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# OPERATIONALIZING THE INSTITUTIONAL VISION STATEMENT OF THE UPOU

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(CPS IS PUBLISHED UPON THE AVAILABILITY OF DATA FROM DESIGNATED SOURCES)

# Operationalizing the Institutional Vision Statement of the UPOU<sup>1</sup>

*Felix R. Librero<sup>2</sup>*

## ABSTRACT

This conversation paper sought to determine whether University of the Philippines Open University's (UPOU) output in terms of Doctoral dissertations are aligned with the original vision for and of the university. UPOU was established in 1993 with the goal of attaining leadership in distance e-learning in the Philippines. The University has since strived to sustain its vision of being able to provide quality education through an open and distance mode of learning, in terms of program, program delivery, research and development. This paper seeks to ascertain the direction in which research from doctoral students have moved towards since the University's inception and whether or not graduate research is reflective of the University's vision. For the purposes of this study, the research assessed were those deposited in the UPOU library from the beginning of the university until December 2017. The methodology utilized is the meta-analysis approach which is the strategic and systematic combination of qualitative and quantitative data so as to arrive at a more concrete and definitive conclusion. It is recommended that the university establish a research program to support the university's vision as a top institution for open and distance learning.

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<sup>1</sup>While this conversation paper is a publication of the University of the Philippines Open University, the opinions expressed in this publication are those of the author/s. They do not reflect nor represent the opinions or views of the University as a whole. The presentation and interpretation of information in this publication do not imply the expression of any opinion on the part of UPOU.

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## **INTRODUCTION**

### **Background of the Evaluation**

In 2015, the University of the Philippines Open University (UPOU) sponsored and hosted the first national conference on distance e-learning. It was also during that year that the UPOU institutionalized activities towards distance e-learning, including the publication of the *International Journal on Distance e-Learning (IJODEL)*. This focus became part of UPOU's program of action in e-learning as indicated by its sponsorship of succeeding annual conferences (both national [NCODEL] and international [ICODEL]) in distance e-learning. It should be pointed out that when UPOU was established by the UP Board of Regents (BOR) in 1993, the BOR had practically determined the goal that UPOU would attain the position of providing leadership in distance e-learning in the Philippines. A cursory survey of open universities in the Philippines and in Asia would indicate that UPOU has attained a respectable level of leadership status in the field of open distance e-learning among open universities in the region.

It is the vision of UPOU to be at the apex of open distance education, both in terms of programs and program delivery as well as in research and development in the field of open and distance e-learning in the Asian Region. From the beginning, this vision was presumed to be reflected in the nature of graduate courses and research undertaken by UPOU graduate students. For all intents and purposes, therefore, it was the primordial intention of this evaluation to establish the pattern of research directions of UPOU doctorate programs as a reflection of the institutional vision of the university.

### **Objectives of the Evaluation**

It was the overall goal of this evaluation to establish whether or not graduate research at UPOU was reflective of the institution's vision. Specifically, the following were the objectives of this study:

1. To establish the general direction of graduate research undertaken by doctoral students of the UPOU (current graduate research direction);
2. To articulate the methodologies employed in the conduct of research by doctoral students of the UPOU (current methodologies employed);

3. To suggest an overall direction for graduate research that might be undertaken by future graduate researchers of UPOU (suggested graduate research focus); and
4. To articulate graduate research directions through specific policy options in the identification of research topics by UPOU graduate researchers (suggested policy directions).

## **METHODOLOGY**

### **Overall Methodology of the Evaluation**

The overall methodology followed by this evaluation was the synthesis of the different doctoral dissertations that have been deposited with the UPOU Library as of December 2017. The synthesis approach is sometimes called meta-analysis, which is a “method of systematically combining qualitative and quantitative data from several selected studies to develop a conclusion that is more powerful than any conclusion derived from a single study (Del Re, 2015; Cox, The Royal College of Radiologists, n.d.; JEPS Bulletin, 2017; Rosenthal and DiMateo, 2001).

For purposes of this study, dissertations in the PhD in Education and Doctor of Communication programs which have been deposited with the UPOU Library until December 2017 were included in the review of dissertations.

### **Specific Procedures for the Evaluation**

The specific procedure followed in this evaluation was the review of literature procedure, for the following reasons:

1. This evaluation was a library research devoted to the analysis of doctoral dissertations in education and communication that have been undertaken by UPOU doctoral research students, and whose copies have been deposited with the UPOU Library before the end of 2017.
2. A summary of observations and conclusions were provided, particularly in relation to the congruence of these observations with the institutional objective contributing to the general direction of research in distance e-learning at the UPOU.

3. A general recommendation was proposed, and it included options for various smaller recommendations that deal with specific other research orientations. The general recommendation was in the form of an overall institutional research program framework under which all forms of research at all levels of the institution would be subsumed.

### Work Plan

The following work plan was followed in the implementation of this evaluation.

Tasks	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Project Approval												
Collection and Review of Abstracts		■										
Critical Review of Dissertations			■	■	■	■						
Construction of Tables/Matrices							■					
Write up of Draft Report								■	■	■		
Editing of Report Manuscript										■	■	
Finalization of Manuscript											■	
Final Editing, Clean UP of Report and Submission of Report												■

## RESULTS OF THE EVALUATION

### The Institutional Vision Statement

At the lobby of the UPOU Headquarters in Los Baños was an exhibit panel with the following inscription: “The U.P. Open University shall be at the forefront of the knowledge society as a leading institution of open and distance education.” In the last decade, however, the phrase “open and distance education” has been modified to read “open distance e-learning.” This is UPOU’s vision statement, which is also part of the promotional materials of the university. It is presumed that this vision has always been part of the programs and activities of UPOU. It goes without saying that this institutional vision was part, too, of the university’s academic programs which included both instruction and research.

The graduate research (i.e., theses and dissertations) undertaken by students of the UPOU logically would at least imply that they reflected the institutional vision of the UPOU because they were part of the curricular programs of the university. In general terms, therefore, theses and dissertations conducted by UPOU students were expected to reflect the goals of the various curricular programs thereby contributing to the achievement of the institutional vision in any or all of the research problems, objectives, methodologies, and recommendations of the studies undertaken.

### **Significance of the Review of Related Literature**

The basic framework of this evaluation was the review of the literature, mainly the doctoral dissertations undertaken by those who had graduated from the doctoral programs of UPOU. The review of literature had several important purposes, but a couple may be highlighted here. According to experts, reviewing the literature helps “determine what has already been done” that may be related to the research topic. A second important reason was that an appropriate “review of literature would help the researcher discover research strategies and specific data collection approaches” that may help the researcher become more productive as a researcher ([web.cortland.edu/shis/65/](http://web.cortland.edu/shis/65/)). Beginning researchers may have some difficulty in determining how much literature they needed to review to satisfy the needs of their research. Such research beginners (like thesis students) frequently are unable to determine how much and which part of the literature was “related enough” to their research topic. Unfortunately, there is no formula that might be applied in resolving this issue. There are general guidelines, however. These include the following:

1. Avoid the temptation of including everything one might find in the process of literature review. As a researcher, one should be able to determine what would be usefully related to the research topic.
2. When investigating a heavily researched area, one should review only those that are directly related to the research topic.
3. When investigating a new or little-researched area, one should review only the literature that is clearly related in some meaningful way to the research topic.

It should be pointed out that the amount of literature available was not always a measure of the importance of the research topic. New research topics may have voluminous amounts of existing literature, and there may be those that have little. The very fact that a topic might have little amount of literature often increases the worth of the research topic to be pursued.

There are numerous reasons for highlighting the importance of including an exhaustive and comprehensive review of the related literature in the dissertation. Books on how to write theses and dissertations always emphasize the need for comprehensive review of the existing literature. A summary of these practical reasons for including the review of the related literature (Librero, 2012) highlights the following (pp. 35-36):

1. The literature review expands the introductory chapter of the thesis and normally helps in determining the research gaps in the particular topic of interest that is addressed by the thesis. A very fundamental consideration is the question: what is the issue?
2. The literature helps to further define the research problem. Frequently, one would realize that the literature review might have partially answered the research question.
3. The literature review provides the background and a clear discussion of the theoretical basis for the research (thesis) problem.
4. The literature review would help one interpret the results of the study.
5. The literature review would help one outline the implications of the study.

An unwritten rule that most members of the scientific community follow is that academics and researchers must be on top of their respective disciplines. This is best demonstrated by how up-to-date they are on the latest issues about their disciplines as exhibited in the review of the current literature.

There is no specific numerical index that dictates whether or not a review of the literature for a dissertation is enough or not enough. That is to say, one cannot definitely say that a certain percentage of the discussion must be comprised of the review of literature. In contemporary times,

however, this issue is left for the researcher to resolve based on his/her learned feel of the field. In the absence of a mathematical or statistical threshold generally accepted by the scientific community, however, this report has adopted an arbitrarily estimated proportion by number of pages of the review of related literature to the number of pages of the dissertation text.

In a graduate research seminar for doctoral students at the School of Education, Indiana University in 1979, a top educational research professor suggested, with substantial “silent” concurrence from other professors from the School, that the review of literature for a dissertation in education should at least be about one-fourth (25%) of the dissertation text, which is interpreted here to mean all that is included from the first page of Chapter I (Introduction) to the last page of Chapter V (Summary, Conclusions, and Recommendations). At that proportion, it was suggested, the reader could be comfortable with the dissertation results as being supported by the most recent literature of the discipline. It was also pointed out that the research writer would have had sufficient basis for interpreting his results appropriately according to what has been reported by other researchers in the field.

Given this parameter and disclaimer, this report proposes that a review of the literature should be at least 25% of the total dissertation text. At this level, it may be assumed that there has been ample basis for determining research gaps in the area being studied, the literature review has contributed in the further definition of the research topic, the review of literature has provided ample support in the further clarification of the theoretical basis of the dissertation, and such exhaustive literature review would have provided strong basis for the interpretation of results and discussion of implications of the study. The presumption is that a review of the related literature that was at least one-fourth of the total number of pages of dissertation text would already sufficiently include enough discussion of the latest literature that could provide support to the results of the current study.

## **Physical Attributes of the Dissertations Evaluated**

**Basic data on the physical aspects of dissertations reviewed.** The main data that served as basis for the various calculations regarding the physical aspects of the dissertations studied were collected from individual dissertations as shown in Table 1.

Basic information (Table 1) indicates that dissertations in education had an average text length of 151.5 pages, of which 36.92 pages were devoted to the review of the related literature and an average of 51 pages devoted to appendices. In the case of dissertations in communication, it is shown in Table 1 that dissertations had an average of 125.46 text pages, 27.69 pages devoted to review of the related literature, and 29.85 pages devoted to appendices (Table 1).

**Table 1. Raw data drawn from dissertations on file.**

Seq	Pages devoted to text	Pages devoted to biblio.	Pages devoted to RRL	Pages devoted to apndx	Seq	Pages devoted to text	Pages devoted to biblio.	Pages devoted to RRL	Pages devoted to apndx
<b>PhD in Education</b>									
1	127	8	34	6	26	147	6	28	93
2	292	5	14	87	27	221	8	37	66
3	263	8	45	30	28	225	3	30	24
4	123	7	37	95	29	181	7	35	22
5	106	7	40	47	30	167	6	20	38
6	174	11	35	27	31	107	4	47	62
7	172	6	29	89	32	117	7	36	40
8	107	7	24	15	33	135	4	31	38
9	221	28	45	41	34	174	18	46	39
10	199	4	39	92	35	130	10	30	88
11	157	8	32	32	36	106	17	31	96
12	299	11	35	38	37	101	9	56	41
13	178	4	28	98	38	87	18	32	11
14	178	8	21	61	39	129	16	26	14
15	188	6	34	19	40	124	7	30	83
16	267	7	50	78	41	87	13	31	28
17	271	5	19	61	42	174	11	49	37
18	97	6	32	30	43	107	13	37	56
19	202	9	54	68	44	220	26	39	23
20	131	2	18	16	45	156	14	73	152
21	257	4	46	55	46	206	10	55	34
22	197	6	50	22	47	131	13	40	63
23	154	8	53	67	48	151	4	33	28
24	151	8	38	35	49				
25	238	26	48	7	50				
<b>Average (Total)</b>						151.5	9.35	36.92	51.08
<b>Doctor of Communication</b>									
1	194	4	18	125	8	126	10	41	0
2	171	29	32	8	9	165	5	30	32
3	69	15	23	9	10	194	4	42	117
4	111	22	36	53	11	178	4	30	11
5	233	8	53	21	12	161	8	21	4
6	92	6	10	4	13	82	7	12	0
7	88	7	12	4					
<b>Average (Total)</b>						125.46	9.92	27.69	29.85

**Dissertation space devoted to review of related literature.** The overall basis for calculation of the proportion of the review of related literature to the total number of dissertation text pages is shown in Tables 2 and 3. A simple comparison of the two doctoral programs is shown in Table 2.

**Table 2. Average pages devoted to RRL for two doctoral programs.**

Doctoral Program	Pages devoted to RRL	Pages devoted to text	Ratio (%)
PhD in Education	36.92	151.5	24.36
Doctor of Communication	27.69	125.46	22.07
Total	32.31	138.48	23.23

The figures indicating the number of spaces devoted to specific items like the number of pages devoted to the review of related literature, total number of pages devoted to the dissertation text which ranges from Chapter I to the last Chapter, number of pages devoted to the bibliographic entries, and the number of pages devoted to different appendices, all expressed in averages are shown in Table 3.

**Table 3. Average number of pages devoted to specific sub-aspects of the dissertations.**

Specific Item	PhD in Education	Doctor of Communication
Pages devoted to RRL	36.92	27.69
Pages devoted to dissertation text	151.50	125.46
Pages devoted to bibliographic entries	9.35	9.92
Pages devoted to appendices	51.08	29.85

Given this situation, it may be said that the amount of literature reviewed for the studies undertaken could have been increased, but this is not to say that the current volume of the literature provided as source of additional support to the interpretation of the findings may not be sufficient but could have been included other relevant and recently-published materials. It should be clearly pointed out, however, that this is an arbitrary observation because there is no exact numerical value for the proportion of the review of literature in relation to the total number of pages of the dissertation. It may well be entirely possible that the amount of review of literature, even when less than 25%, was sufficient.

The overall calculation of the proportion of review of related literature to the total text of the dissertation indicates that on the average 23.23% of the dissertation was devoted to the review of related literature. If this were to be compared with the arbitrary value of 25%, it may be said that the literature cited in the actual dissertations was close to the said arbitrary cut-off, sufficient to provide the necessary support to the findings of the studies.

A significant observation that could be extracted from this situation is that the researchers concerned could have actually exerted more effort to increase the amount of the review of the related literature, particularly those focusing on more recent published materials. Still, it is the belief in this report that the effort in reviewing the related literature could be an indication sufficient to claim that the researchers had familiarity with the issues associated with the research topics. Less familiarity with the recent developments in the specific points in the field could result in less accurate interpretation of results and less significance of the implications of the studies concerned. Ultimately, this would result in generalizability of the findings that could have less impact. These points were not clearly the case in this evaluation study.

Another point that could be highlighted was that dissertations analyzed for this evaluation had small sample sizes. In fact, most focused on single group samples, such as a section of a class level. Sampling could have been done across institutions and comparative analyses could have been appropriate. This is, of course, all together a different issue which is not necessarily purely an issue about sample size.

## **Substantive Attributes of the Dissertations Evaluated**

**Specific topics for dissertations in education.** The status of graduate research in education at the UPOU was reflected in the actual spread of topics that were researched by dissertation students until 2017. The specific topics of dissertations in education were categorized into groupings as shown in the following list of specific topics:

- Mathematics education
- Instructional strategy
- Biology education
- Chemistry education
- Learning Strategy
- Problem-solving skills
- Teacher training
- Research and evaluation
- Learning styles and performance
- Instructional design
- Teaching effectiveness
- Conceptual understanding
- Constructivist model
- Innovations in content presentation
- Critical behavior/thinking of learners

Curricular evaluation  
 Physics education  
 Reasoning skills  
 Language and learning  
 Networking approach to learning  
 CAI application  
 Inquiry skills development  
 Workshop approach to learning  
 Values integration in instruction

As a matter of practice, there were different researchable topics depending on the thrust of one's specialization and interest. For example, those specializing in mathematics education did have the propensity to undertake studies related to mathematics education. What could probably be suggested at this point is a focus on the implications of e-learning in whatever topical area that needed to be studied. At this point, it is not completely erroneous to say that the different foci of studies in education lacked a catalyst or unifying factor such as the issue of e-learning or perhaps even gender concerns in the teaching profession.

**Suggested research topics generated from the dissertations evaluated.**

Following Table 4 shows a list of specific research topics distilled from the recommendations of the dissertations in education. These specific topics may be generally categorized into policy and structural reforms, program and curricular reforms, and teacher training (Table 4).

**Table 4. General research topic recommendations from the dissertations analyzed.**

Seq	Recommended Topic	Category
1	Focus on teacher training	Teacher Training
2	Instructional strategies: in-service training for teachers, future research focused on testing instructional procedures	Curricular Reforms; Teacher Training
3	Introduction of innovative instructional strategies like teaching techniques to teachers, future research on applicability of constructivist instruction	Curricular Reform; Teacher Training
4	Innovative approaches to instruction, problem-solving skills to be improved through network skills	Curricular Reform; Instructional strategies
5	Adoption of inquiry-oriented teaching management resources and overall activities of the school	Policy Reforms
6	Impact of CAI and other instructional alternatives	Instructional strategy
7	Curricular improvement to provide opportunities for use of concept maps in teaching science, improve inquiry skills; to provide enrichment; further studies to improve instructional techniques	Curricular Reform; Instructional Reforms

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8	Curricular enrichment for science courses and programs	Curricular Reforms
9	Improved teaching performance and teaching techniques	Teacher Training
10	Providing educational resources for teacher upgrading and training	Policy Reforms; Teacher Training
11	The study made 12 specific recommendations all of which were specific to the study, but perhaps the most important recommendation was not appropriately highlighted. This was the issue of an overall approach to the teaching of mathematics from that which highlights development of skills to that of providing basic understanding of why mathematical issues are important.	Policy on Instruction; Instructional Strategies
12	Generally, the study endeavored to highlight the patterns of the learners' conceptual ecology in relation to the multicultural classroom situation. There was no specific recommendation on the direction, but it was clear that there was need for more exhaustive studies on the role of conceptual ecology in learning.	Instructional Strategies; conceptual ecology as it relates to learning
13	In general, additional studies are needed in clarifying issues regarding the need of leveling-off among students and teachers on specific topics of learning or lessons and concepts that apply in real life among learners in various cultural settings. There is also the need for researchers to look into these issues in wider areas of applications.	Learning Strategies
14	Need to do further studies on the application of constructivist techniques of learning to determine if such improves effectiveness and efficiency in learning skills and problem solving,	Policy on Instructional Strategies
15	There is need to undertake exhaustive studies or a series of studies on the application of the conceptual change theory as it affects the instructional process at high levels and not limited to the elementary and other school levels.	Curricular Reform
16	The Metacognitive Level Cycle model of learning may be useful provided associated materials and procedures were appropriately designed for MLC approaches. Specific recommendations to suit highly specific requirements for teachers, administrators, and researchers. Researchers were specially encouraged to employ concept mapping techniques (may be this is more for instructional designers).	Instructional Strategies
17	Teacher training for nontraditional problem solving for incoming mathematics teachers. Experienced math teachers should mentor new teachers. Need for more conclusive studies on the relationship of nontraditional approach to teaching math and development of critical thinking among students.	Teacher training; Curricular Reform

18	The combination approach (science, technology, society, and environment – STSE) may be employed as an approach as a matter of policy. It can variably be applied to needs of specific subject courses.	Curricular Reforms; Instructional Reforms
19	Chemistry teachers need to employ procedures that promote conceptual understanding perhaps through visual rather than mere verbal description of a problem situation.	Instructional Strategies
20	There is a need for continuing opportunities for teachers to upgrade their capabilities as teachers. This would require faculty achievement programs as well as establishing networks that would enable teachers to link-up with colleagues with whom they could exchange experiences and ideas. This might also mean appropriate regulation of work load among teachers. Teacher students need more exposure, which might as well be a function of teacher training institutions.	Teacher Training; Policy Reform
21	Teacher training in general science need to align curricular programs with the needs in the field, including application of appropriate techniques, skills, and materials. Close collaborative work among teacher training institutions, the Dept of Education, and the CHED is necessary. For further research: evaluation of preservice education to establish strengths and weaknesses of the teacher training program.	Teacher Training; Policy Reforms
22	Further study on the applicability of cooperative learning especially in the area of improving social interaction among learners.	Instructional strategies
23	Need further investigation in the areas of mathematical and geometric reasoning skills, proof writing abilities, concepts about proofs and the Van Hele levels using Enhanced Group Moore Method.	Curricular reforms.; Application of the Moore Method of teaching
24	Math teachers need to employ various teaching methods, including integrative instruction to improve performance of their students. Researchers need to collaborate with classroom teachers in understanding more meaningful studies that deal with changing teaching strategies, changing principles, and theories of instruction, and changing learning environments.	Teacher training Instructional strategies
25	Consider techniques employed by high performers in the class as basic template for other learners, all other things being equal.	Instructional Strategies
26	Teaching mathematics in specified classroom situations.	Instructional Reforms
27	Teacher training is necessary, but it must be evaluated to insure applicability of content to the needs of teachers in chemistry.	Teacher training
28	Implications of a condition whereby a teacher engages a student on one-on-one dialogue to clarify the student's vague understanding of a subject matter.	Instructional Strategies

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29	Evaluation of the Philippine actuarial science program across universities is necessary; need to provide further student training in math, calculus, statistics, and probabilities, problem solving skills, developing good business sense, communication skills and computer skills.	Curricular evaluation; policy reforms
30	Need to establish skills in math and problem solving before students are admitted to voc-tech programs	Curricular Reforms; Instructional Reforms
31	Experiential learning approach and traditional learning method were found to produce significant results in the achievement of students, but the experiential learning approach (ELA) group performed better than the teaching/learning materials (TLM) group, hence ELA should be adopted as teaching strategy in biology.	Curricular Reform; Instructional Reform
32	Explorations in instructional design to provide balance and appropriate combinations of modalities without reaching cognitive overload for students. Further studies of factors like prior knowledge, gender, socio-economic status, and other specific topics.	Instructional Reforms; Constructivism
33	Study further the relationship between Realistic Mathematics Education (RME) and High-Functioning Autism (HFA).	Curricular Reforms; Instructional Reforms; Instructional Reforms
34	Further testing of bilingualism in the teaching of chemistry	Policy Reform; Instructional Reform
35	Need for more qualitative studies in concept understanding in various areas like biology, chemistry, physics, and mathematics.	Policy Reforms; Curricular Reforms; Instructional Reforms
36	Need more studies on shift from teacher-centered to learner-centered method of teaching in microbiology and parasitology with larger sample sizes.	Knowledge-transfer model; learner-centered instruction
37	Need for studies to look into relationship between self-paced instruction and proportional reasoning in math with larger sample sizes, and using worksheets designed for Asian students.	Culture-related instructional strategies for Asian students
38	Further study on the effects of metacognitive learning instruction to establish relationship of student learning performance and integrative metacognitive instruction (IMI) in biology.	Instructional strategies
39	Further studies towards policy initiatives in the involvement of parents in the education of their children.	Policy Reforms
40	Further validation studies needed in math education especially in the area of integrating didactic of math education.	Curricular Reforms

41	Need for Inquiry-based learning strategies in teaching sciences.	Instructional Reforms; Teacher Training
42	Further analysis of the role of creative writing in the study of math education.	Curricular Reform
43	Application of small-group case-based training (SGCBT) model in general chemistry instruction.	Curricular and Instructional studies in teacher training institutions
44	Policy changes in the institutionalization of training in learning strategies in teacher training institutions.	Policy and Curricular evaluation in Teacher Training Institutions
45	Use of CBI in biology teaching and employment of consensus-based instruction; Need studies with larger sample sizes	Policy Reforms; Curriculum and Design evaluation
46	Needed studies in quality assurance in the BSEd-Math Program, active participation of teachers in decision making among teachers, strengthen external linkages to insure innovative ideas and sustain teacher development efforts.	Policy and Curricular Reforms;
47	Evaluation of ecotourism modules as they related to classroom management; need to test inquiry-based pedagogical approaches to teaching.	Curricular evaluation and Reforms
48	Need to develop and test facilitated learning modules.	Instructional Reform.

**Specific topics for communication dissertations evaluated.** As shown in the list below, communication dissertations also dealt with multiple topics and/or practices although multiple mentions were not recorded. Topical categories were simply recorded, as follows:

- Communication networking
- Globalization of media
- Knowledge sharing
- Mediated intercultural communication
- Communication of tacit knowledge
- Communicative performance in cultural heritage conservation
- Negotiated communication in an ESL Classroom
- Facebook analytics to measure Spiral of Silence
- Sustainable digital information preservation
- Voices of indigenous peoples in development projects
- Faith-based music as communication phenomenon
- Phenomenological study of risk communication

The foci of interest in education research were clearly indicated by the existing categories of areas of concern. However, in communication research, areas of research interest still needed to be defined insofar as the Doctor of Communication Program may be concerned. There were sub-issues that were researchable and/or needed to be more clearly understood. For example, in the case of gender sensitivity in communication, one can ask, “What does it mean when malls and department stores arrange products for sale according to traditional meanings attached to colors or sections?” In department stores, for example, why is the section for boys usually colored blue, or the girl’s section colored pink? As if this were not enough, sections are clearly labeled “Boy’s Section,” and for girls “Girl’s Section,” and the like? This did not appear to be the best way to promote gender equality.

Another way of putting this issue across is to ask, “What researchable topics would be useful at this time in the area of social media and Filipino behavior? What other significant issues need to be clarified before getting into highly specific topics that generally would be useful to very specific topical foci in communication work?” The point is, perhaps insofar as UPOU might be concerned, it would make sense to delve deeper into the application of communication and technologies in furthering educational performance and the like. The point is, in what areas must the university move toward in the pursuit of meaningful research areas given the vision statement of the institution?

In the area of communication, the dissertations available in the UPOU Library provided some basic suggestions as to what kinds of studies were recommended for future dissertation students of the Doctor of Communication Program (Table 5)

**Table 5. Specific research suggestions recommended by dissertations in communication,**

Seq	Topic Recommendations	General Category
1	Deeper analysis of the meaning of the power of social media in social networking; need to employ multiple methodologies in trying to understand implication of social networking; further studies into the implications of social media in the developing world; further study into the implications of social exchange theory in the application of social media among people.	Technologies in instruction; impact of social media

<b>2</b>	Globalization of media: policy implications, self-regulation among media organizations, need to evaluate journalism curricular programs, more training for women journalists on television. Focus on women journalists ... need for reversal of roles or better understanding of issues involved in gender issues under current state of affairs?	Curricular evaluation and reforms
<b>3</b>	Knowledge sharing as communication. Study knowledge sharing out of the box (without consideration of whether one is dealing with knowledge, donating, or collecting knowledge; just look into knowledge sharing process and analyze its implications.	Application of instructional communication principles; communication in general
<b>4</b>	Deeper studies in mediated intercultural communication; role of semiotics, cybernetics, and critical theories; clearer understanding of the relationship between communication and other fields of study like ethnography, phenomenology in understanding intercultural communication particularly in the area of social media.	Application of communication and technologies
<b>5</b>	Implied communication of tacit knowledge; need for systematic documentation of climate bio-indicators into conventional weather forecasting. Deeper analysis of how farmers and fisher-folks learn and provide meanings to their observations about nature and environmental characteristics (bio-indicators).	Role of indigenous knowledge systems
<b>6</b>	Further study to determine if native English speakers are better teachers of English as second language (ESL) compared to non-native speakers.	Curricular evaluation and instructional strategies
<b>7</b>	Test model developed for Facebook Analytics as measure of effectiveness of model spiral of silence	Application of FB analytics in instructional improvement
<b>8</b>	More research efforts towards construction of digital sustainability as an important variable in the process of knowledge communication.	Methodological design and testing
<b>9</b>	Further studies to confirm varied evidences showing people creating their own knowledge of natural events involving significant risk communication issues and work.	Testing models
<b>10</b>	Full consideration of entry protocols into study sites or research locales in indigenous systems.	Impact of cultural issues in indigenous research efforts
<b>11</b>	Music as communication act needs deeper analysis and understanding if it is to be taken as a tool for social change.	Methodological testing and determination of variables of specific communication acts
<b>12</b>	Studies needed to establish applicability of flexible learning as strategy of distance instruction.	Instructional strategies and curricular design

## Specific Topics of Dissertations Evaluated

**Education.** Doctoral dissertations undertaken in education frequently dealt with multiple interests rather than singular topics. Classifying these dissertations into specified areas of concerns meant multiple responses. There are six categories of research topics identified (Table 5).

**Table 5. Classification of dissertations according to basic concern areas.**

Category	n	%
Instructional strategies	25	30.48
Program and curricular reforms	22	26.82
Teacher training	14	17.07
Policy reforms	14	17.07
Learning strategies	5	6.09
Research and evaluation	1	2.43

As shown in Table 5, the areas which are most commonly studied by doctoral researchers in education were instructional strategies (30%), program and curricular reforms (26%), teacher training (17%), and policy reforms (17%), while the least studied areas were research and evaluation programs (2%) and application of technologies in instruction (2%).

It should be pointed out that the categories studied would seem similar with concerns in other teacher training institutions in the country such as the UP College of Education and the Philippine Normal University. The basic assumption is that UPOU does not have an advantage over other teacher training institutions in the areas of distance education and e-learning. This is frequently contained in pronouncements of UPOU as an institution. It should follow that in UPOU, distance education and e-learning ought to be an area of common interest in dissertation work. This is not supported by the current data.

**Communication.** Dissertations undertaken in communication area varied. This may probably be a function of the program's lack of categories in terms of subject matter areas of interest. For now, it is perhaps a case of student interest that dictates the nature of dissertations undertaken (Table 6).

**Table 6. Research interests among dissertation students in communication.**

Category	n	%
Explorations into new media platforms	6	24.00
Application of technologies in instruction	5	20.00
Curricular evaluation	4	16.00
Application of indigenous knowledge systems	4	16.00
Application of information/communication technologies	4	16.00
Social media applications	2	8.00

It is not easily possible to base a specific orientation of recommendations focusing on specific studies in the case of the Doctor of Communication Program because the program does not currently have a focused research program that could provide overall thematic guidelines. The current batch of dissertations in communication deal with different communication interests which does not provide for a definite research focus. Should there be any effort at operationalizing the research recommendations in the field of communication today in the area of designing and developing communication technologies for distance e-learning, such effort may not be achievable given current directions of the UPOU graduate research orientation.

## **INCIDENTAL OBSERVATIONS**

As this study progressed, it came across some specific concerns. These concerns, however, were not originally part of the proposed study, hence, this separate major section highlighting them in this report. The concerns may be categorized into four general issues.

### **Need to Clarify the Concept of Mixed Methods and Methodology**

Mixed methodology is non-existent, but mixed methods is a new paradigm. Roselyn Cameron (2014) paraphrased Leech (2008) in a definition of mixed methods research as follows:

*In general, mixed methods research represent research that involves collecting, analyzing, and interpreting quantitative and qualitative data in a single study or in a series of studies that investigate the same underlying phenomenon.*

Cameron (2014) says that “mixed methods research is a research design with philosophical assumptions as well as methods of inquiry.” As a

methodology, therefore, it involves philosophical assumptions that guide the direction of the collection and analysis of data and the mixture of qualitative and quantitative data in a single study or series of studies. The premise is that the use of quantitative and qualitative approaches in combination provides a better understanding of research problems than either approach alone.

In past years, research methodology employed by graduate researchers was focused on empirical practices, hence quantitative in approach. In contemporary times, however, a new methodological approach known as qualitative approach has been increasingly practiced and generally accepted by the scientific community. There are anomalous situations whereby qualitative and quantitative approaches may have been erroneously employed. For example, many graduate students have openly claimed they were employing mixed methodologies, which usually was meant they combined qualitative and quantitative approaches.

Aside from the fact that there has not been any clear discussion of how exactly these methodologies ought to be mixed, it was clear in the dissertations evaluated that mixed methodologies refer to combination of both qualitative and quantitative methods but without clear description of how this mix was approached. It may be pointed out again that mixed methodology is an erroneous concept.

Perhaps one of the effects of continuous reflections and questioning of standard processes by academics and researchers is that over time one tended to consider shifting to new ways of thinking or of doing things. This point is well discussed by Thomas Khun in his book, *"The Structure of Scientific Revolutions."*

Khun pointed out that at some point in the life of the scientific community, there would be new discoveries that deal with aspects of science, such as new scientific knowledge that has been accepted generally by the scientific community. When new knowledge is introduced into the scientific community, there would be a tendency for chaos. The tendency is for more scientists to look into and generally gravitate toward the new knowledge. This would result in anomalous situations and would ultimately result in changing paradigms.

It seems logical that when one does quantitative research one must employ quantitative procedures and techniques in data collection and analysis. And when one undertakes qualitative research, one must

employ qualitative procedures of collecting data and information as well as analyses. One should not collect quantitative data employing qualitative procedures, nor analysis of qualitative data using empirical techniques.

A meaningful question to ask is the following: “do we really mix seamlessly quantitative and qualitative methods, or do we separate analyses and simply think that we have both employed quantitative and qualitative approaches and interpretations to arrive at combined interpretations that appear to be results of a mix of both qualitative and quantitative methodologies? This report proposes that what might actually be the case was that qualitative data and information were collected using qualitative procedures and techniques thereby resulting in interpretations distinct from those that were the results of using quantitative tools. Finally, the qualitative results and the quantitative results would be compared and appropriate interpretations arrived at.

### **The Issue of Limited Sampling Sizes**

Small sample sizes was more a problem with the dissertations in the PhD in Education program than in the Doctor of Communication Program. In the majority of dissertations in education, sample sizes were commonly limited to one class or one institution. This meant that most dissertations were essentially single case studies, and, therefore, had limitations in terms of constructing generalizations of application of results.

An appropriate question at this point is necessary. What affects the decision to employ a specific sampling procedure? Is it possible that one’s choice of sampling size might have been influenced by the methodology to be used? Or is it possible that a small sampling size was arrived at because a larger sample size was not an absolute necessity because the research study would employ single case analysis?

### **More In-Depth Vetting of Research Topics**

Generally, the dissertation topics in education were very highly focused on very specific conditions such as the role of specific theoretical propositions in highly specific learning conditions of an individual learner. As such the topic is extremely focused, perhaps too focused, and the results would be applicable only to the conditions described in the discussion of the

research problem. In this situation, there is very little elbow room. A little more effort in explaining or describing the applicability of the results could have been done in such cases.

In the case of dissertations in communication, however, some research topics lacked clear discussion of how results could be specifically applied due to lack of appropriate explanations or discussions of application of procedures resulting from the findings. In other words, some lacked explanation as to how the results could be applied in similar circumstances.

It may be wise to subject specific topics into serious thought and deeper discussion of meanings and interpretations. In other words, appropriate, in-depth vetting is probably useful to the further clarification of the research topic and problem.

### **On the Issue of Contributions to the Body of Knowledge**

In general terms, one may sufficiently claim that each dissertation's findings could have significant impact on the issues associated with the research topics pursued by each of the different dissertations. It is entirely possible that had the findings and observations been analyzed and discussed in a more appropriate context, it would have been possible to highlight some generalizations.

Making a specific overall statement on the contributions to the existing body of knowledge by each dissertation is not sufficiently possible at the moment given the amount of empirical evidence contributed by the dissertations analyzed for this study. There was, however, evidence that the dissertation results provided what could be considered a trend that could ultimately result in defensible generalization about certain causality of independent and dependent variables studied. For example, some recommendations focused on the utility of new learning theories like constructivism in designing special tasks to improve learning experiences.

A very basic observation that may be appropriately presented in this report is that which relate to the nature of recommendations based on results because the sample sizes of the dissertations were limited in terms of size and spread. This could be the result of research efforts that were essentially isolated and unrelated in terms of overall direction. It follows, therefore, that had the dissertations been part of a research program with encompassing goals, they could have been undertaken with reasonably similar or related

end-goals and related impacts. Then they would have provided strong basis for generalization of application of results.

The concept of *contribution to the body of knowledge* is vague and open to various interpretations, each interpretation of which might be correct. A cursory look at what various academic advisers and panel members of graduate theses across universities would show different verbalizations of the idea which may even seem to point towards the same direction but with different instructions or explanations. For example, phrases like *new findings*, *new results*, *new procedures*, *new applications*, and the like are common verbalizations by academic advisers. This is just fine when the adviser and the research student find a common ground and end-up on the same wavelength, but then they differ in understanding and beliefs the end-result could be devastating to the student. And frequently, the academic adviser and the research student do not understand one another. The end-result is that the research student continues to have a vague idea of the concept of *contribution to the body of knowledge*, and the academic adviser continues to be unable to explain clearly what it is. Frequently, the mentoring process is completely lost as a result.

It is in articulating the concept of *contribution to the body of knowledge* where there is need for creative thinking in research. This is where words, phrases, pictures, drawing, and algorithmic illustrations, the most common tools of the research process come in handy and useful. It takes creative thinking to clearly describe a new idea or way of doing things. To a large extent, the *contribution* that may be referred to is actually a simple description of a process that may be different from what has generally been accepted and practiced. And, actually, it need not be new but it may be an ordinary idea that has not been done, used or explained before as far as the conditions of the research may be concerned.

## **A NOTE ON RESEARCH CREATIVITY**

There is no single definition of creativity that fits all purposes. Anders and Walsh (n.d.) of the Imperial College of London, however, claim that creativity is usually defined as “development of ideas” that it combines with “existing facts, ideas, and theories in original and useful ways.” Sir Ken Robinson is much more straightforward. He says that creativity is defined as “the process of having original ideas that have value” (Robinson, 2011). It is common belief that research is a creative act, and

for all intents and purposes, graduate research ought to be cushioned on creativity.

Quite frequently, to be creative means to work outside of the box. However, doing graduate research, such as Master's Thesis or Doctoral Dissertation means minimal amount of thinking outside the box because graduate students would prefer to simply undertake what their respective advisers or committees suggest. There is minimal effort in being creative in conceptualizing and undertaking a research project. This, however, should not adversely influence the process of applying creativity in the research process at the UPOU.

Many are not interested in the creative thinking process in research, and there are many misconceptions regarding creative thinking in research of which there are four common ones, as follows:

1. *Creative thinking in research requires a lot of time.* This may not always be the case, though. Of course, research projects like doctoral dissertations require ample collective time to complete. In fact, most dissertation students need three to four semesters to complete their dissertations. But what is referred to in this case is collective time that should exclude periods that are not devoted directly to the conduct of the dissertation. Certain research activities are frequently performed independently of one another, such as doing review of literature which could be done independently of collecting data, etc. Frequently, bursts of energies are also bursts of creative thinking.
2. *Influenced from anyone is unnecessary, in fact, discouraged.* This admonition comes from those who say that one's research results must be pure and devoid any influence from others. This is a mistaken notion. The truth is, there is no new knowledge resulting completely from one single study. All researchers build-up on what has been found by other researchers. No individual can claim ownership of knowledge. Knowledge is the result of the work of multiple individuals, often working independently of one another.
3. *One must devote all his/her time to solve his/her research problem.* Actually, as a researcher one would probably do better if he/she would at the same time engage in various activities not related to research.

4. *One should have a clear sense of where one is going.* This sounds right, but one might also consider that he/she can hardly establish end results when not sure what one may find. Presumably, when one does research one is trying to discover something new or something no one else has found before. Under this circumstance, one has no standards for guidance, and one does not have tested procedures to follow. The researcher just performs the activity and observe what happens, which ultimately might end-up in something one did not completely expect. This is how new discoveries are made.

## **CONCLUSIONS**

A general observation resulting from this evaluation is that the choice of research topics among doctoral students may be influenced by two factors. One, the topic of dissertation may have been influenced by the student's own interest and choice. Two, the choice of topic may have been influenced by some suggestions from the academic adviser, which was fully understandable given the lack of experience of the research student. The former may be due to a clear understanding by the graduate student of the research gaps in the literature, and the latter may be an expression of how the student interprets the ideas expressed by the academic adviser.

### **Methodologies and Procedures Employed in the Conduct of Dissertations**

Clearly, the dissertations in education were highly focused, thereby highlighting "theoretical" orientations very specific to the topic of the study. There is nothing wrong with this orientation, especially because the dissertations had specific purposes and did not claim to make generalizations.

The methods and procedures employed by the dissertations in communication highlighted the specific application of certain communication approaches. While the results could be basis for generalizations, it would be wise to include more similar studies in the review of literature in order to establish more general applicability of observations and conclusions made in the different dissertations.

The dissertations in education provided a wide range of specific issues that need to be addressed by future education researchers. An analysis of the different recommendation packages from each of the dissertations resulted in no major clear categories of recommendations.

Each dissertation had a set of very specific recommendations based on the results of the study undertaken. This was helpful to one looking into the specific problems of instruction at both the college and high school levels but not necessarily in terms of generalizations to include other similar situations especially those that dealt with e-learning.

### **Conclusions Relative to the Objectives of the Evaluation**

**Objective No. 1:** “To establish the general direction of graduate research undertaken by graduate students of UPOU.” The different dissertations in both education and communication involved varied specific topics and varied research objectives. There was no pre-established research direction, and it was not possible to provide a clear-cut nomenclature for the different research topics. In other words, the research were undertaken to respond to different topics with different specific orientations rather than a singular orientation. It may be safe to assume that if there was any relationship between the UPOU institutional vision and the nature of research topics undertaken by graduate research students, it might be construed as more accidental than intentional.

**Objective No. 2:** “To articulate the methodologies employed in the conduct of research by doctoral students of the UPOU.” In both the fields of education and communication, the dissertations studied focused on different topics and used different highly specific methodologies. Application of similar methodologies for related studies could not be established on the basis of the research undertaken in both disciplines.

**Objective No. 3:** “To suggest an overall direction for graduate research that might be undertaken by future graduate researchers of UPOU.” This report carries two recommendations: One, to put in place a general research program under which all research activities undertaken at the UPOU shall be conceptualized, designed, and implemented. An overall research direction shall be developed and appropriate methodologies defined. Two, to institute a system whereby UPOU can develop a Database System that would collect and store raw data and also provide opportunities for other researchers to undertake secondary data analysis.

**Objective No. 4:** “To articulate graduate research directions through specific policy options in the identification of research topics by the UPOU.” To this end, the proposed UPOU research program would have to proceed with thematic approaches. A theme may be changed with a new one after a period of time, which may be measured in terms of entry of new research orientations or directions as embodied in social needs in the country, or new research interests in the disciplines, or new research orientations envisioned by the University’s curricular and research responsibilities.

## **RECOMMENDATIONS**

This report has two overall recommendations. Overall, it is recommended that UPOU put in place an overall research program highlighting its vision of being on top of the field of distance e-learning in the Philippines, to be so clearly expressed in its main programs, program deliveries, and research and development undertakings.

The overall research program shall serve as the main framework for any research undertaken specifically by students of UPOU. It shall, therefore, include specifics as to which aspects shall be within the realm of dissertations, master’s theses, and undergraduate theses, and even special problems. While individually these may not stand out by themselves as exemplary research studies, they should focus on specific points that would collectively result in contributions to the overall goals of the research program of the university.

### **Recommendation 1**

The following is a skeletal proposal for the overall research program of the UPOU:

#### **Towards a Research-Based e-Learning Curriculum and Delivery System: A UPOU Research and Development Program of Action**

##### **Rationale**

The institutional vision of the UPOU, as written in the panel on “vision” in the UPOU Exhibit Board at the UPOU Lobby, states, “The UPOU shall be at the forefront of the knowledge society as a leading institution of

open learning and distance education.” Essentially, this may be taken to mean that the UPOU would take on the leadership position in providing the leadership among institutions of higher education in the development of knowledge and good practices in the field of distance education and e-learning in the Philippines. This proposal, therefore, is an interpretation of how UPOU could operationalize its vision statement through the development of curricular programs and delivery systems in distance e-learning and tested through appropriate and innovative research action.

### **Program Goal**

The goal of this proposed R&D program is to design and implement a research and development program that shall provide an overall framework for the selection, design, and implementation of research proposals from all sectors of the UPOU, e.g., faculty, REPS, staff, and students. This shall, however, start with an R&D program for graduate research based on observations from doctoral dissertations already submitted to UPOU by those who have graduated from the two doctoral programs of the university,

More specifically, therefore, the proposed R&D program shall endeavor to achieve the following objectives:

1. To conceptualize, design, and implement an R&D program focused on the determination of the nature of theses that shall be undertaken by students of the UPOU, particularly at the graduate level. As much as possible, this program shall serve as the overall framework providing the overall guideline for all students who shall be preparing to do theses. It shall be the responsibility of the faculty thesis advisers to make sure that student theses may be tweaked along the lines identified by the R&D program for UPOU students.
2. The Faculties shall undertake workshops toward the formulation of an R&D program for students ready to undertake their theses.

### **Mode of Implementation**

Generally, the R&D program for graduate and undergraduate research at UPOU shall be implemented using either of two modal approaches:

1. The thesis student may submit to the UPOU, through his/her thesis adviser, his/her thesis proposal for funding purposes. This requires

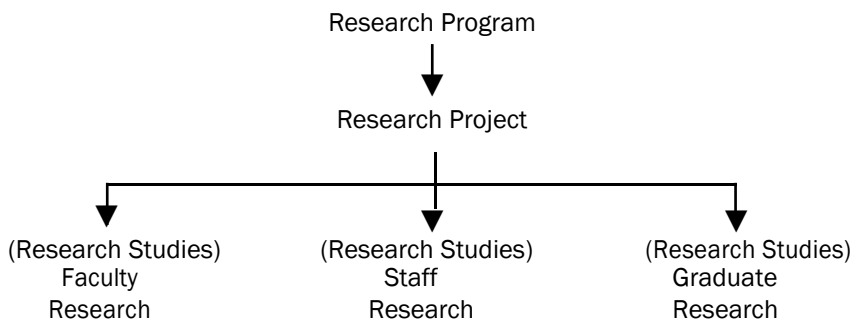
that said thesis proposal shall have been prepared according to the specific requirements of the R&D program for UPOU students. It goes without saying that said thesis proposals are excellent proposals that could result in an output that shall be completely useful to the UPOU as part of its R&D program.

2. All thesis proposals by students must be developed according to the guidelines provided in the R&D program for UPOU students. These proposals may not necessarily be acceptable for purposes of No. 1 above.

For purposes of institutional research management, the proposed research program shall be under the direct supervision of the Vice Chancellor for Academic Affairs, who shall serve as Program Leader. Various Projects under the Program shall be managed at the level of the Academic Deans and identified Office Heads. It is entirely possible that UPOU will decide to appoint Research Program Leaders or Research Project Leaders other than those already implied.

As can be observed in standard nomenclature of research programs in various research institutions and academic institutions, the UPOU Program may be structured in similar fashion (Figure 1), as follows:

*Figure 1. Traditional structure of the Program-Project-Studies framework.*

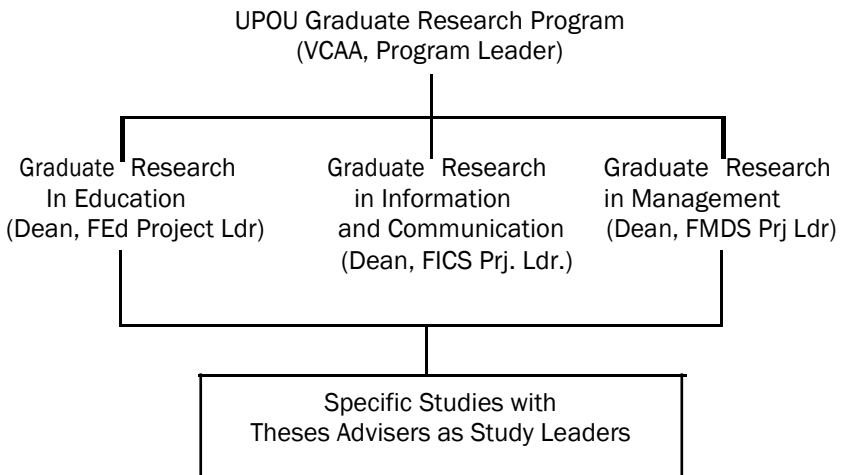


It is entirely possible that there could be more than one research program, and a Research Program may be comprised of more than one Research Project, and then a Research Project may be comprised of more than one research study (which is really equivalent to one thesis).

The procedure highlights the focus on intentional efforts in developing data bases as well as procedures that will support efforts towards development of new knowledge and processes. Under this procedure those that propose studies whether full-time faculty and staff or students of UPOU would have to align their proposals to the UPOU Program. There will be those who would prefer to be more independent in their choices of research orientation and topics, which is a healthy sign. They will ;however, have to exert more effort in justifying why their studies would need to be sanctioned by the university, particularly if they are submitted for funding purposes and institutional recognition.

Graduate research may be organized and managed according to Faculty (Figure 2)

Figure 2. Organizational structure for graduate research at UPOU.



It should be pointed out that other research management strategies may be considered. In fact, it would be prudent to include inputs from the students.

## Proposed Research Management Structure

Actual listing of research topics and names of tools and handbooks are not provided here. These should be the responsibility of those concerned. Instead, the following matrix should clarify how the research program of the UPOU may be managed. Various details will have to be developed prior to finalizing the research program. This matrix shows how the program shall be managed (Matrix 1).

### Matrix 1. Indicating how various aspects of the R&D Program shall be managed.

Research Orientation	FEd	FICS	FMDS
<b>Basic</b>	Model Building/Designing; Testing applicability of existing conceptual models and theoretical propositions		
<b>Applied</b>	Conceptualizing and Developing Instructional Models; Construction and Testing of Models; Design and development of Tools to apply Models designed.		
<b>Action</b>	Collaborative Testing of Models; Write-up of Manual of Operations; and Field Testing and Finalization of Operating Manuals		
<b>Operations</b>	Collaborative Testing of Models; Evaluation of Good Practices and UPOU Models; Mass application and Field Testing.		

This matrix is as applicable to student research as it is to faculty and staff research. As well, it is applicable to all subject matter areas subject to research. For example, a staff research on gender bias in commercial stores would fit into this matrix. The matrix would even provide opportunities for varied levels of analysis of data.

### Recommendation 2

It is strongly recommended that UPOU immediately start constructing its database system. This database is expected to contain raw data collected from all studies sanctioned by UPOU. It should be clear that this database refers only to raw data and individual information sources may not be identifiable.

As much as possible, privacy issues must be avoided and this could be done by storing only raw data from UPOU researchers. The database is not expected to contain data from sources outside of the UPOU. It is, therefore, essential that UPOU put in place an institutional policy that

could enable it to collect raw data, particularly from UPOU researchers whose projects are funded or otherwise sanctioned by the institution. Sanctions would include, but not limited to, use of specified funds from UPOU, student research that are required by the curricular programs of the university, and any research whose respondents might include UPOU personnel that have been approved by UPOU.

## **DISSERTATIONS UNDER THE PhD IN EDUCATION PROGRAM**

- Alba, Josephine B. (2002). Enhancing Laboratory Performance and Scientific Attitudes of General Botany Students Through Inquiry-Oriented Laboratory Activities.
- Alfonso, Rodigelio F. (2001). Dynamics of Conceptual Change in the Biology Classroom: A Multidimensional Interpretive Framework.
- Arada, Sabina Rachel B. (2009). The Actuarial Science Program of the Philippines: A Historical and Curricular Development Perspective.
- Autida, Reynante F. (2015). Small-Group Case-Based Teaching: Effects on Student Achievement Critical Thinking, and Attitude Toward Chemistry.
- Bernardo, Leonisa O. (2008). Sustained Community-Based in-Service Training and the Teaching competency of Secondary School Chemistry Teachers.
- Bitgue, Kari Ann V. (2015). Lesson Study: Impact o Teachers Practices, Pedagogical Content Knowledge (PCK), and Technological Pedagogical Content Knowledge (TPCK), and on Students' Cognitive Skills and Attitude Toward Biology.
- Bolo-Kalaw, Maria Theresa. (2012). Realistic Mathematics Approach, Mathematical Communication and Problem-Solving Skills of High Functioning Autistic Children: A Case Study.
- Cabading, Evelyn T. (2004). Constructivist Approach: Its Impact on Prospective Maguindanaon Teachers' Conception of Selected Topics in Environmental Chemistry.
- Callanta-Zamora, Lourdes A. (2008). The Quality of Students' Mathematical Proofs as a Function of Classroom Assessment – A Quantitative Analysis.
- Castillo-Gelito, Lorna. (2003). Determinants of Student Performance in the Science Component of the National Secondary Assessment Test.
- Conde, Rosie I. (2014). Mathematics Pedagogical Content Knowledge of Pre-Service Teachers and Didactics in Mathematics Course Prototype.
- Consulta-Francisco, Ma. Teresa B. (2010). Experiential Learning Approach and Scientific Literacy Dimensions of Objectives, Personal and Social Constructivism.

- Cosadio-Tan, Milagros M. (2004). Conceptual Ecology of High School Students in a Multicultural Classroom.
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- Erece-Oda, Evelyn. (2007). Cooperative Learning: Its Influence on Academic Achievement; Social Interaction and Self Concept of College Biology Students.
- Fetalvero, Eddie G. (2016). Consensus-Based Instruction: Effects on Students' Attitude Towards Biology and Achievement in Bioenergetics.
- Garcia-Palance, Carmencita. (2004). Knowledge Restructuring in Selected Topics in Chemistry Using the Process Workshop Approach.
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- Hidalgo-Coral, Rosalina. (2004). Metacognitive Learning Cycle Model: Effects on Conceptual Understanding and Problem-Solving Skills in Genetics.
- Hortillosa, Arlene O. (2010). Context-Based Mathematics Problem Solving Cognitive and Affective Effects on Bit and BS Voc-Tech Students.
- Lahoy-Lahoy, Myrna E. (2003). Effects of Integrating History of Mathematics on High School Students' Cognitive and Affective Learnings.
- Lariego, Belen C. (2004). Developing Problem-Solving Abilities Among Preservice Mathematics Teachers.
- Lim, Catherine A. (2013). Students' Academic Performance and Conceptual Knowledge in Microbiology and Parasitology Taught With Problem Based Learning Approach.
- Locaylocay, Jocelyn R. (2002). Changes in College Students' Conceptions of Chemical Equilibrium.
- Magistrado-Saong, Marilou. (2012). Effects of Language and Other Correlates in Learning College Organic Chemistry.
- Malindog Jr., Esteban A. (2005). Effects of Contrastive and Generative Teaching Strategy in Chemistry.

- Mocsir, Marzokie M. (2017). Development and Effectiveness of Facilitated Learning Modules in Introductory Analytical Chemistry.
- Noche, Joel R. (2013). Conceptual and Procedural Knowledge in Proportional Reasoning of Undergraduate Students.
- Pantino, Francis O. (2015). Creative Writing Activities: Effects on Student Anxiety, Attitude and Achievement in Mathematics.
- Petilos, Gabino P. (2002). Constructivist Model for Teaching Problem-Solving: Effects on Students' Problem-Solving and Critical Thinking Skills.
- Rabanal, Jennifer A. (2003) . Analysis of Task Sequence and Critical Behaviors of Engineering Students and Their Understanding of Conic Sections.
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- Sumastre-delos Santos, Nenita. (2015). Inquiry-Based Laboratory Activities: Effect on Students' Inquiry Skills, Conceptual Understanding and Attitude Toward Genetics.
- Supremo, Janette P. (2002). Learning Transfer and Durability in College Biology Students via Computer-Assisted Instruction.
- Tamotria, Ferdinand V. (2016). Institutional Characteristics, Mathematics Teacher Educator Qualities and Extent of Curriculum Adaptation.
- Tantiado, Rey G. (2014). Integrated Metacognitive Instruction Effects on Student Learning Strategies Volition, and Achievement in Biology.
- Torre, Carla B. (2002). Practicals for Enhancing Conceptual Understanding and Inquiry Skills.
- Valenzuela-Vicente, Grace. (2002). Enhancement of Problem-Solving Skills in Chemical Equilibrium Through a Modified Network Approach.
- Villaluz, Elizabeth A. (2005). Pedagogical Content Knowledge Instructional Design and Reaching Practice of High School Biology Teachers.

Yoo, Yang Seok (Fred). (2014). Gender Difference in Mathematics Achievement I orea and Singapore: Influence of Socio-Cultural Factors and Student Attitude Towards Mathematics.

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Articoma, Hermie V. (2017). Modeling a sustainable Digital Information Preservation System by Mediated Communication in Organizations.

Casanova-Reboroso, Corazon. (2006). Globalization of Media: Implications to Women Television Journalism in the Philippines.

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## About the Conversation Paper Series

The Conversation Paper Series is UPOU's attempt to capture and share innovative ideas that could impact the way teaching and learning is carried out through open and distance learning (ODL) as well as on the operations of ODL institutions. UPOU, as the lead institution in ODL in the country and in the region, hopes to spark a conversation on salient topics that are seen to have policy and operations implications by publishing these research-based ideas as an open education resource (OER) both in print and digital formats.

The Office of the Vice Chancellor for Academic Affairs (OVCAA) publishes these papers as initially presented in various academic venues conducted by the university as well as from empirical studies funded under UPOU's and other external research grants. Invited papers are those that are research-based with strong empirical basis that could serve as a trigger for further conversation in the continuing discourse in open and distance learning.

## About the Cover

The interconnected vertices represent the expansion of ideas as they originate from one point to the next leading up to a continuous complex exchange and production of knowledge through academic discourse between and among ODeL practitioners. The hue blue represents consciousness, knowledge, expansiveness, and inspiration which the series aims to convey.