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Instructors' Engagement or Non-Engagement in Research: Towards Construct Development

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Abstract

Teaching, community involvement, and conducting research are the three functions of higher education institutions (HEIs). This exploration aims to develop constructs of instructors' engagement or non-engagement in research as basis for developing a training framework. This study employed exploratory factor analysis. Eighty-four (84) instructors answered the questionnaires. The findings revealed four (4) factors of instructors' research engagement: administrative support, recognition and promotion, motivation, and institutional requirement. It further showed instructors' non-engagement in research could be due to four (4) factors such as time constraints, lack of experience and training, financial limitation, and lack of motivation. The scales have copious sampling adequacy and a high level of reliability. The instruments can be useful in assessing the level of instructors' engagement and non-engagement in research.

Key words: *research engagement, research non-engagement, exploratory factor analysis.*

Introduction

As one of the three functions of higher education institutions (HEIs), research enhances instructors' capability to conduct technology-directed and innovative/creative work. The principle task of institutions such as colleges and universities is to produce and circulate knowledge in different academic disciplines. Higher

Education Institutions play a significant role in developing and nurturing research culture among their instructors and people.

The CHED – Siliman University Zonal Research Center conducted the Research Capability of Higher Education Institutions and found out that: (1) there was low importance put on research concerning finance and further provision associated with the emphasis on instruction and extension service; (2) the superiority of research productions inspire investigators to publish in refereed or peer-reviewed periodicals and local papers; (3) several scholars plan to do research in out-of-date areas and shy away from the developing interdisciplinary, or practical ranges desirable for progress because many professors in the master's or doctoral degree programs do not have research background; and (4) there are lots of professors holding Master's and PhDs but their research productivity is low (Salom, 2013).

Teacher engagement in research is more likely when their work is characterized by the following: time for teachers to do research, resources, positive attitudes to teacher professional development, and an expectation that staff engages in professional development (Borg, 2013). The absence of external pressure, lack of time, and institutional support are considered to be crucial teachers' obstacles (Tabatabaei & Nazem, 2013).

Essential research abilities, such as creating data-gathering instruments, doing statistical work, and interpreting findings were hindrances to instructors' active involvement in research (Salom, 2013).

Lack of information resulting from poor access to electronic databases, e-journals, e-books, and lack of faculty mentorship remained of severe concern. Also, work environment as being unconducive to their research and professional growth (Mugimu, Nakabugo, & Katunguka, 2013).

Successful faculty performance in research is guided by a series of strategic decisions about what to research, how to conduct research, and how to obtain funding. Providing these opportunities in a manner that best enhances the skillful amalgamation of capabilities is the challenge of HEIs (Salom, 2013) and facilitating activities that include in-service teacher education would likewise appear to have a vital role (Borg, 2010).

Teaching is a multifaceted endeavor and some barriers such as attitudinal, theoretical, and technical also stop teachers from being engaged in research. An effective strategy to inspire faculty to actively engage into research is scholarly support from the administration (Montgomery & Smith, 2015).

Problem of Research

This study investigated the factors contributing to the engagement and non-engagement of the instructors in Higher Education Institutions (HEIs) in research. Bengo, Herrera, and Santos (2012) emphasized that facilitating research engagement includes administrative support, the time element, money matter, recognition, individual attributes, career advancement, team collaboration, topic, scope, and teacher's responsibility. Teachers are more likely to value research if given enough administrative support, time, money, and recognition in the context of their situation. On the one hand, money and recognition served as the teachers' motivational factors in pursuing research endeavors. Career advancement, individual attributes, team collaboration, topic, scope, and teacher responsibility were conceived to be contributory conditional factors in doing research.

Research Focus

This study intends to develop constructs of instructors' engagement or non-engagement in research. Furthermore, this study aims to determine the instructors' level of engagement and non-engagement in research and develop a research training framework for instructors.

Methodology of Research

Research Sample

Four (4) Research Directors and eighty-four (84) full-time tenured instructors working in the college for at least three years participated in this study. These participants came from the four sectarian colleges, namely Marian College, Saint Vincent College, Saint Columban College, and Collegio de San Francisco Xavier in Region IX- Zamboanga Peninsula, Philippines. Permission was sought from the four sectarian colleges to be the research participants of the study and it was followed by obtaining informed consent from the participants. Confidentiality of the data was observed to protect the integrity of the institution and recruitment of the participants was voluntary.

Research Instrument Development

The study employed the researcher questionnaire based on the transcript of the interviews of the four research directors. The verbatim interview transcript was used to generate data, formulate questions, and the scale. Statements were then constructed with their meanings. The items were grouped according to engage-

ment 35 questions and 32 items for non-engagement. Validation process involved six experts who analyzed each of the items. After the validation, only 34 questions for engagement and 28 questions for non-engagement in research were approved by the six experts. The questionnaire was given to 23 instructors of the Pagadian Capitol College (PCC).

Using Cronbach's alpha, Research Engagement Scale and the Non-Engagement Scale obtained 0.96 which confirm that the items of the proposed scales are highly reliable. The tools were used to measure the teachers' engagement in research. The psychometric properties of the instrument were established and found valid and reliable.

Results of Research

Validity Analysis of Instructors' Engagement in Research Scale (Phase 1)

Sampling Adequacy and Test of Sphericity. The appropriateness of statistics for factor examination was assessed. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy registers 0.733, indicating that the sum of partial correlations is small compared to the sum of connections. Hence the sample is adequate, and factor analysis is appropriate for the data set (Field, 2005).

Bartlett's measure revealed the approximate Chi-Square value of 1490.222 and a p-value of 0.000 indicating that there are some relationships between variables in the 34 questions included in the analysis, and therefore factor analysis is appropriate.

Construct Validity. By Kaiser's criterion, to extract four factors, the sample size must exceed 250; variables are less than 30; commonalities after extraction are higher than 0.70, and average communality is greater than 0.60. To support the number of factors extracted, there is a need to use the Scree plot. Figure 1 shows a point of inflection after the fourth factor; therefore, four factors were kept.

Psychometric Properties of the Four Factors of Instructors' Engagement in Research Scale. The results of the exploratory factor analysis of the 23 items (EFA) retained four factors for the variable research engagement. The 34 items of the scale were subjected to principal component analysis (PCA). The analysis yielded the removal of eleven (11) items as they have factor loadings below 0.50. All the variables retained register factor loadings higher than 0.50. The measure of sampling adequacy indicates that factor 1 (MSA = 0.842) has great sampling adequacy. Factor 2 (MSA = 0.762), factor 3 (MSA = 0.702), and factor 4 (MSA = 0.726) have good level of sampling adequacy. As to the reliability of each factor, Cronbach's

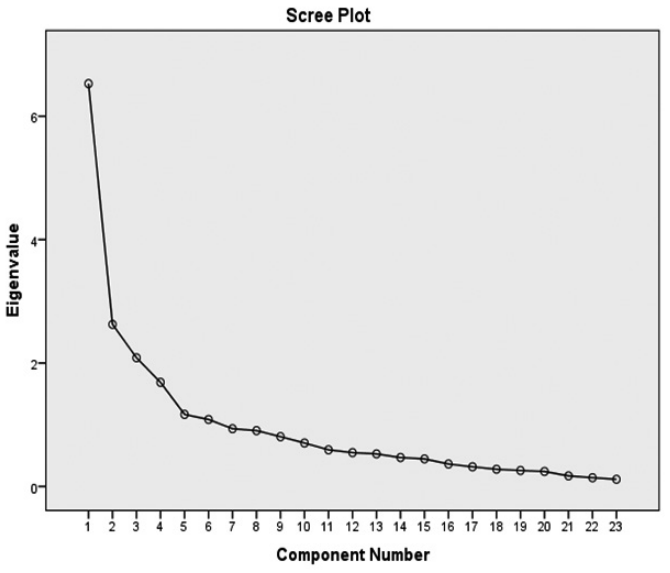

Figure 1. Scree Plot Indicating Suitability of Research Engagement having Four (4) Factors

alpha coefficients were computed. Factor 1 (α = 0.881), factor 2 (α = 0.798), factor 3 (α = 0.725), and factor 4 (α = 0.703) possessed high level of reliability. Hence, all constructs are considered valid and reliable. The scale is, therefore, an acceptable measure of instructors' engagement in research.

The Factors of Instructors' Engagement in Research Scale. Using the principal component analysis (PCA), four factors were extracted, retaining the variables with factor loadings with 0.50 and above. Out of 34 items, eleven items were deleted as they do not reach the factor loadings of 0.50. The twenty-three (23) items composed the four-factor scale namely: Factor 1 – Administrative Support (7 items), Factor 2 – Recognition and Promotion (7 items), Factor 3 – Motivation (5 items), and Factor 4 – Institutional Requirements (4 items). The items per construct, as well as the factor loadings, are presented in Table 1.

Factor 1 – Administrative Support. The teachers agreed that support from administration in various means was the topmost condition facilitating their research engagement. Support includes research budget, material resources and equipment, research facilities, and provision of research workshops and training

for teachers. Also, encouragement and moral support are seen to be vital to success in research.

Factor 2 – Recognition and Promotion. Teachers would take advantage of research when their effort is given due recognition. The teacher endeavor outcome will be satisfying when the research work is presented in a forum or convention as well as when included in a publication or citation. Similarly, teacher enthusiasm in research is increased when the institution grants them awards. Some teachers do research with the purpose of earning a degree, promotion, ranking, and academic growth, including improvement in their teaching practices.

Factor 3 – Motivation. The question of incentive and remuneration also goes beyond a division between teachers and researchers, or teaching and research. Many teachers want to conduct research to enhance their teaching performance and scholarship.

Factor 4 – Institutional Requirements. Conducting research should not be seen as something extra that teachers can do, which goes beyond their usual teaching but a responsibility once teachers are hired in the HEI.

Table 1. Item Loadings Per Component based on Rotated Component Matrix

Items	Factors / Indicators of Research Engagement Scale	Components			
		1	2	3	4
	Factor 1: Administrative Support				
Item 28	The College has approved budget allocated for research.	.844			
Item 10	Research Fund is allocated to priority areas.	.802			
Item 30	There is sufficient funding from the college for research.	.721			
Item 11	The school identified priority research areas for the research agenda.	.720			
Item 27	Instructors are required to produce institutional research.	.685			
Item 12	The college grants financial assistance.	.652			
Item 29	Research is one of the items in the College Improvement Plan.	.635			
	Factor 2: Recognition and Promotion				
Item 25	I know how to utilize online materials as sources of information.		.796		
Item 22	Research has been included in the criteria for ranking and promotion.		.710		
Item 24	I have some experiences in conducting research.		.694		

Items	Factors / Indicators of Research Engagement Scale	Components			
		1	2	3	4
Item 31	I desire for promotion in rank.		.632		
Item 18	I am allowed to conduct classroom-based research.		.582		
Item 17	Research outputs are requirements in ranking for promotions.		.576		
Item 16	Research is a major requirement in my graduate program.		.558		
	Factor 3: Motivation and Training				
Item 14	I am motivated to conduct research after attending a research forum.			.747	
Item 15	After a seminar, I am expected to produce research proposals.			.701	
Item 13	I am encouraged to present outputs in research conferences.			.654	
Item 5	Research is required of me as an instructor per the mandate of CHED.			.575	
Item 8	The college sent me to attend a seminar on research.			.510	
	Factor 4: Institutional Requirements				
Item 23	The College organized a research club for the exposure of students.				.715
Item 7	The college conducts seminars and training on research every semester.				.678
Item 2	I am required to submit proposal every semester/year for approval.				.672
Item 21	I am part of the team conducting government-funded research.				.612

Notes: Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
Rotation converged in 6 iterations.

Level of Instructors' Engagement in Research. The instructors' level of engagement in research was also assessed in this study. The overall results of Mean and Standard Deviation reveal that the instructors have a high level of research engagement *(M = 2.62; SD = 0.43)*. The findings imply that the instructors will be highly engaged in research if there is tremendous administrative support, recognition and promotion, motivation, and an institutional requirement.

As further revealed in the results, the factor administrative support posted high level of engagement *(M=2.68; SD= 0.62)*, which means that the instructors are

highly engaged in research because the college has sufficient funding for research. Regarding recognition and promotion, the factor posted descriptive results *(M=2.88; SD=0.58)* which reveals that instructors are highly engaged in research because their outputs are included in the criteria for ranking and promotion.

Motivation and training results (M = 2.58; SD = 0.55), showed that motivation and training are factors to be considered when discussing instructors' research engagement. Therefore, administrators should look into resources to send instructors to attend workshops and conferences related to conducting research. Moreover, institutional requirement obtained descriptive figures *(M = 2.34; SD = 0.62)* implicating that it could also be another factor that can highly motivate instructors to engage in research. As institutional requirement prescribed by the Commission on Higher Education (CHED). Administrators should include in the contract of teachers upon hiring that to do research is not only an institutional requirement but one of the three functions of HEIs as mandated by the Commission on Higher Education (CHED).

Validity Analysis of Instructors' Non-Engagement in Research Scale (Phase 2)

Sampling Adequacy and Test of Sphericity. In assessing the validity of the Instructors' Non-Engagement in Research Questionnaire, the suitability of data for factor analysis was evaluated. The results presented KMO value of 0.807 suggests that patterns of relationships are relatively compact that factor analysis yields decisive factors. Hence the sample is adequate, and factor analysis is appropriate for the data set (Field, 2005).

Further, Barlett's measure testing the null hypothesis supports that the original correlation matrix is an identity matrix. The Chi-Square value of 4615.695 and a p-value of 0.000, indicating that there are some relationships between variables included in the analysis, and therefore factor analysis is appropriate.

Construct Validity. Using Kaiser's criterion to extract four factors, the sample size must exceed 250; variables are less than 30; commonalities after extraction are greater than 0.7, and average communality is greater than 0.6. To support the number of factors to extract in this analysis, there is a need to use a scree plot. Figure 2 shows a point of inflection after the fifth factor; therefore, it is safe to keep four to five factors in this analysis.

Psychometric Properties of the Four Factors of Instructors' Non-Engagement in Research Scale. The results of the exploratory factor analysis of the 28 items (EFA), retaining four factors for the variable attitude toward paper advising. The 27 items of the scale were subjected to principal component analysis (PCA). The

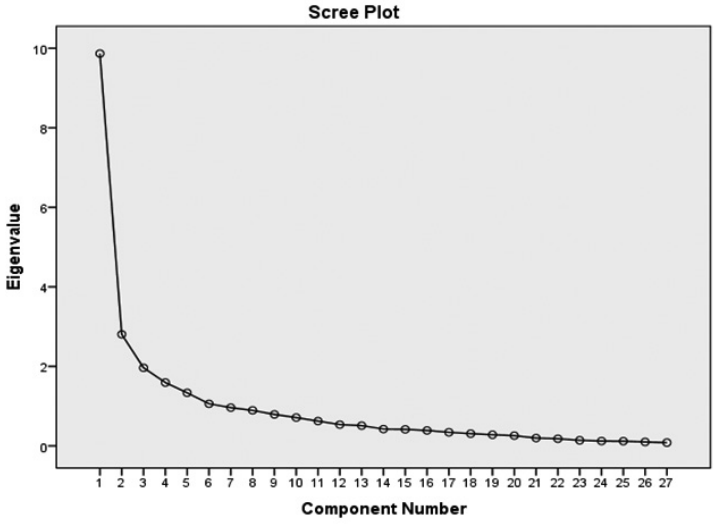

Figure 2. Scree Plot Indicating Suitability of Research Non-Engagement having Four (4) Factors

analysis yielded the removal of one item (item 9) as it has a factor loading of below 0.50. All the variables retained register factor loadings higher than 0.50. The measure of sampling adequacy indicates that factor 1 (MSA = 0.863), factor 2 (MSA = 0.850), and factor 3 (MSA = 0.848) have possessed great level of sampling adequacy level while factor 4 (MSA = 0.657) has mediocre sampling adequacy respectively. As to the reliability of each factor, Cronbach's alpha coefficients were computed. Factor 1 ($\alpha = 0.872$), factor 2 ($\alpha = 0.877$), factor 3 ($\alpha = 0.882$), and factor 4 ($\alpha = 0.749$) suggest that each construct has high level of reliability. All the constructs are considered valid and reliable. Therefore, the scale can be a good measure of instructors' non-engagement in research.

The Factors of Instructors' Non-Engagement in Research Scale. Table 2 shows the 27 items grouped into four (4) themes according to its rotation component matrix. Factor 1 – Time Constraint, Factor 2 – Lack of Experience and Training, and Factor 3 – Financial Limitations have both eight (8) items each and Factor 4 – Lack of Motivation has three (3) questions.

Factor 1 – Time Constraint. Investigators anticipate the time required for data collection and data analysis. It was revealed that the ability to do research depends mainly on the availability of time. As revealed, teachers have no time, due to the demands of being a teacher, responsibility at home, their children, and others.

Factor 2 – Lack of Experience and Training. Lack of skills and training on research was also perceived to contribute to research engagement. Researchers must have acquired specific skills to pursue a research study. Without the necessary skills, one would only see research as a burden or an additional task to be accomplished.

Factor 3 – Financial Limitations. The teachers also talked about money matters and revealed that money increases their willingness or motivation to conduct research, especially when additional income or high compensation will be given to them. Based on the interview of the research directors, three significant hindrances to research productivity including the lack of funds and a proper encouragement scheme, the lack of Ph.D. mentorship programs and incentives, and the competition for the time between undertaking research and teaching in private universities were observed.

Factor 4 – Lack of Motivation. As expected, younger individuals are more aggressive in many activities, including research. More inexperienced teachers are willing to engage in research if the administration shows support and encourages them to do research and give them fewer teaching loads. On the other hand, envy, favoritism, and intrigue are conditions which are believed to be detrimental to research engagement, especially when there are no clear institutional policies or rules presented for researcher selection.

Table 2. Item Loadings Per Component based on Rotated Component Matrix

Items	Factors / Indicators of Research Non-Engagement Scale	Components			
		1	2	3	4
	Factor 1: Time Constraint				
Item 20	Research is stressful or tiresome.	.825			
Item 13	I have no time for research.	.793			
Item 10	I lack perseverance in conducting research.	.748			
Item 28	I prefer to take extra teaching load rather than a research deloading.	.710			
Item 14	Research is expensive.	.636			
Item 11	I have more than four (4) teaching preparations a day.	.598			
Item 12	I am fully loaded of teaching jobs.	.561			
Item 17	I have no experience in conducting research.	.525			
	Factor 2: Lack of Experience and Training				
Item 2	References are limited regarding of specializations.		.813		

Items	Factors / Indicators of Research Non-Engagement Scale	Components			
		1	2	3	4
Item 3	The College research priorities are yet to be aligned with CHED research agenda.		.745		
Item 7	I am busy with curriculum revision in preparation for K-12.		.726		
Item 1	The College reference materials for research are inadequate.		.654		
Item 5	My research capability is yet at the developing stage.		.652		
Item 6	Research culture in the College is yet to be established.		.631		
Item 4	The research director is new and inexperienced.		.593		
Item 8	I need training in data analysis.		.555		
	Factor 3: Financial Limitation				
Item 23	The College has no budget for part time teachers to replace teacher-researchers.			.844	
Item 24	The College Administrators are not supportive to teacher-researchers.			.745	
Item 21	Staff in the research office is inadequate in number.			.669	
Item 19	Research financial assistance/incentive is not attractive.			.647	
Item 22	Research function is attached to another office, hence, less productive.			.627	
Item 25	Research funding of the College is limited.			.598	
Item 15	Small school cannot afford to finance research.			.578	
Item 16	No personnel in the research office to help me out.			.547	
	Factor 4: Lack of Motivation				
Item 27	Group research is discouraged, and I cannot do it all by myself.				.756
Item 26	Research is possible only for big schools.				.675
Item 18	The college research priorities are not yet set.				.512

Notes: Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 6 iterations.

Level of Instructors' Non-Engagement in Research. The instructors' level of non-engagement in research revealed an overall mean of 2.22 and a standard deviation of 0.60 showing low instructors' engagement in research activities in their respective colleges.

As to time constraint, instructors consider research as stressful and tiresome considering that they carry full and extra loads *(M=2.23; SD=0.57)*. Regarding experience and training *(M=2.22; SD=0.60)*, the instructors reveal that their engagement is low in research because they are yet developing their research capabilities, and their research director is new and inexperienced. Financial limitations *(M=2.18; SD=0.64)* were also a factor of instructors' low engagement in research. They say that research incentive is not attractive, and research finding of the college is limited. Lack of motivation *(M=2.21; SD=0.60)*, according to the instructors, also made them not to engage in researching. Group research is discouraged in their school, and research priorities are not set yet.

Discussion

The goal of this study is to develop constructs of instructors' engagement or non-engagement in research, determine the instructors' level of engagement and non-engagement in research, and develop research training framework. Instructors' engagement in research presented a four-factor scale namely: Factor 1 – Administrative Support, Factor 2 – Recognition and Promotion, Factor 3 – Motivation, and Factor 4 – Institutional Requirements. Administrative support includes research budget, material resources and equipment, research facilities, and provision of research workshops and training for teachers. When administrative support in various means is provided, it can facilitate teacher engagement in research (Bengo, Herrera, & Santos, 2012). Teachers would take advantage of research when their effort is given due recognition. Similarly, teacher enthusiasm in research is increased when the institution grants them awards. Many teachers want to conduct research to enhance their teaching performance and scholarship. Distinctive characteristics include the person's innate abilities (i.e., IQ, personality, and age) and personal environmental influences (Erdil, & Bilsel, 2005). Therefore, it should be realized that research is done so that knowledge may be generated, and that this knowledge may be shared so that it may produce even more info knowledge (Bengo et al.,2012). Moreover, doing research should be an integral part of instructors' duties as professionals because engaging in research is believed to be a teacher's responsibility (Scheibehenne, Greifeneder, & Todd, 2010).

Furthermore, instructors' non-engagement in research disclosed four (4) themes: Factor 1 – Time Constraint, Factor 2 – Lack of Experience and Training, Factor 3 – Financial Limitations, and Factor 4 – Lack of Motivation. Lack of time, skills, and training on research were perceived to be contributory to research

disengagement. The difficulty of being deficient of research capability or ability has an unforeseen outcome affecting further complications (Bengo et al., 2012). Research undertaken by instructors who are novice to research found out to be not so reliable and low validity (Amri, 2012). Conditions beyond faculty control both personal and contextual such as heavy teaching loads, inadequate funding, and poor remuneration undermined their potential to engage in active research agendas, hampered their research output as well as teaching (Mugimui et al.,2013).

The level of engagement of instructors in research is high. The findings indicate that the instructors are actively aware of their college instructors' responsibilities and that one of the tri-fold functions of the college is to engage in research. The level of instructors on non-engagement in the study is low. It indicates that the research participants have feelings of uncertainty in involving themselves in research. Therefore, necessary steps should be undertaken to boost their morale and actively engage themselves in research through a training framework designed for the colleges to use.

Based on the findings, the following ideas are expressed in this study: (a) The research training framework proposed herein is also recommended to be adopted by the colleges if they want to improve research productivity in their respective institutions. (b) University and college administrators are recommended to continuously motivate their teachers to conduct research. They can plan reward strategies that will be incorporated in the Faculty Handbook.

Proposed Instructors' Training Framework for Research Development. This training framework aims to improve the instructors' engagement in research based on the result of the present study. Research training framework is a process of staff development to improve the engagement of instructors in research with assigned job responsibilities. Promoting the specialized development of teachers is the primary goal of this framework.

Goals. Following the Republic Act 7722 otherwise known as the Higher Education Act of 1994, the Commission on Higher Education (CHED) through its mandate, has long been requiring all higher education institutions throughout the country to establish research program and have the vision and mission of the colleges which will benefit from this training program, and the guidelines set by the Commission on Higher Education, the Establishment of Research & Development (R&D) Centers. The R&D Centers are prepared to help CHED in promoting higher education research and bringing nearer the support essential to strengthen research and development functions of HEIs.

A. Enabling the instructors to overcome their non-engagement in research due to time constraint by following necessary steps in time management;

B. Equipping the instructors with the essential background in researching to make them actively engage in research. Instructors will be provided with the technical-know-how and guidelines for writing and publishing a research output. The seminar-workshop will give special attention to problems and challenges related;
C. Conduct of research capability building seminar-workshop to solve the low level and interest of instructors in research. Capability training should include but not be limited to: the research agenda, identification of research problems, research format, etc.;
D. Developing a clear understanding of the change to which the instructor or college and the college's research program is hoping to contribute to better design, implementation, and evaluation.
E. Develop research-friendly environment: and examine the incentives and constraints influencing the production of high-quality research and its use by policymakers, especially the Commission on Higher Education Research Agenda and the National Higher Education Research Agenda (NHERA – 2).

Conclusions

The study provides a scale to measure teachers' engagement and non-engagement in research. Based on the Cronbach's alpha coefficients results, the tools in both Instructors' Engagement and Non-Engagement in Research possessed a very high level of reliability and construct validity. Therefore, the instrument can be useful in assessing the level of instructors' engagement and non-engagement in research. It can be utilized by the research directors, vice presidents for administration and academics, dean of graduate schools, CHED personnel, researchers, and instructors in assessing the levels of both the instructors' engagement and non-engagement in research. It is suggested that the newly developed scale be retested for confirmatory factor analysis to validate the items further.

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