
Development and Validation of Research Training Manual for Tertiary Education Faculty

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ABSTRACT: Research training has been identified by several studies as needed by the faculty of higher learning to produce quality and relevant research outputs. However, not all faculty can attend intensive training about research as revealed by studies due to heavy teaching loads, and other ancillaries. For this reason, this study was conducted to develop a research training manual that can be used by the faculty. The study also aimed to determine the validity of the developed research training manual. Twenty faculty who are research experts (publishing faculty) were asked to evaluate the developed research training manual. Results showed that all parameters included in the study (objectives, content, language, and evaluation) were highly acceptable, valid, and reflective in the research training manual. Thus, it is concluded in this paper that the developed training manual for research intended for the faculty of higher education is acceptable in all of its characteristics as to objectives, content, language, and evaluation and passed the critical evaluation of the faculty-researcher of the university. Since the research training manual was found acceptable and valid as evaluated by the university faculty researchers, it is recommended for use to measure its effectiveness and implication to research productivity of faculty in higher education institutions.

INTRODUCTION

Research is an investigative process that benefits humankind by enhancing the quality of life by acting as a tool to assist in lessening the load of work. According to Plomp (2013), research is an endless activity that follows a cycle. It is a dynamic process that begins with one issue and keeps on with other ones. In the current world, research plays a huge role in improving man's quality of life. For instance, technology—which is one of the outcomes of research—is what is responsible for the drastically altering globe. Research will always be present as long as man is able to meet his needs and fulfill his desires. Therefore, it is undeniable that research is a component of daily activity.

In line with CMO 46 series of 2012, which states that universities contribute to nation-building by offering highly specialized educational experiences to train experts in the various technical and disciplinal areas and by emphasizing the development of new knowledge and skills through research and development, the Commission on Higher Education (CHED), a key leader of the Philippine Higher Education System, provides policy-standard to enhance quality assurance (QA) in Philippine Higher Education through outcomes-based and typology-based quality assurance.

In the current landscape of higher education, the role of faculty in addressing pressing issues in the education sector is paramount. These pressing issues may be focused on academic excellence, research competencies, extension and training services, and management of resources which compose the four-fold functions of HEI faculty.

In the advent of methodological advances in research, faculty in higher education should be equipped with new trends, pedagogies, and innovative strategies focused on research competencies. Thus, faculty of HEIs need to expose more on research undertakings. However, not all faculty of HEIs are fully equipped with these new trends. There are some also who do not have enough drive to conduct research, present completed research, or even publish research due to several factors as found by Gaikwad (2021) which include heavy teaching loads, inadequacy in the support given to researchers, time allotted to research, other ancillaries, vague research agenda, lack of research leadership, and scarcity in institutional avenues to publish. Accordingly, Bueno (2019) identified limiting factors to research productivity which include the lack of institutional support, lack of motivation, no solid foundation in research, heavy workload, and low institutional prestige, and lack of mentoring while Rosario and colleagues (2022) there are plans for research but due to heavy/overload and multiple designations, the plans are not executed.

Since lack of mentoring appeared to be one of the hindering factors, the faculty of higher learning must be trained to upgrade the quality of education through research productivity and output. For this reason, there is a need to develop a sound training manual to guide them in the process while venturing on the research realm.

Development and Validation of Research Training Manual for Tertiary Education Faculty

OBJECTIVES OF THE STUDY

This study aims to develop and check the validity of a research training manual for utilization of faculty in tertiary education particularly those who are novices in research activities. Likewise, this study will test the effectiveness of the developed research training manual among faculty members of higher education institutions.

METHODOLOGY

This study is focused on the development and validation of a research training manual for tertiary education faculty. The study is guided by the developmental and descriptive design of research. The developmental part focuses on the input, process, and output approach while the descriptive part focuses on the validation of faculty-researchers in one university. Inputs considered in the development of the research training manual include the salient features of research based on the competencies to be developed by higher education faculty. The process part includes the design and procedures to be followed on each training day. It also involved asking for feedback from 7 research experts in 3 selected universities in the country. The output portion is the developed and printed copy of the training manual given to the respondents for validation and further feedback.

Faculty-researchers who served as respondents of the study were purposively chosen by the researchers with the following criteria: a) respondents have been engaged in research in the past 3 years; b) respondents have at least 1 online research publication in local/international journals; c) respondents should be picked in the university where the output of the study will be utilized; d) respondents are willing to evaluate the developed training manual in 3 months. Considering the criteria, 20 faculty-researchers responded and expressed willingness to evaluate the training manual.

The respondents were asked to provide their validation on the developed research training manual as to the reflectivity of its characteristics concerning specific objectives, content, language used, and evaluation activities. The instrument has undergone validation by 5 research experts and reliability testing with the following results:

Table 1. Result of Reliability Testing

Parameter	Number of Items	Cronbach Alpha
Specific Objectives	5	0.913
Content	10	0.957
Language	5	0.954
Evaluation	10	0.963
Overall	30	0.947

An open-ended question also was given to the participants asking about their comments, suggestions, and recommendations on further improvement of the research training manual. Respondents (evaluators) were given three months to read the content of the manual and provide their evaluation and responses on the validity and suggestions for further improvement/enhancement. Collected data were statistically treatment using descriptive and non-parametric inferential treatment specifically, Kruskal-Wallis (H-Test).

The developed research training manual consists of 66 pages including the cover page and back page. It focuses on providing trainees with the salient features of research starting from the research problem up to research publication. Objectives of the training per day are given paired with the materials needed, and expected outputs before proceeding with the training proper. On each training day, a 1-hour discussion about the topic is to be given by an invited research expert while the training workshop will be facilitated by the researcher.

This training manual involves the process of identifying research problems, determining variables, constructing a research working title, gathering relevant literature, selecting appropriate research design and methodologies, and data analysis procedures for both qualitative and quantitative research. It also involves providing an interpretation of results, salient features of research presentation, guidelines for presentation in different fora, and publication guidelines. Examples in the training manual are provided from a layman's point of view for better understanding.



Figure 1. Sample Contents of the Developed Research Training Manual

RESULTS AND DISCUSSION

Table 2 shows the characteristics of the training manual for tertiary education faculty in terms of objectives of the module. Based on the evaluators, the training manual is accompanied by specific objectives (4.5) and words used are simple (4.65). They likewise provided positive responses on the measurability of the objectives presented in each topic of the manual (4.55). Similarly, respondents rated the objectives as realistic (4.45) and time-bounded (4.20). Overall, the respondents rated the specific objectives as ‘Highly Reflected’ (4.47). These results provide evidence that the training manual is crafted giving focus on the alignment of the topics to what is necessary for a faculty of higher learning to develop concerning their research function.

SMART objectives are important in any instructional materials to guide the intended users on what competencies should be acquired or developed that are aligned with the standard curriculum. A clear instructional objective should use precise language that is measurable by both lecturer and learners (Dooley, Linder & Dooley, 2005). According to Tekir and Akar (2019), the most striking mismatch between curriculum and policy and standards is attributed to the insufficiency of the objectives in the content materials used. Thus, the materials developed should have included a reasonable number of objectives to ensure the attainment of targeted competencies. Objectives should also encourage the higher level of thinking that involve analysis, synthesis (creation), and evaluation to enhance critical thinking of the learners (Gul, Kanwal, & Khan, 2020).

Table 2. Evaluation of the Respondents on the Characteristics of the Specific Objectives of the Research Training Manual

Characteristics of the Specific Objectives of the Manual	Weighted Mean	Verbal Interpretation	Rank
1. Each lesson in the module is accompanied by specific objectives.	4.50	Very Highly Reflected	3
2. The words used in the objectives are clear and easily understood	4.65	Very Highly Reflected	1
3. The specific objectives are realistic	4.45	Highly Reflected	4
4. The objectives are measurable	4.55	Very Highly Reflected	2
5. The specific objectives are attainable within a specified time limit.	4.20	Highly Reflected	5
AWM	4.47	Highly Reflected	

About the content of the manual, generally, identified characteristics were rated by the respondents as highly reflected (4.42). In particular, respondents strongly agreed that for each lesson, the most important aspect (competency) of what is being taught is very highly reflected (4.60). They also highly agreed about the accuracy of the presented examples (4.45). Likewise, the training manual is adequately presented (4.45), the lessons presented are aligned with the curriculum (4.45), and allows trainees to reflect and review (4.45). The training manual also provides a variety of activities and supplementary activities which are highly observed by the respondents in the evaluation. According to Anwar and Wahid. (2021), instructional strategies are important in order to engage learners in the learning process. In the same way, lacking of instructional strategies leads to insufficient learning opportunities.

This result indicates the respondents, being faculty researchers who published research, see the responsiveness of the training manual to what is needed by the faculty of higher learning when it comes to research. This further implies that in the lens of publishing faculty of higher learning, the contents of the developed training manual in research are acceptable and valid.

Addressing the needs of the faculty when it comes to research is crucial in writing the instructional manual since faculty have different needs and levels of competencies. Despite these differences, the contents of the training manual match what is needed for research competencies.

Table 3. Evaluation of the Respondents on the Characteristics of the Content of the Research Training Manual

Characteristics of the Content of the Manual	Weighted Mean	Verbal Interpretation	Rank
1. Each lesson reflects the most important aspects of what is being taught	4.60	Very Highly Reflected	1
2. The lessons are presented at a pace that allows for reflection and review	4.45	Highly Reflected	4
3. There is adequate provision for supplementary activities/exercises.	4.30	Highly Reflected	9
4. The content leads to the attainment of the objectives.	4.40	Highly Reflected	6
5. There is adequate presentation/discussion of content	4.45	Highly Reflected	4
6. The information about the different topics is accurate and precise	4.30	Highly Reflected	9
7. There is a variety of supplementary activities	4.30	Highly Reflected	9
8. The ideas, concepts, and points presented are well-expressed	4.35	Highly Reflected	7
9. The examples presented are current, accurate, and defensible	4.55	Very Highly Reflected	2
10. The lessons are aligned with the curriculum	4.45	Highly Reflected	4
AWM	4.42	Highly Reflected	

Language is one of the important characteristics of training manual. It guides the readers on what to do in each specific task to be performed. As vague instructions lead to confusion, language used in instructional materials should be clear and easy to understand. Table shows the characteristics of the training manual specifically the language used. In general, there is a very positive rating given by the respondents (4.45). Considering the use of grammar, respondents rated the training manual as ‘very high’ (4.55). Training manual also is accompanied by clear and specific directions that are easy to follow. It does not contain highly technical terms that make readers confused.

Table 4. Evaluation of the Respondents on the Characteristics of the Language Used in the Research Training Manual

Characteristics of Language Used	Weighted Mean	Verbal Interpretation	Rank
1. The words used in the module are correctly used.	4.50	Very Highly Reflected	2
2. The module is accompanied by clear and specific directions for their use.	4.40	Highly Reflected	4
3. The vocabulary used is suitable to the reading and understanding level of readers to whom the instructional material is intended	4.40	Highly Reflected	4
4. Instructions to students are clear, unambiguous, and easy to follow.	4.40	Highly Reflected	4
5. The lessons are presented in paragraphs/sentences that are grammatically correct	4.55	Very Highly Reflected	1
AWM	4.45	Highly Reflected	

As to the evaluation characteristics of the training manual, respondents provided a very high rating on the indicators, in general. This reveals that the evaluation tasks, and activities included in the training manual are suited to what should be measured as stated in the objectives of each topic/lesson in the manual. The tasks provided also in the training manual also encourage higher-order thinking skills of the reader/manual users. Results show that the evaluation activities included in the training manual respond on developing or enhancing the competencies of the trainees in research.

Evaluation of the learning levels of the learners/trainees is an important aspect that should be observed in any learning package/manuals. Providing higher order thinking skills activities/evaluation to the trainees will lead them to move steps deeper than the surface learning (Aziz, Yusof, & Yatim, 2012).

Table 5. Evaluation of the Respondents on the Characteristics of the Evaluation Activities in the Research Training Manual

Characteristics of Evaluation Activities	Weighted Mean	Verbal Interpretation	Rank
1. The module has a provision for self-assessment	4.40	Highly Reflected	8.5
2. The items help increase understanding and retention of the content covered	4.40	Highly Reflected	8.5
3. The items focus on important objectives and content of the lessons	4.50	Very Highly Reflected	6.5
4. The items in the evaluation are congruent with the specific objectives	4.55	Very Highly Reflected	3
5. There are items that measure higher thinking skills	4.55	Very Highly Reflected	3
6. The items are grammatically correct.	4.55	Very Highly Reflected	3
7. The items are arranged from easy to difficult	4.50	Very Highly Reflected	6.5
8. The test items are written at a level that readers can understand	4.55	Very Highly Reflected	3
9. The answer to one item furnishes or gives a clue to the answer to another item.	4.20	Highly Reflected	10
10. The items cover the important competencies to be developed	4.55	Very Highly Reflected	3
AWM	4.48	Highly Reflected	

Table 6 provides the analysis of significant differences in the characteristics of the training manual as evaluated by the respondents. Using Kruskal-Wallis H-Test the H-value of 0.23 and p-value of 0.972 suggest that the differences in the median are not significant. This means that the medians of each characteristic of the training manual as given by the respondents are the same for objectives, content, language, and evaluation. Thus, all characteristics of the training manual passed the validity test of the respondents.

Development and Validation of Research Training Manual for Tertiary Education Faculty

Table 6. Test of Difference on the Evaluation of the Respondents on the Different Characteristics of the Research Training Manual

Characteristics	N	Median	Ave. Rank	Z	H-value	P-value	Interpretation
Objectives	20	4.4	41.3	0.18	0.23	0.972	Medians are similar
Content	20	4.55	38.4	-0.47			
Language	20	4.6	41.5	0.22			
Evaluation	20	4.65	40.8	0.07			

Table 7 below shows the comments and recommendations of the evaluators on the developed training manual. As can be seen in the table, respondents found the training manual excellent, well-written, very interesting, and would be helpful to all researchers. Respondents also mentioned that the training manual is evidently useful particularly in motivating faculty members to engage more themselves in conducting research. Further, it is mentioned that the training manual is appropriate for beginners in research. A commendation was given also on the materials included, expected outputs, lesson proper, and suggested readings.

About the recommendations, an intensive discussion on the introduction of the different research types, and writing introduction to quantitative/qualitative research for both faculty and students of HEIs was given. It was also suggested to add more reinforcement activities for further understanding and application of the lessons included. Another recommendation is the provision of additional variety activities to intensify critical and analytical skills in data interpretation. Also, it was recommended to allow ample time to accomplish the task. Finally, respondents recommended the research training manual for utilization and for copyright application.

Table 7. Recommendations/Suggestions of the Respondents on the Research Training Manual

Recommendations/Comments
Make an explanation about the different types of research, It is suggested to make a manual on how to write an introduction to Quantitative and Qualitative Research for the HEI's faculty and Student
Better to apply this for copyright
Thank you for this research manual. Highly recommended po.
Excellent Manual
The manual is very helpful to all researchers
Variety of Activities
Very interesting
Training Manual are evidently useful on the part of faculty researchers for it motivates us to engage more in conducting researches.
It may include also some activity that may intensify the critical and analytical skill in interpreting data and result
The Training Manual is well-written.
This training manual is appropriate for beginners in research, I appreciate this because it indicates the Materials needed, expected outputs, lesson proper, suggested readings, however it is much better to add more reinforcement activity for more understanding and application of the lesson.
Allow plenty of time for each module
The training manual provided the salient topics needed to equip the beginner researcher in conceptualizing, conducting analysing and presenting research output.

CONCLUSION AND RECOMMENDATION

The developed training manual for research intended for the faculty of higher education is acceptable in all of its characteristics as to objectives, content, language, and evaluation and passed the critical evaluation of the faculty-researcher of the university. Since the research training manual was found acceptable and valid as evaluated by the university faculty researchers, the researcher recommends the use of the training manual to measure its effectiveness and implication to research productivity of faculty in higher education institutions.

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Development and Validation of Research Training Manual for Tertiary Education Faculty

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