

ATTITUDES TOWARDS RESEARCH OF TEACHER EDUCATION STUDENTS AT PALAWAN STATE UNIVERSITY – PUERTO PRINCESA

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ABSTRACT

Palawan State University – Puerto Princesa (PSU) is one of the biggest teacher education institutions in Palawan, Philippines. With the ultimate goal of enhancing the research competence of its teacher education students, this cross-sectional explanatory study sought to determine the attitudes towards research of its teacher education students and determine how their attitude factors might vary across demographic variables gender, year level, program of study, and type of high school curriculum. The Attitudes towards Research (ATR) Scale developed by Papanastasiou (2005) was adopted to determine the attitudes of 397 teacher education students enrolled at PSU during the first semester of School Year 2019-2020. Descriptive statistics, Pearson correlation, and multivariate analysis of variance (MANOVA) were used for data analyses. Results revealed that PSU teacher education students have a relatively positive attitude towards research and perceive research as useful for their profession and relevant to their lives. However, most of them experienced difficulty and anxiety in research. These attitudes of PSU teacher education students towards research do not significantly vary across gender, program of study, year level, and type of high school curriculum. It is recommended that the results of this study be considered when planning instruction or conducting intervention programs that will improve students' attitudes towards research. Factors influencing students' attitudes towards research and how their attitudes could be improved should also be explored.

Keywords: Attitudes towards research, teacher education students, cross-sectional explanatory research, Palawan State University

INTRODUCTION

In order to improve teaching-learning and decision-making processes in school, teachers and school administrators are encouraged to conduct researches. In the Philippine basic education context, the Department of Education (DepEd) has made several initiatives to promote and sustain research culture among elementary and secondary schools in the country (DepEd, 2017). These initiatives include, but not limited to, provision of financial support to the conduct of research in the field, promulgation of Basic

Education Research Agenda (BERA), and establishment of a framework for the management of research initiatives at all levels of governance. However, the intention of teachers to conduct research may be influenced by different factors including their attitudes towards the conduct of research. According to Nasser-Abu Alhija and Majdob (2017), teachers with more positive attitudes towards research tend to have higher levels of research productivity. Hence, determining the attitudes

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MARAVILLA, MC.A.D., *Attitudes towards Research of Teacher Education Students at Palawan State University – Puerto Princesa*, pp. 37 - 44

towards research of teachers, both pre-service and in-service teachers, is necessary to help them develop positive view of research and enhance their research productivity in the field. Palawan State University – Puerto Princesa (PSU), originally established as Palawan Teachers' College in 1965, is one of the major producers of elementary and high school teachers, particularly in Palawan, Philippines. In order for it to produce research-competent and -productive teachers, its research training for its students has to be enhanced or maintained. It has to foster positive attitudes towards research among its students for it to better facilitate their learning about research and enhance their competence. This cross-sectional explanatory study aimed to determine the attitudes towards research of teacher education students at PSU. Using the attitude scale developed by Papanastasiou (2005), it identified the students' five attitude factors: research usefulness for profession; research anxiety; positive attitudes toward research; relevance to life; and research difficulty. In this study, the research attitudes of the students were related to several variables: gender, year level, program of study, and type of high school curriculum. Gender and year level have always been explored in several studies for their possible association to students' attitudes (Shaukat & Abiodullah, 2014; Siamian et al., 2016; Vossen et al., 2018). The program of study was investigated because each program was assumed to entail different inclinations and interests. In PSU, three teacher education programs are offered: Bachelor of Elementary Education (BEEd); Bachelor of Secondary Education (BSEd) majors in Filipino, Mathematics, Science, Values Education, Social Studies, English, and MAPEH; and Bachelor of Physical Education (BPEd). The type of high school curriculum of teacher education students was included because their population was a mixture of K-12 graduates (first and second year) and non-K12 graduates (third and fourth year). K-12 graduates had several research subjects in their senior high school, and thus, expected to demonstrate a difference in terms of attitudes towards research. Results of this study added to

the growing knowledge on students' attitudes towards research. These results may be useful in designing instruction or intervention that enhances teacher education students' attitudes towards research, particularly at PSU – Puerto Princesa.

OBJECTIVES OF THE STUDY

The purpose of this study was to investigate the attitudes towards research of teacher education students at PSU – Puerto Princesa. Specifically, this study aimed to: (1) assess the attitude towards research of PSU teacher education students in terms of the factors (Papanastasiou, 2005) research usefulness for profession, research anxiety, positive attitudes toward research, relevance to life, and research difficulty; (2) determine whether there is a significant relationship among the five factors of PSU teacher education students' attitude towards research; and (3) determine whether there is a significant difference in the PSU teacher education students' attitudes towards research in terms of gender (male or female), year level (first year to fourth year), program of study (BEEd, BPEd, and BSEd) and type of high school curriculum (NonK-12 or K-12).

METHODOLOGY

This study employed cross-sectional explanatory research design. It utilized self-report survey as its primary method of gathering data. This methodology is particularly appropriate when obtaining current statistics of a large population in a short period of time. The population of the study consisted of 505 teacher education students enrolled at PSU in the first semester of School Year 2019-2020. The entire population was targeted to be participants in the study. However, due to factors such as students' absence on the day of data gathering and students' implicit refusal to participate, only 401 students were sampled. From this number of students, four cases were judiciously removed for having doubtful accuracy. Thus, the total

sample size was reduced to 397 (78.61 percent). The Attitudes towards Research (ATR) Scale developed by Papanastasiou (2005) was used as an instrument to determine the attitudes of PSU teacher education students. This instrument consists of 32 statements on different aspects of research. Participants responded to each statement using a 7-point Likert scale. Five attitude factors were measured: (1), research usefulness for profession (9 items); (2), research anxiety (8 items); (3), positive attitudes toward research (8 items); (4), relevance to life (4 items); and (5), research difficulty (3 items). As reported in the original study, the ATR scale has high reliability ($r=0.948$). The coefficient alpha reliabilities for factors 1 to 5 were 0.919, 0.918, 0.929, 0.767, and 0.711, respectively. However, it is noted that the word “arithmetic” in item 11 in the original instrument was changed to “statistics” as it was deemed to be more appropriate in the study context. The survey was conducted on October 21 to 30, 2019 at the PSU College of Teacher Education. Before the conduct of the survey, a written permission from the College Dean was obtained. To ensure the accuracy of students’ responses, the survey was done during lessons and a clear instruction was given before the students started answering. To increase the response rate and give each respondent a chance to participate, the survey period was extended for days following-up those classes which had incomplete returned questionnaires. Before statistical analyses were done, the data were examined and transformed. The items 1, 6, 7, 16, 18, 23, 25, 26, 28, and 32 (research anxiety) and items 9, 10, 11 (research difficulty) were recoded into opposite direction. Some items which were not answered by the respondents were imputed with the mean score of the population for each item. The percentage of missing cases per item was relatively small, ranging from 0.00 to 3.02 percent with mode = 0.5 percent. To obtain the attitude towards research of teacher education students, the mean and standard deviation of each ATR factor were computed. The significant correlation among these factors was determined using Pearson correlation coefficient. To assess

whether these factors differ significantly across gender, year level, program of study, and type of high school curriculum of the respondents, multivariate analysis of variance (MANOVA) was used. MANOVA is a group difference method which can identify which and how one or more categorical independent variables differ, and on which two or more continuous dependent variables (Harlow, 2014 p. 106). The level of significance for all hypothesis testing was set at $\alpha = 0.05$. All analyses were conducted using the Microsoft Excel and Statistical Package for Social Sciences (SPSS) software.

RESULTS AND DISCUSSION

This section presents, interprets, and discusses the results obtained in this study.

1. Attitudes towards Research of PSU Teacher Education Students

The mean and standard deviation of each ATR factor of PSU teacher education students are provided in Table 1.

Table 1
Attitudes towards Research of PSU Teacher Education Students (n=397)

ATR factors	M	SD
F1: Research usefulness	5.89	0.84
F2: Research anxiety	3.48	1.01
F3: Positive attitudes	4.97	1.03
F4: Relevance to life	5.14	1.06
F5: Research difficulty	3.87	1.20

Mean value >4 indicates positive attitude; mean value <4 indicates negative attitude. Items in factors 2 and 5 were recoded such that the higher the respondents’ scores in these factors, the less anxiety or difficulty in research the respondents experience.

As shown in Table 1, teacher education students had a positive score in factors 1, 3, and 4. This indicates that teacher education students generally had positive attitudes towards research, and perceived research as useful for their profession and relevant to their lives. On the other hand, they scored negatively in factors 2 and 5. This means that most of them also experienced difficulty and anxiety in research.



The results of factors 2 and 3 seemed odd as students who scored higher in research anxiety (less anxious) were expected to score higher also in the positivity of attitudes towards research. However, upon scrutiny of the questions in the two factors, it was hypothesized that some items in the two factors were not totally

contrasting. For example, students may perceive that research is complicated (factor 2), yet they may still be interested in research (factor 3). Nevertheless, factors 2 and 3 still demonstrated significant positive relationship as shown in Table 2.

2. Relationship among PSU Teacher Education Students' ATR Factors

The Pearson correlation coefficients of PSU teacher education students' ATR factors are shown in Table 2.

Table 2
Pearson Correlation of PSU Teacher Education Students' ATR Factors

ATR factors	F1: Research usefulness	F2: Research anxiety	F3: Positive attitudes	F4: Relevance to life
F2: Research anxiety	.004			
F3: Positive attitudes	.620**	.270**		
F4: Relevance to life	.490**	.192**	.476**	
F5: Research difficulty	-.013	.514**	.144**	.121*

** . Correlation is significant at the 0.01 level (2-tailed)
* . Correlation is significant at the 0.05 level (2-tailed)

As shown in Table 2, there was a significantly moderate to high correlation among factors 1, 3, and 4, and a significantly high correlation between factors 2 and 5. Moreover, it can be observed that factors 2 and 5 were weakly correlated with other factors 1, 3, and 4. These results indicated that students who perceived usefulness of research to their profession and relevance of research to their lives tended to have positive attitudes toward research; while students who experienced

difficulty in research tended to experience anxiety about research too. However, it was interesting to note that students' perception of research usefulness to profession and life was weakly associated with their perceived difficulty and anxiety in research. This implies that students' perceived difficulty and anxiety in research did not hamper them from seeing its relevance and usefulness to their lives and profession.

3. PSU Teacher Education Students' Research Attitudes across Variable

To determine whether PSU teacher education students' attitudes towards research significantly differ across independent variables gender, program of study, year level, and type of high school curriculum, MANOVA was conducted. However, prior to MANOVA, preliminary analyses were performed. To

determine multivariate outliers, Mahalanobis Distances were computed for the five dependent variables and compared to a Chi-Square distribution with the same degrees of freedom. Five cases with probability value less than 0.001 were removed. Shapiro-Wilk Test was used to test the normality of each dependent variable for



each independent variable. Results showed that only few of the dependent variables were normally distributed ($p>0.05$) for each level of independent variables. However, the univariate skewness values of the variables were less than 11.01 and the kurtosis values were no more than 2.0, thus normality could still be safely assumed among dependent variables (Harlow, 2014 pp. 112-113). Based on the results of Pearson correlation among five dependent variables, collinearity did not seem to be a problem as all of the correlations were less than 0.62. Analysis of scatterplots among five dependent variables

indicated that linearity assumption was probably upheld for these variables. Box's test of equality of covariance revealed that homoscedasticity in the dependent variables was present [$F(180, 20839.921) = 1.081, p=0.219$]. However, follow-up Levene's test of equality of error variances revealed that heteroscedasticity might be present in usefulness of research for profession and positive attitudes toward research ($p<0.05$). Thus, Pillai's Trace was selected to evaluate MANOVA *F-test* as it is more robust against violations of assumptions than the other criteria.

3.1. Main Effects

The main effects of each independent variable gender, program of study, year level, and type of high school curriculum to each attitude factor are discussed below. However, it is noted that not all respondents were included in the analysis of some variables. This was because some respondents missed or opted not to identify some of these demographic variables.

3.1.1. Gender. Male and female students did not significantly differ when jointly considered on five ATR factors, Pillai's Trace = 0.02, $F(5, 356) = 1.27, p = 0.28$, partial $\eta^2 = 0.02$. A separate ANOVA conducted also showed no significant differences ($p\geq 0.05$) on ATR factors across gender as shown in Table 3. This may imply that the attitudes towards research of PSU teacher education students were not dependent on their genders

Table 3
ANOVA Results for ATR Factors between Genders

Factors	Gender				ANOVA	
	Male (n=109)		Female (n=274)		F	p
	M	SD	M	SD		
F1: Research usefulness	5.84	0.74	5.96	0.78	1.21	0.27
F2: Research anxiety	3.50	0.92	3.48	1.03	0.14	0.71
F3: Positive attitudes	5.04	0.98	4.99	1.00	0.50	0.48
F4: Relevance to life	5.00	1.07	5.25	1.05	1.35	0.25
F5: Research difficulty	3.79	1.09	3.94	1.22	0.02	0.89

Mean value >4 indicates positive attitude; mean value <4 indicates negative attitude. Items in factors 2 and 5 were recoded such that the higher the respondents' scores in these factors, the less anxiety or difficulty in research the respondents experience.

3.1.2. Program of Study. The BEEd, BPEd, and BSEd programs did not significantly differ when jointly considered on five ATR factors, Pillai's Trace = 0.04, $F(10, 714) = 1.45, p = 0.15$, partial $\eta^2 = 0.02$. A separate ANOVA conducted also showed no significant

differences ($p\geq 0.05$) on ATR factors across programs of study as shown in Table 4. This may imply that PSU teacher education students' attitudes towards research did not vary with respect to their programs.



Table 4
ANOVA Results for ATR Factors across Programs of Study

Factors	Program						ANOVA	
	BEEd (n=162)		BPEd (n=38)		BSEd (n=192)		F	p
	M	SD	M	SD	M	SD		
F1: Research usefulness	5.92	0.69	5.81	0.87	5.96	0.80	1.70	0.18
F2: Research anxiety	3.29	1.00	3.68	0.92	3.58	1.00	1.91	0.15
F3: Positive attitudes	4.96	0.91	4.76	0.93	5.08	1.07	1.14	0.32
F4: Relevance to life	5.17	0.98	4.82	1.10	5.22	1.10	3.02	0.05
F5: Research difficulty	3.59	1.10	3.92	1.14	4.12	1.20	2.64	0.07

Mean value >4 indicates positive attitude; mean value <4 indicates negative attitude. Items in factors 2 and 5 were recoded such that the higher the respondents' scores in these factors, the less anxiety or difficulty in research the respondents experience.

3.1.3. Year Level. Students from first year to fourth year did not significantly differ when jointly considered on five ATR factors, Pillai's Trace = 0.04, $F(15, 1074) = 1.04$, $p = 0.41$, partial $\eta^2 = 0.01$. A separate ANOVA conducted also showed no significant differences ($p \geq 0.05$)

on ATR factors across year levels as shown in Table 5. This may imply that PSU teacher education students' attitudes towards research may be comparable across year levels.

Table 5
ANOVA Results for ATR Factors across Year Levels

Factors	Year Level								ANOVA	
	First (n=205)		Second (n=130)		Third (n=22)		Fourth (n=35)		F	p
	M	SD	M	SD	M	SD	M	SD		
F1: Research usefulness	5.84	0.80	6.03	0.73	6.05	0.62	6.01	0.74	0.41	0.74
F2: Research anxiety	3.58	0.99	3.31	1.02	3.43	1.05	3.46	0.92	2.30	0.08
F3: Positive attitudes	4.93	1.03	5.03	1.00	5.05	0.71	5.28	0.90	0.45	0.72
F4: Relevance to life	5.05	1.09	5.33	1.01	5.16	0.95	5.16	1.01	1.27	0.28
F5: Research difficulty	4.06	1.22	3.67	1.15	3.80	1.15	3.67	0.89	0.99	0.40

Mean value >4 indicates positive attitude; mean value <4 indicates negative attitude. Items in factors 2 and 5 were recoded such that the higher the respondents' scores in these factors, the less anxiety or difficulty in research the respondents experience.

3.1.4. Type of High School Curriculum. The non-K-12 and K-12 graduates did not significantly differ when considered jointly on five ATR factors, Pillai's Trace = 0.02, $F(5, 356) = 1.11$, $p = 0.35$, partial $\eta^2 = 0.02$. A separate ANOVA conducted also showed no significant

differences ($p \geq 0.05$) on ATR factors across types of high school curriculum as shown in Table 6. This may imply that the K-12 curriculum did not significantly influence students' attitudes towards research.

Table 6
ANOVA Results for ATR Factors between Types of High School Curriculum

Factors	Type of High School Curriculum				ANOVA	
	NonK-12 (n=69)		K-12 (n=323)		F	p
	M	SD	M	SD		
F1: Research usefulness	6.03	0.71	5.91	0.78	0.83	0.36
F2: Research anxiety	3.47	0.96	3.47	1.01	0.61	0.44
F3: Positive attitudes	5.19	0.88	4.96	1.01	1.07	0.30
F4: Relevance to life	5.07	1.00	5.18	1.07	0.51	0.48
F5: Research difficulty	3.65	1.00	3.93	1.21	0.58	0.45

Mean value >4 indicates positive attitude; mean value <4 indicates negative attitude. Items in factors 2 and 5 were recoded such that the higher the respondents' scores in these factors, the less anxiety or difficulty in research the respondents experience.

3.2. Interaction Effects

The interaction effects among independent variables were also examined. Results showed that the interactions among independent variables (gender, program of study, year level, and type of high school curriculum) were also not significant for any ATR factors based on Pillai's Trace criterion ($p > 0.05$).

CONCLUSION

Based on the results, the following conclusions are derived.

1. The PSU teacher education students have a relatively positive attitude towards research, and perceive research as useful for their profession and relevant to their lives. Further, most of them moderately experience difficulty and anxiety in research.
2. Students who perceive usefulness of research to their profession and relevance of research to their lives tend to have positive attitudes toward research; while students who experience difficulty in research tend to experience anxiety about research. However, the students' perception of research usefulness to profession and life is weakly associated with their perceived difficulty and anxiety in research.
3. The main and interaction effects of each independent variable gender, program of study, year level, and type of high school curriculum are not significant to any attitude factors of PSU teacher education students, indicating that their attitudes towards research are not influenced by these variables.

RECOMMENDATIONS

Based on the foregoing conclusions, the following recommendations are offered.

1. The future research teachers of these students, particularly the first year and second year students this year who are still to take research courses in their curricula, may consider the results of this study to better facilitate their students' learning in research courses. They may capitalize on the positive attitudes of their students while addressing their students' anxieties and difficulties in research.
2. The College of Teacher Education at PSU may conduct an intervention program that would enhance students' attitudes towards research across year levels and degree programs. However, the actual research competency of their students may also be assessed to better understand how the program should be done.
3. The future researchers may further determine the various factors that affect the students' attitudes towards research and/or how their attitudes could be improved.

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