to comply with subject requirements	4.18	7	HI	4.14	6	HI
The use of video presentation in enriching the lesson.	4.21	6	VHI	4.48	4	VHI
The use of technology in requiring students to do research	4.29	4	VHI	4.24	5	VHI
The use of technology in delivering online presentation of the lesson.	4.14	8	HI	3.86	9	HI
The use of engaging students to discuss related issues in class using online modality	4.00	10	HI	3.43	10	HI
OVERALL MEAN	**4.26**		**VHI**	**4.20**		**HI**

III. CONCLUSION

The teacher and student respondents had varying extents of use of MMI for education and creative/innovative activities. Specifically, the teachers occasionally use computer programs while the students frequently use the application. Furthermore, the teachers' extent of use of MMI had a direct strong and significant contribution to the students' grades in NCM 103 but had a direct but no significant relationship to the students' grades in NCM 104. As perceived by the teachers, MMI had a very high impact in the teaching learning process for NCM 103 and NCM 104 while the students perceived that it only had a high impact. It is recommendable that Multimedia Instruction be appropriately utilized in education especially for difficult courses that has extensive coverage. This approach would definitely aid the teachers and enhance the learning of the students.

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