Impact of Self - Esteem on Self - Concept in Mathematics among Pre Service Teachers in Selected Higher Education in Zamboanga City

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CHAPTER I

Abstract

Various researches have shown the importance of enhancing self–esteem with several cognitive factors, such as self–concept. Several studies also revealed a strong causal relationship between self–esteem and self–concept in Mathematics. However, none or little has been known how self – esteem can affect self–concept in Mathematics among pre-service teachers. As future educators, developing positive self – esteem and positive self – concept in Mathematics during the pre-service teaching period are encouraged since learning Mathematics provides foundational knowledge in teaching other school subjects, such as Engineering, Science, Art, Music, and Electronics and various fields and disciplines. This study therefore, investigated the impact of self–esteem on the self-concept in Mathematics among pre-service teachers. Three research questions and one hypothesis guided this study. This utilized descriptive survey design and data were obtained online thru Google Forms. A sample of 135 pre-service teachers from a selected university in Zamboanga City was chosen randomly through proportionate and systematic sampling procedures. This study adapted Math – Specific Self-Esteem questionnaire by Reyna (2000) and the Self-Description Questionnaire by Marsh, et. al (1985). This was validated by the research instructor and subject matter experts, and both attained acceptable reliability coefficients during the pilot testing based on the computed Cronbach's alpha. Frequency tables, mean, standard deviation, Pearson – r correlation were utilized to analyse the data. Findings revealed that pre-service teachers had moderate self-esteem and self–concept level. Results also showed that there was a significant positive correlation between the two variables. This study recommends that

math teachers in higher education create learning activities that can foster positive self–esteem and self-concept in Mathematics among pre-service teachers.

CHAPTER II

INTRODUCTION

In order to improve teaching-learning and decision-making processes in school, teachers and school administrators are encouraged to conduct researches. Teachers, Parents, and administrators are commonly concerned about self-esteem; through self-esteem, pre-service teachers will have the benefits and disadvantages of teaching soon. Self-esteem is an apex part of success (Christou et al.2001), it will help them build the self-concept that they needed to deliver any topics properly with confidence, and through self-esteem, it will build up well-trained teachers. Pre-service teachers teach Math among College students preparing to become teachers and embrace feelings, emotions, and self-esteem.

Many researchers over eras emphasized the need for self-esteem as a fundamental aspect of life; the notable researcher, psychologist and academic, Albert Bandura has set forth the significance of self-esteem in his social cognitive psychology theory. Self-esteem, known as self-respect, is the confidence of a student in one's value or abilities. In, the term self-esteem is describing the emotional and cognitive evaluation of our worth. It also has to do with people's emotions that follow from their sense of worthiness or unworthiness. According to Martinez et al. (1982) in a meta-analysis of 202,823 individuals across 128 studies examined the relationship between self-measures (e.g.., self-concept, self-esteem, self-attitude, and self-regard) and standards of performance. Their result showed a low correlation between self-concept and understanding and a negative relationship between mathematics intelligence measures. Duke and Martinez (1994) found a multidimensional characteristic within self-esteem. This study showed a minority status does not affect self-esteem, but it involves a specific

self-concept and success. The prominence of self-concept lies in the significant role it plays in character formation. According to Musitu,et al.(1994), Self-concept is understood as the notion a person has of him/herself, based on experiences with others and on how individuals assess their one's behaviour. In particular, this study aims to excavate the type of educational system and the numerous lifespan spent in teacher education programs on pre-service teacher's mathematics and mathematical self-esteem and mathematical self-concept. Many learners are not confident about their mathematical ability to solve problems. A poor attitude toward the discipline is thought to plague learners at every level of schooling. The fear of both answering mathematical questions in class and/or taking mathematical tests has been studied by Tobias (1978), Kelly and Tomhave (1985) and Stodolsky (1985) and often escalates to a level termed mathematics anxiety. Individuals with poor attitudes toward mathematics are often reported to have a low self-concept and feelings of incompetence. These attitudes are manifested as self-deprecating remarks and a perpetual lack of success in mathematics (Tobias, 1978) even though "self-evaluation and anxiety levels are not realistic assessments of their ability" (Gourgey, 1984, p. 15).

Objective of the Study

This study aims to determine the relationship between the Self-Esteem and Self-Concept of the pre service teachers of the College of Teacher Education of Zamboanga Peninsula Polytechnic State University. Specifically, this study seeks to answer the following questions: (1) what is the profile the pre-service teachers of the College of Teacher Education of Zamboanga Peninsula Polytechnic State University. In terms of, (a)Sex,(b)Course and (c) Major,(d)Age. Duke and Martinez (1994) found a multidimensional characteristic within self-esteem. (2)What is the level of self-esteem in mathematics of Pre-service teachers in terms of: (I) Grade Information (II) Academic Characteristics (III) Mathematics Experience (IV) Attitudes in mathematics (V) Human Influences (VI) Teacher Experience (VII) Self-Motivation Relationship between academic achievement, academic performance and self-esteem at a public school by Amy L. Hall (2007) (3) what is the level of Self-Concept in mathematics of the Pre-Service Teachers? (4) Is there a significant relationship between self-esteem and self-concept in mathematics among pre-service teachers.

Methodology

In our study, we used a quantitative design with cross-sectional surveys as the research method. Cross-sectional surveys are observational studies in which the study wants to gather data from a subset of the target population at a specific point in time. At any given time, researchers will test a variety of variables. The purpose of these studies is to assess the current situation; they aim to determine the variance or the conditions that explain the change. Cross-sectional studies are easy in structure. The researcher takes a cross-section of the population (a sample) studies it at one time to find the prevalence of a situation {2019}. Cross-sectional studies are systematic studies that look at data from a group of people at one point in time. They are often used to assess the prevalence of health outcomes, comprehend health determinants, and identify population characteristics. Cross-sectional studies, unlike other forms of retrospective studies, do not monitor individuals over time. 'Wang & Cheng 2020' is a project by Wang and Cheng. It will be conducted through a Google form due to the health protocols to be followed by the schools due to the Covid-19 Pandemic. And it will be collected through the use of the internet because we can't follow the standard procedure due to the situation we are in. Cross-sectional studies are systematic studies that look at data from a group of people at one point in time. They are often used to assess the prevalence of health outcomes, comprehend health determinants, and identify population characteristics. Cross-sectional studies, unlike other forms of retrospective studies, do not monitor individuals over time. 'Wang & Cheng 2020' is a project by Wang and Cheng.

Study Participants

The population that we are conducting is in the Zamboanga Peninsula Polytechnic State University within the College of Teacher Education. To be followed by our student through 1st year and 4th year Pre service teacher.

Courses in CTE	First year	Second year	Third year	Fourth Year	Total
BEED	3	14	7	6	30
BTLED	13	12	7		32
BTVLED	3	7	10		20
BSED-MATH	4	6	6		16
BSED-TLE				2	2
BPED/ BSED-MAPEH	8	3	6	18	35
Total	31	42	36	26	135

Sampling Procedure

Stratified Sampling/Systematic Sampling

Course in CTE	N	%	n
BEED	265	23.33	30
BTLED/BSED-TLE	206	18.13	34
BTVTED/BTTE	295	25.97	28
BSED-MATH	116	10.21	16
BPED/BSED-MAPEH	254	22.36	36
Total	1136	100	135

CHAPTER IV

RESULTS AND DISCUSSION

Our study result came from a respondent in Zamboanga Peninsula Polytechnic State College using a cross-sectional survey due to the pandemic situation. We deliver the survey form through the use of online with the platform of Google form application. Stratified sampling is our basis for handling the respondent within the College of Teacher education in Zamboanga Peninsula Polytechnic State College.

Research Problem 1: What is the profile of the respondents in terms of Sex, Age, Course and Year Level?

Table 1

Frequency Distribution of Respondents in terms of Sex and Age

Variable	f	%
Sex		
Male	43	31.85
Female	92	68.1
Total	135	100
Age		
18 – 22	98	72.59
23 – 27	31	22.96
28 – 32	5	3.70
33 – 37	1	0.74

Our overall participants are over 135 students within the College of teacher education while finding a respondent using stratified sampling. Most are respondents came from the

female, with 92 respondents and 43 for male and while in the age group our respondent

mostly came from an 18 to 22-year-old category with a 98 out of it while the least came

from the sort of 33-37 years old with 1 respondent.

Table 2

Frequency Distribution of Respondents in terms of Year Level

Year Level	f	%
First	31	22.96
Second	49	36.29
Third	29	21.48
Fourth	26	19.25

The distribution of year level our respondent mostly came from the second year with a 49

while the least is the third year with 29.

Table 3

Frequency Distribution of Respondents in terms of Course

Course	f	%
BEED	30	22.22
BSED-MATH	16	11.85
BPED	35	25.92
BTVTED	20	14.81
BTLED	34	25.18

The distribution of the course level is the BPED has the most respondent with 35 respondents while the least is in the BSED-MATH has 16 respondents.

Research Problem 2: What is the level of Metacognitive Knowledge of strategies of the pre service teachers in mathematics in terms of:

I. Grade Information

Statements	(5)	(4)	(3)	(2)	(1)	(5)+(4)	(3)	(2)+(1)
GI1	2	25	88	18	2	27	88	20
GI2	2	25	90	17	1	27	90	18

Legend: Strongly Disagree (1); Disagree (2); Neutral (3); Agree (4); Strongly Agree (5)

The table above shows that the respondents mostly answered Neutral.

II. Academics Characteristics

Statements	(5)	(4)	(3)	(2)	(1)	(5)+(4)	3	(2)+(1)
AC1	1	25	84	21	4	26	84	25
AC2	7	43	73	11	1	50	73	12

Legend: Strongly Disagree (1); Disagree (2); Neutral (3); Agree (4); Strongly Agree (5)

The table above shows that the respondents mostly answered Neutral but in the second statement, the agree and strongly agree highly increased.

III.   Mathematics Experience

Statements	(5)	(4)	(3)	(2)	(1)	(5)+(4)	3	(2)+(1)
ME1	13	51	59	9	3	64	59	12
ME2	13	51	59	9	3	64	59	12
ME3	12	52	60	10	1	64	60	11
ME4	12	52	60	10	1	64	60	11
ME5	21	64	46	4	0	75	46	4
ME6	21	65	45	4	0	76	45	4
ME7	2	20	82	28	3	22	82	31

Legend: Strongly Disagree (1); Disagree (2); Neutral (3); Agree (4); Strongly Agree (5)

The table above shows that the respondents mostly agreed to the statements but in the last statement, the neutral increased very high at 82

IV.   Attitudes in Mathematics

Statements	(5)	(4)	(3)	(2)	(1)	(5)+(4)	(3)	(2)+(1)
AM1	12	27	60	27	9	39	60	38
AM2	15	48	60	11	1	63	60	12
AM3	13	37	67	15	2	50	67	17
AM4	9	21	82	21	2	30	82	23
AM5	38	63	31	3	0	81	31	3
AM6	18	60	53	4	0	78	53	4
AM7	9	20	72	29	5	29	72	34

Legend: Strongly Disagree (1); Disagree (2); Neutral (3); Agree (4); Strongly Agree (5)

This table above shows that, usually most response are neutral but in the statement 5, the Agree responses increased to 81.

V.   Human Influence

Statements	(5)	(4)	(3)	(2)	(1)	(5)+(4)	(3)	(2)+(1)
HI1	37	54	33	9	2	91	33	11
HI2	18	51	53	12	1	69	53	13
HI3	6	27	76	24	2	33	76	26
HI4	11	29	66	24	5	40	66	29

Legend: Strongly Disagree (1); Disagree (2); Neutral (3); Agree (4); Strongly Agree (5)

The table above shows that some respondents agreed and neutral but the highest response is HI4 who agreed which is 91 responses and the lowest who disagreed which have 11 responses.

VI.   Teacher Experience

Statements	(5)	(4)	(3)	(2)	(1)	(5)+(4)	(3)	(2)+(1)
TE1	10	52	69	3	1	62	69	4
TE2	10	55	62	7	1	65	62	8
TE3	5	49	63	16	2	54	63	18
TE4	10	47	69	16	3	57	69	19

Legend: Strongly Disagree (1); Disagree (2); Neutral (3); Agree (4); Strongly Agree (5)

The table above shows that the respondents mostly answered agree and neutral but the highest response is in the neutral which is 69 and the lowest is 48 who disagree in the first statement which have 4 responses only.

VII.   Self-Motivation

Statements	(5)	(4)	(3)	(2)	(1)	(5)+(4)	(3)	(2)+(1)
SM1	10	33	68	20	4	43	68	24
SM2	29	54	48	3	1	83	48	4
SM3	8	44	69	13	1	52	69	14
SM4	9	44	63	18	1	53	63	19
SM5	4	28	79	21	3	32	79	24
SM6	8	45	71	10	1	53	71	11
SM7	27	43	57	8	0	70	57	8
SM8	20	59	51	5	0	79	51	5
SM9	20	42	61	11	1	62	61	12

Legend: Strongly Disagree (1); Disagree (2); Neutral (3); Agree (4); Strongly Agree (5)

The table result of self-motivation above shows that some of the respondents agree and neutral but the highest response is 32 who agree and disagree in the second statement which have 83 responses and the lowest who disagree in the second statement which have 4 responses only.

Level of Self-Esteem

Self-Esteem Subscale	Mean	SD
Grade Information	3.063	0.639
Academics Characteristics	3.156	0.615
Mathematics Experience	3.476	0.625
Attitudes in Mathematics	3.376	0.648
Human Influence	3.268	0.507
Teacher Experience	3.319	0.523
Self-Motivation	3.435	0.55
Overall	3.299	0.639

The table above shows that Mathematics Experience has the highest mean in agreeing in the statements averaging 3.476 and Grade Information has the lowest mean in agreeing in the statements averaging 3.063.

Research Problem 3: What is the level of Self-Concept in mathematics of the Pre-Service Teachers?

Level of Self-Concept

Statements	(5)	(4)	(3)	(2)	(1)	(5)+(4)	(3)	(2)+(1)
SC1	11	29	66	24	5	40	66	29
SC2	10	52	69	3	1	62	69	4
SC3	10	55	62	7	1	65	62	8
SC4	5	49	63	16	2	54	63	18
SC5	10	47	59	16	3	57	59	19
SC6	20	42	61	11	1	62	61	12
SC7	20	59	51	5	0	79	51	5
SC8	8	45	71	10	1	53	71	11
SC9	4	28	79	21	3	32	79	24
SC10	9	44	63	18	1	53	63	19

Legend: Strongly Disagree (1); Disagree (2); Neutral (3); Agree (4); Strongly Agree (5)

Mean: 3.681

Standard Deviation: 0.565

The table above shows that the respondents mostly answered neutral and the highest is in the statement 9 which have 79 individuals who agree and in disagree, in the statement 7 there is 79 individuals also.

Research Problem 4: Is there a significant relationship between self-esteem and self-concept in mathematics among pre-service teachers?

Pearson - r Correlation Coefficient and Coefficient of Determination between
Mathematics Self – Esteem and Self – Concept of the Respondents

Pearson - r Coefficient	Coefficient of Determination	Interpretation
0.792 [s]	0.627	High Positive Correlation

Legend: [s] Significant at alpha = .05 level.

The table above indicates that there is a high significant positive correlation between mathematics self - esteem and self - concept of the college students in the control group, with a correlation coefficient of .792. It also indicates that 62.7% of the variance in the mathematics self - esteem is attributed to the self - concept of the college students; leaving 37.3% of the variance in the mathematics self - esteem is attributed to other factors or due to sampling error. This implies that mathematics self - esteem has a small effect on the self - concept of the college students.

CHAPTER V

CONCLUSION

The researcher came to the conclusion that most statistical analyses are based on the probability statement that each analysis is independent of the other dependent as well as the other test. With a correlation value of .792, the table above shows that there is a strong significant positive link between mathematics self-esteem and self-concept of college students in the control group. It also shows that the self-concept of college students accounts for 62.7 percent of the variance in mathematics self-esteem, leaving 37.3 percent to chance. Other causes like sampling error are blamed for the variation in mathematics self-esteem. This suggests that mathematics self-esteem has a major impact on college students' self-concept.

CHAPTER VI

RECOMMENDATIONS

- This study found a substantial, significant positive relationship between mathematics self-esteem and self-concept among college students in the control group.

- The implementation of studying mathematics and focusing on pre-service teachers' self-esteem must be continually improved in order to sustain competent pupils and achieve great goals for the mission and vision.

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