An Innovation to Heighten Research Culture in Selected Colleges of Nursing in Region IX, Philippines

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The study aimed to apply Everett M. Rogers' Diffusion of Innovation Theory to heighten the research culture in selected Colleges of Nursing in Region IX, Philippines through the "Awareness and Motivation Session". Utilising Rogers' DOI Theory, this study looked into the possibility of whether the innovation, which was the "Awareness and Motivation Session," was able to heighten the research culture among faculty in selected colleges of nursing by reinforcing their interest in research, and for faculty members to seek opportunities to engage in research activities. Quasi-experimental, pre-test/post-test research design utilising quantitative approach and complementary qualitative approach was employed in the study. Thirty-two (32) faculty respondents and four (4) administrators who were employed in Colleges of Nursing in Zamboanga City, Region IX were involved in the study, and were chosen through convenience sampling. An adapted questionnaire on faculty research productivity based on Bland et al. (2002) model was used with permission, for the quantitative part. To complement the results gathered from the questionnaire, a semi-structured interview utilising an interview guide was employed for the qualitative part. Both instruments underwent content validity and reliability. Findings revealed there was a significant difference on the perception of the faculty on research culture in the Colleges of Nursing in terms of institutional factors before and after the Awareness and Motivation Session, and increase in mean values of the leadership and individual factors. The AMS, used as an innovation to heighten research culture in the study, showed promise to be an effective initiative to heighten research culture among faculty in Colleges of Nursing. Furthermore, results have shown no significant difference in the perception of research culture in terms of individual and institutional factors between the faculty and the administrators of Colleges of Nursing in Zamboanga City. However, a significant difference in terms of leadership factor between faculty and administrators in Colleges of Nursing was presented. The Awareness

and Motivation Session may be further enhanced to be more effective in heightening research culture in the Colleges of Nursing.

Introduction

Recognising a homogenous definition of "culture of research" may be a daunting task considering the plethora of definitions available in literatures, Teresa Marchant (2009), characterizes culture as "a system of widely shared and strongly held values." This would make a research culture a system that places importance on conducting and communicating scholarly research **Invalid source specified.**. Andrew Cheetham of the University of Western Sydney (UWS), Australia, further reiterates, "…research culture is the structure that gives [research behavior] significance and that allows us to understand and evaluate the research activity" **Invalid source specified.**. Consequently, an institution's culture of research is not simply a group of scholars who see the importance of research. A culture of research provides a supportive context in which research is uniformly expected, discussed, produced, and valued.

While defining a culture of research may be difficult, it is no challenge to recognise the increasing importance of having one especially in Higher Education Institutions (HEIs) **Invalid source specified.**. HEIs around the world have undergone reforms targeting the advancement of faculty members by encouraging them to engage in other activities besides teaching. The function of faculty in universities has traditionally been trifocal, comprising teaching, research and community service or extension. University faculty members, therefore, are expected to become teachers, researchers, and service-oriented professionals.

Recognising research as an important part of their responsibilities, faculty members of higher education HEIs in developed countries have steadily evidenced research productivity together with other factors that contribute to the process. Sanyal & Varghese (23006) in contrast, note that universities in the developing world have retained strong teaching functions and weak research functions.

The Philippines, being a developing country, is not an exclusion to this. Bengo, Herrera, San Diego, & Santos (2012) observed that despite the growing importance and function of research, the Philippines still lack a culture of research and science. Based on studies conducted in the Philippines, among the thirty-four per cent (34%) of the faculty who are graduate degree holders (Salazar-Clemeña & Almonte-Acosta, 2007; Bengo et al. 2012), few have done their research beyond their Master's theses or Doctoral dissertations. Because

faculty members are expected to be the major sources of research in a university, it would be valuable to discover what factors would facilitate faculty research productivity and what institutional initiatives would empower them to do so.

The Philippine Commission on Higher Education (CHED), cognizant of this reality, has reiterated the importance of research in HEIs. Thus, in partnership with other institutions/agencies, and with the objective of enabling Philippine colleges and universities to produce high quality research that will advance learning and national development, as well as international comparability of the Philippine higher education system, the National Higher Education Research Agenda (NHERA) was created **Invalid source specified.**. This is in response to the mandate from Republic Act (RA) No. 7222 known as the "Higher Education Act of 1994."

According to Dr Patricia Licuanan, CHED Chairman:

When we do research, we do not compartmentalize it from our teaching and our extension from the community engagement visions. Research, together with teaching and extension or community engagement aims to be one of the three integral missions that define us in higher education. The knowledge that we produce through research enhances classroom instruction and extends to stakeholders beyond the confines of our campuses **Invalid source specified.**.

Blackburn, R. T. et al. (as cited in Hanover Research, 2014), note that it is no secret in recent decades that faculty at comprehensive and "teaching" universities have come under pressure to research and publish. Institutions and units in developing countries that have traditionally emphasised effective faculty contact with students as a criterion for success are looking to develop cultures of research and increase faculty research production. Research in higher education across all disciplines safeguards the sustained growth and development of the entire higher education sector. It is in this context that HEI administrators must consider research not as costly, time-consuming and unaffordable, but rather meaningful, productive, and helpful in solving those problems (Fetalver, as cited in Bernales, 2011). Zaman's study (as cited in Serdyukov & Makhluf, 2014), reveals that a correlation has been established between the level of institutional research and the quality of education. Research informs teaching in many ways. It is the interaction between teaching and research that drives universities. Research makes professors better teachers, while teaching makes them better researchers.

The importance of research in education and the profession is undeniable, and is likewise, reflected in the nursing profession. As stated in the Philippine Nursing Act of 2002 (RA 9173), Article VI (Nursing Practice), Section 28 (Scope of Nursing): "…it shall be the duty of the nurse to: … e) Undertake nursing and health human resource development training and

research, which shall include but not limited to, the development of advanced practice nursing." This importance is further reiterated in the newly approved Senate Bill No. 2720, the Comprehensive Nursing Law of 2015 (Recto et al. 2016) which will repeal RA 9173 once enacted and intends to upgrade the country's nursing profession and address unemployment and misemployment of Filipino nurses. Article IV, Section 29 of this Bill states that: "The following are the scope of nursing practice: (1) nursing education; (2) nursing service; (3) nursing research; and, (4) nursing leadership and governance (p. 12).

Since the introduction of research into the nursing curricula and the integration of nurse education into higher education, interest and training in research among those in academia has increased. Conversely, although there is now widespread acknowledgment within most colleges/schools of nursing in the Philippines that faculty research productivity needs to be heightened, still others are struggling and lagging behind in terms of developing research culture among their nursing faculty members. While some nursing faculty have started engaging in research activities, still there are quite a number who are ambivalent towards the whole idea. Thus, despite worldwide acceptance for the need to cultivate a culture of research in academic institutions and with different efforts and initiatives being developed and implemented by HEIs, there is still considerable uncertainty surrounding whether or not and under what conditions the College of Nursing faculty will adopt them. Therefore, it is important to develop better understanding of the culture of research adoption factors and its diffusion process.

According to the Diffusion of Innovations (DOI) Theory, developed by Everett M. Rogers in 1962, diffusion is the process by which an innovation is communicated over time through certain channels to the members of a social system (Rogers, 2003). The success of an implementation is assured if a certain critical mass of individuals adopts the innovation (20%-40% of adopters) (Vedel et al. 2013). Beyond this threshold, the diffusion process acquires a momentum of its own. However, all individuals do not adopt an innovation at the same speed depending on their perception of five characteristics of the innovation: relative advantage, compatibility, simplicity, trialability, and observability. The end result of this diffusion is that people, as part of a social system, adopt a new idea, behavior, or product. Adoption means that a person does something differently than what they had previously (i.e. purchase or use a new product, acquire and perform a new behavior, etc.). The key to adoption is that the person must perceive the idea, behavior, or product as new or innovative. It is through this that diffusion is possible. Adoption of a new idea, behavior, or product (i.e. "innovation") does not happen simultaneously in a social system; rather it is a process whereby some people are more apt to adopt the innovation than others.

According to Rogers, there are actions and choices that one must make in order to evaluate the new idea and decide whether or not to adopt and put it into practice. Rogers maps this

Innovation-Decision (ID) Process into five steps. The ID Process is a process through which an individual (or other decision-making unit) passes from first *knowledge* of an innovation to forming an attitude toward the innovation, to a *decision* to adopt or reject, to *implementation* of new idea, to *confirmation* of this decision (Cane and Mittman, 2002). Rogers' DOI model will provide a vantage point from which to consider the ways research culture across colleges of nursing could be promoted, adopted and heightened.

Several studies focusing on research culture have been conducted and noticeably, not much have concentrated on research culture in colleges of nursing in the Philippines. Moreover, in an attempt to review related literatures on studies on research culture in colleges of nursing specifically, in Region IX, Philippines, and utilising Rogers' DOI, no such study was found. Conferring with interviews conducted by the researcher with deans of Colleges of Nursing in Zamboanga City, only very few nursing faculty are engaged/engaging in research activities. University A revealed that since 2005, the College of Nursing was able to produce 12 research outputs (3 of which were published); University B had two; while Universities C and D did not have any research output. These findings convinced the researcher of the importance of looking into the research culture in these Colleges of Nursing and find out how to develop better understanding of the research culture adoption factors and its diffusion process within the faculty members.

Methodology

Research Design

This study is a quasi-experimental, pre-test/post-test research design utilising quantitative approach and complementary qualitative approach.

The study utilised the pre-test/post-test quasi-experimental design because prior to intervention, which is the Awareness and Motivation Session, pre-test was conducted utilising the Bland et al. questionnaire. After the intervention, a post-test was conducted utilising the same questionnaire as in the pre-test. Data were then analysed utilising the quantitative approach.

Burns & Grove (2003, p. 19), described qualitative approach as "a systematic subjective approach used to describe life experiences and situations to give them meaning." They asserted that qualitative approaches to research are based on a world view which is holistic and that there is no single reality; reality is based upon perceptions that are different for each person. It involves perceptually putting pieces together to make wholes and from this process, meaning is produced. The rationale for using a qualitative approach in this study was to explore and describe the perception of faculty and administrators on research culture in

their College of Nursing. The qualitative data gathered from the respondents were analysed using themes and emergent categories.

Population and Sampling

The study was conducted in Zamboanga City, Region IX, Philippines. The city is located in the western region of the southern island of Mindanao in the Philippines. There are five nursing schools in the city, consisting of four private, and one state university.

This study's population involved the administrators, and the faculty members of selected Colleges of Nursing in Zamboanga City. Total enumeration was attempted but because of circumstances beyond the researcher's control, only 32 faculty respondents attended the Awareness and Motivation Session and four out of five Deans of the different Colleges of Nursing in Zamboanga City were interviewed. All respondents are employed and with regular loads in the selected Colleges of Nursing in Zamboanga City during the time of the study. Confidentiality and anonymity of the respondents were maintained.

Convenience sampling was employed in this study. This is based on the availability and accessibility of the respondents during the time data were gathered (Houser, 2012, pp. 183-187). The respondents willingly participated in the AMS and interview.

Research Instruments

The tool used in this study for quantitative data was a questionnaire adapted from the Bland, et al. (2002) model of faculty research productivity (Bland, Center, Finstad, Risbey, & Staples, 2005). To adapt means to change something to suit different conditions or uses (Cambridge Dictionaries online, 2016).

The Bland et al. (2002) model indicates that institutions with productive faculty share important characteristics on the levels of: a) The institution; b) Leadership; and c) Individual faculty members (Hanover Research, 2014).

Permission to use and adapt the questionnaire was sought and granted by one of the authors of the study from which the questionnaire was used, Dr Bruce A. Center through an electronic mail. A copy of the full contents of the original questionnaire was attached by Dr Center and sent through electronic mail to the researcher.

The adapted questionnaire consisted of 50 statements (with sub-items) reflecting the different institutional, leadership and individual characteristics of faculty research productivity as identified in the Bland, et al. (2002) model. Part I consisted of statements pertaining to

individual, leadership, and institutional factors. There were 50 items addressed to individual factors; 26 items for leadership; and 49 items for institutional factors. Each of the items in the adapted questionnaire asked respondents for their agreement/disagreement with statements on a 4-point Likert scale ranging from "*Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD)*" (1 = strongly disagree, 4 = strongly agree) to measure indicators of research culture.

There were parts of the original tool which were modified particularly the deletion of *Neither Agree nor Disagree, Not Applicable (NA)* and *Don't Know (DK)*, to suit the characteristics of the respondents.

The table below shows the value range utilised by the researcher for the interpretation of the quantitative data:

Mean Range	Interpretation	Verbal Description
3.26 – 4.00	Strongly Agree	Highly Heightened
2.51 – 3.25	Agree	Moderately Heightened
1.76 – 2.50	Disagree	Minimally Heightened
1.00 – 1.75	Strongly Disagree	Not Heightened

Part II of the questionnaire consisted of two statements with a list of strategies that facilitated the faculty's research and teaching productivity; a statement for a list of strategies that would in general, most facilitate faculty members' productivity. Respondents were asked to tick (/) items they perceive best described their productivity. Part III included Work Information including number of completed researches authored or co-authored; total peer-reviewed articles published since the respondents were employed in the College of Nursing; and hours per week devoted to teaching, research, and service activities. Part IV included the Demographic Information of the respondents.

The questionnaire for administrators had the same items as that of the faculty, except that for administrators, 2 items were added: What is your current position/appointment? and, How many years have you been in your current position?

The responses were analysed using means, frequencies and percentages. Statistical Package for Social Sciences (SPSS) and Microsoft Excel 2013 were used for descriptive and inferential statistical treatment.

Semi-structured interviews were conducted on a select group of nursing faculty and administrators. The nine faculty members were chosen on the basis of their availability for interview at mutually convenient time.

An interview guide was developed by the researcher to complement the quantitative data gathered and to answer specific problems raised in this study. The interview guide served only as a basic checklist for covering all the relevant topics. Follow-up questions were asked to seek clarification and further details of answers mentioned. The following open-ended questions guided the researcher during the interview with the faculty respondents: 1) Can you describe the policy on research for faculty in your institution? 2) At the level of your college, how are you being motivated to be research productive? 3) What factors would motivate you to engage in doing research? What factors would hinder you from doing research? 4) In terms of decision to adopt (accept) to change/new idea/innovation, how would you describe yourself?

The researcher likewise, developed open-ended questions for the interview with administrator respondents. The questions for the interview were rephrased to complement those of the faculty respondents. The following were the questions for the administrator respondents: 1) Can you describe the institution's policy on research for faculty? 2) As head of your department/college/research office, what are your roles in terms of encouraging your faculty to be highly research productive? 3) What strategies or initiatives would you propose/recommend to be employed to heighten research culture and productivity of the faculty?

Validation and Reliability Testing of the Instrument

The adapted questionnaire and interview guide were pilot-tested to assure for clarity, understanding, and ease of completion. This was done with 10 faculty members who were of similar characteristics with the target population but were not the respondents themselves. After which, a reliability index was computed for the results of the adapted questionnaire using the Cronbach's Alpha and the resulting value is 0.96. This indicates that the research instrument is highly reliable within the local setting.

Data Analysis Procedure

Frequencies and percentages were utilised to analyse quantitative data gathered from questionnaires. Data were then analysed using descriptive and inferential statistical treatment utilising the Statistical Package for Social Sciences (SPSS).

To complement the results of the questionnaire on strategies to heighten the research culture, a semi-structured interview was done with nine faculty members and four deans. Data saturation was reached after the interviews. Data were analysed qualitatively. First, identification of similarities was done by reading the transcriptions and the similarities were taken as categories. Categories were then grouped according to sub-themes and themes.

Ethical Considerations

Permission for the study was obtained from the Deans of Colleges of Nursing. Participation was voluntary, confidentiality was guaranteed, and informed consent was obtained from all respondents involved in the study. To ensure anonymity, no identification was included in the survey.

Results and Discussion

How heightened is the research culture as perceived by the faculty in selected Colleges of Nursing in Zamboanga City before and after the Awareness and Motivation Session in terms of individual, leadership, and institutional factors?

Table 1: General Weighted Mean Ratings Before and After the Awareness and Motivation in terms of Individual, Leadership, and Institutional Factors

Indicators	GWM	SD	Interpretation	Verbal Description
INDIVIDUAL Factors				
Before	3.12	.376	Agree	Moderately heightened
After	3.21	.302	Agree	Moderately heightened
LEADERSHIP Factors				
Before	3.12	.245	Agree	Moderately heightened
After	3.22	.187	Agree	Moderately heightened
INSTITUTIONAL Factors				
Before	2.91	.266	Agree	Moderately heightened
After	3.15	.197	Agree	Moderately heightened
GWM BEFORE	3.12	.112	Agree	Moderately heightened
GWM AFTER	3.19	.229	Agree	Moderately heightened

*GWM = General Weighted Mean; SD = Standard Deviation

Faculty respondents in Colleges of Nursing in Zamboanga City, Region IX, Philippines perceived research culture before the Awareness and Motivation Session as "MODERATELY HEIGHTENED" in terms of individual, leadership and institutional factors with a GWM of 3.12.

Faculty respondents in Colleges of Nursing in Zamboanga City, Region IX, Philippines perceived research culture after the Awareness and Motivation Session as "MODERATELY HEIGHTENED" in terms of individual, leadership and institutional factors with a GWM 3.19.

Is there a significant difference in the perception of faculty in selected Colleges of Nursing in Zamboanga City of research culture before and after the Awareness and Motivation Session?

Table 2: Significant Difference in the Perception of Research Culture of Faculty Respondents of Colleges of Nursing in Zamboanga City Before and After the Awareness and Motivation Session

Variables	Individual		Institution		Leadership	
	t	Sig	T	Sig	t	Sig
Before the Awareness and Motivation Session	-1.041	0.302	-2.511	0.051	-1.045	0.300
After the Awareness and Motivation Session						

There was a *significant difference* in the values on the perception of the faculty on research culture in the Colleges of Nursing in Zamboanga City in terms of institutional factors before and after the Awareness and Motivation Session with P<0.05 level. Even if findings in the other areas were not significantly identified, but the means in the category of Individual and Leadership went slightly up, which showed improvement after the AMS.

How do administrators of Colleges of Nursing perceive research culture in terms of individual, leadership, and institutional factors?

Table 3: General Weighted Mean and Standard Deviation of Administrators' Perception of Research Culture in Terms of Individual, Leadership and Institutional Factors

	Respondents	*Mean*	*SD*	*Interpretation*	*Verbal Description*
Individual	Faculty	3.21	*.302*	Agree	Moderately heightened
	Administrators	3.34	*.062*	Strongly Agree	Highly heightened
Leadership	Faculty	3.12	*.376*	Agree	Moderately heightened
	Administrators	3.28	*.212*	Strongly Agree	Highly heightened
Institutional	Faculty	3.15	*.197*	Agree	Moderately heightened
	Administrators	2.98	*.048*	Agree	Moderately heightened
GWM		**3.18**	*.127*	**Agree**	**Moderately heightened**

Administrator respondents in Colleges of Nursing in Zamboanga City, Region IX, Philippines perceived research culture as "HIGHLY HEIGHTENED" in terms of individual

(GWM, 3.21), leadership (GWM, 3.28) factors. In terms of institutional factors, administrator respondents perceived research culture as "MODERATLEY HEIGHTENED (GWM, 2.98)."

Is there a significant difference in the perception of research culture between the faculty Members who attended the Awareness & Motivation Session and the administrators who did not attend the session of Colleges of Nursing in Zamboanga City?

Table 4: Significant Difference in the Perception of Research Culture between Faculty Respondents who attended the Awareness and Motivation Session and the Administrators of Colleges of Nursing in Zamboanga City who did not attend the Session

Variables	Individual		Institution		Leadership	
	t	Sig	T	Sig	T	Sig
Faculty Members who underwent the AMS Administrators who did not undergo AMS	-0.676	0.503	0.742	0.463	-2.874	0.007

There is *no significant difference* with P values >0.05, in the perception of research culture in terms of individual and institutional factors between faculty and administrators of Colleges of Nursing in Zamboanga City. However, there is a *significant difference* with P<0.05 level, in the perception of research culture in terms of leadership factors between faculty and administrators in Colleges of Nursing.

What strategies were identified by faculty and administrators to heighten research culture in selected Colleges of Nursing in Zamboanga City?

Table 5: Strategies Identified by Respondents that will Facilitate Research Productivity

| Strategies that facilitate research productivity	Faculty			Administrators		
	Frequency	Percentage	Rank	Frequency	Percentage	Rank
• Provide internal funding opportunities for new projects/ studies.	10	31%	5	1	25%	3
• Alert you to external funding opportunities.	0	0%		1	25%	3
• Provide honorary awards for research achievements (high impact papers, patents, and grants obtained, published works).	6	19%	8	1	25%	3
• Provide salary increases for research achievements (high impact papers, and patents, grants obtained, published works)	7	22%	7	2	50%	2
• Further enhance research skills to heighten confidence in conducting research.	14	44%	2	2	50%	2
• Support you (e.g., release time) while you acquire new research skills or with the goal of moving into a new field.	12	38%	4	1	25%	3
• Provide a formal mentoring program for junior faculty.	14	44%	2	3	75%	1
• Provide more opportunities for senior faculty to contribute and to continue to grow.	13	41%	3	3	75%	1
• Identify the priorities of the college/department.	4	13%	10	1	25%	3
• Designate a faculty development person to coordinate strategies to help faculty succeed.	26	81%	1	1	25%	3

n = 32 and 4

Based on quantitative analysis, the top strategies identified by faculty to heighten research culture were: designate a faculty development person to coordinate strategies to help faculty succeed (81%); further enhance research skills to heighten confidence in conducting research (44%); provide a formal mentoring program for junior faculty (44%); and, provide more opportunities for senior faculty to contribute and to continue to grow (41%).

Based on quantitative analysis, the top strategies identified by administrators to heighten research culture in Colleges of Nursing were: provide a formal mentoring program for junior faculty(75%), provide more opportunities for senior faculty to contribute and to continue to

grow (75%); provide salary increases for research achievements (high impact papers, and patents, grants obtained, published works) (50%); further enhance research skills to heighten confidence in conducting research (50%); identify the priorities of the college/department, identify the priorities of my school/university(25%); designate a faculty development person to coordinate strategies to help faculty succeed (25%); and, alerted to external funding opportunities (25%), provide honorary awards for research achievements (high impact papers, patents, and grants obtained, published works) (25%); and provide internal funding opportunities for new projects/studies (25%).

What adopter categories surfaced after the Awareness and Motivation Session?

Figure 1. Adopter Categories based on computed percentages
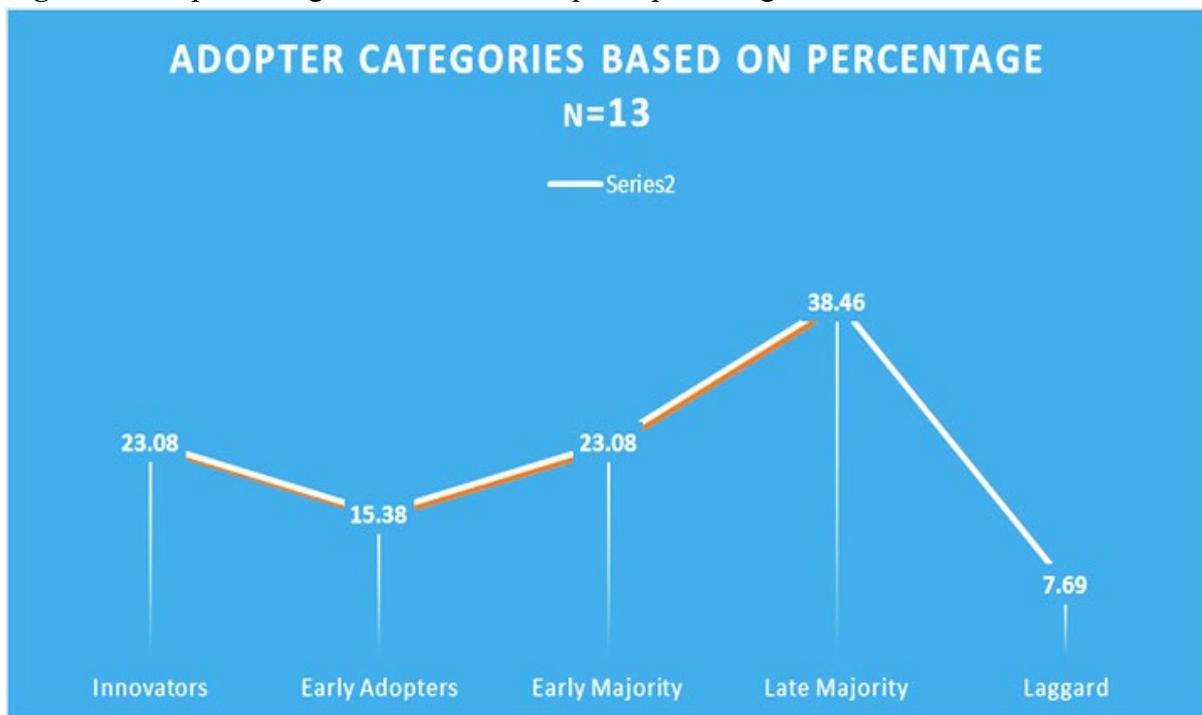
Based on qualitative and qualitative analysis, the highest percentage for adopter categories was the Later Majority (38.46%), followed by the Innovators and Early Majority (23.08%), third in percentage are the Early Adopters (15.38%), and the lowest percentage was the Laggards (7.69%) category.

Conclusions

After careful analysis of the findings, the researcher concludes the following:

The quantitative findings give empirical evidence to support literature suggesting factors facilitating research culture and should involve the integration of individual, leadership and institutional characteristics. To heighten research culture in colleges of nursing, all these three aspects should be taken into consideration.

Everett Rogers' Diffusion of Innovation theory may be applied to heighten research culture in Colleges of Nursing. Subsequently, the Awareness and Motivation Session which was used as an innovation to heighten research culture in the study showed promise to be an effective initiative to heighten research culture among faculty in Colleges of Nursing. Results of the study has provided data as to the state of research culture in Colleges of Nursing in Zamboanga City, Region IX, Philippines.

Strategies that are perceived to facilitate the most to faculty research productivity and subsequently, heightening research culture in the college of nursing, and which should be taken into consideration by HEI administration are: designating a faculty development person to coordinate strategies to help faculty succeed, provide a formal mentoring program for junior faculty, enhancing further, the research skills of the faculty members to heighten confidence in conducting research, and providing more opportunities for senior faculty to contribute and to continue to grow. These strategies should therefore, be considered when planning for capacity-building measures and motivating the faculty towards research productivity.

Recognising the innovators and early adopter categories from among faculty in colleges of nursing will enable administrators to identify the critical mass that would advance the adoption of research culture in the college.

The results of the study are not deemed as solutions to the challenges in colleges of nursing in terms of faculty research productivity, but it is hoped that these would pave the way to boost strengths, identify weaknesses, explore opportunities, and reduce threats to heightening of research culture among colleges of nursing.

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