Examining the Interaction Effects of Gender and Programs of Study on the Postgraduate Diploma in Teaching Students’ Attitude Towards Teaching Profession of Mekelle University, Ethiopia

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Abstract
The purpose of this study was to examine the interaction effects of gender and programs of study on attitudes of postgraduate diploma in teaching (PGDT) students towards the teaching profession. The main aim of the study was to find out whether there are any significant interaction effects of gender and programs of study of PGDT students’ attitude towards the teaching profession. A descriptive survey was carried out among PGDT students during the year 2016/2017 regular session with a population of 371 students. The survey was conducted between science and non-science students in the department of teacher education at Mekelle University, Ethiopia. Using stratified random sampling method, 130 student-teachers were selected as sample for the study. A scale entitled “attitude towards teaching profession” was developed and validated by the researchers based on established procedures in the literature (Aliyu Musa and Ado Abdu Bichi, 2015). A scale contained 15 items to be scored on the five-point Likert scale as Strongly Agree (SA), Agree (A), Neutral(N), Disagree (D) and Strongly Disagree (SD) was used. The data analysis of descriptive statistics through quantitative analysis by computing SPSS 16.0 (Statistical Package for the Social Sciences) for Windows 10 was employed. Statistical techniques which include percentage analysis for levels, mean, standard deviation and two-way analysis of variance (ANOVA) were also used for data analysis and interpretation. The findings of the two-way ANOVA demonstrated that there are no significant interaction effects of gender and programs of study on attitude towards the teaching profession of PGDT students. A correlation analysis of gender and programs of study indicated that the student teachers’ attitude towards the teaching profession was positively related to gender and programs of study.

Keywords: attitude, teaching profession, student teachers, teaching students

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1. Background
In Ethiopia, the teacher training program is mandated to equip trainees with the required competencies, knowledge, skill and attitude. It should be free from hindering challenges if it is to serve the purpose of producing a well-qualified teacher (Sintayehu Belay Abejehu, 2016). In the year 2003 the Teacher Education System Overhaul (TESO) was introduced for the establishment of teacher education program. After eight consecutive years of implementation of the TESO program, the labor force composed of several stakeholders was established to study the major problems with the TESO program and produce a sound teacher education program in the country (Mulugeta, 2016). Also, the Secondary School Teacher Education Program in Ethiopia was named postgraduate diploma in teaching (PGDT). PGDT is dedicated for training secondary school instructors who possess the desired academic knowledge, sufficient professional skills, good citizenship, attitudes or in general those who are ethical and have the democratic values enshrined in the Ethiopian Constitution (MoE, 2009).The intended objectives of this program are to equip the trainees with the needed cognition and skills; make reflective practitioners; acquire discernment of the nature of teacher profession; provide teacher trainees with theoretical and virtual experience, and thus onward. One of the aims of PGDT is to meet the pedagogical skill gaps that were present in earlier secondary education teaching programs as observed in teaching and classroom practices in secondary schools. From the year 2011 onwards, a new system of secondary teacher preparation called Post Graduate Diploma in Teaching (PGDT) has been implemented by ten universities in Ethiopia (Worku Fentie Tegegne, Alebachew Hailu Gelaneh, 2015). Attitude is defined as a mental and a neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual’s response to all objects and situations with which it is related (Allport, 1935). The term ‘attitude’ refers to an individual who is passionate about teaching and views the teaching profession as an honest and respected job (Tok, 2011). Another definition of it is that attitude is a response which can be positive or negative in any situation, events or objects (Hussain, L. Jamil, & Noor, A., 2011).
On the other hand, a teacher is somebody who causes learning to take home; someone who passes on knowledge, skills, attitudes, and values to a group of scholars as well as a teacher can be reckoned as a professionally trained person who conveys the necessary skills and the one who runs and facilitates learning to hold home. Teaching is a profession that comprises activities such as initiating, guiding, smoothing and helping so that learning can take a position in line with the intended targets and goals (Ajayi, 2004). The term ‘profession’ is described as a set of natural processes which are executed to produce goods or services for the public interest and to earn money in turn based on some systematic knowledge and skills acquired through some certain training and whose rules are set up by the society (Kuzgun, 2000). Hence, the profession of teaching is dealt with and fixed from different looks such as role expectations, disciplined, qualifications, characteristics of a skillful teacher and so forth (Mehmet Ustuner, et al., 2009). Therefore, the teaching profession can be defined as an occupation based upon specialized intellectual study and training (Mary L. Renthlei and Malsawmi, 2015).

Many local studies such as by Tesfaye Semela and Demewoz Admasu, 2004; Adugna Bersissa Merdassa, 2012; Koye Kassa, 2014 and international ones by Turkey Nuri Tok, 2012; Prasad Babu and Raju, 2013; Mohammad Parvez and Mozd Shokar, 2013; Anupama Bhargava and Pathi, 2014; Aniruddha Chakraborty and Bhim Chandra Mondal, 2014; MehtapBademcioglu, 2014; Aliyu Musa and Ado Abdu Bichi, 2015; Sarah ObenEgwu, 2015; Jagminder Kaur, 2015; Aparna Pancholi and Amrut Bhai J. Bharwad, 2015; Mohmood Khan and Subhash Chandra, 2016; Mehmoold Ali and Vardah Ahmad, 2016; FaiizaShaheen, et al., 2016; Sobhan Banerjee, 2016; Elina Solibamcha, 2016 and Senthilkumaran and Muthaia, 2017 have been conducted on attitudes towards the teaching profession. The studies mainly focus on prospective teachers or student teachers who are studying in teacher education or who are enrolled in the teaching course. Ethiopia and others. Yet, only a minimal number of researchers have studied the influence of gender and programs of study or subject stream on attitude towards the teaching profession. A few similar works done on attitude towards teaching profession about gender and programs of study or subject streams are by Prasad Babu and Raju (2013), Aniruddha Chakraborty ad Bhim Chandra Mondal (2014), Aparna Pancholi and Amrut Bhai J. Bharwad (2015) Aliyu Musa and Ado Abdu Bichi (2015), and Mehmood Ali and Vardah Ahmad, 2016. On the other hand, graduates who join the teaching profession from the science and non-science areas are varied based on the discernment they give towards the profession. The attitudinal level of PGDT students towards the teaching profession due to gender and programs is a critical issue for the achievement of quality instruction. Moreover, the quality of education can directly or indirectly be affected by the teachers’ attitude towards their profession. The current research work intends to investigate and compare the gender and programs of student-teachers. The study further highlights the interaction effects of gender and programs of study on attitude towards the teaching profession.

The current study was carried out to contribute to the future teaching professional. The research focused on regular science and non-science PGDT student-teachers who were enrolled in Mekelle University in 2016/2017 academic year as well. The successful culmination of this research study will deliver the following benefits: it will come with result of attitude levels towards teaching profession of PGDT students as a mapping of gender as programs of study; the result could exhibit the outcome of interaction between gender and programs of study on attitude towards teaching profession of PGDT students; and it will assist the concerned bodies to receive a well-defined understanding of teaching profession and to take considerable actions based on the outcome. Established with the objectives, the following research questions lead the current study: (i) What is student teachers’ attitude towards the teaching profession? (ii) What are the major factors that promote or demote to presume teaching as a profession? and (iii) Are there any significant differences between gender and programs of study factors that are related to the commitments of teaching profession.

### 2. Objectives

The general objective of this research work is to examine the interaction effects of gender and programs of study on attitude towards the teaching profession of student-teachers in the case of Mekelle University, Ethiopia. The specific objectives of the research are:

1. Finding the levels of attitude of student-teachers as a function of gender and programs of study.
2. Identifying the levels of programs of study as the function of gender on attitude towards the teaching profession of student-teachers.
3. Examining the interaction effects between gender and programs of study on attitude towards the teaching profession of student-teachers.

### 3. Null Hypothesis

1. There are no significant interaction effects of gender and programs of study on attitude towards teaching profession of PGDT students.
4. Research Methodology

4.1 Research Methods and Target Population of the study
A descriptive survey was carried out among PGDT student-teachers during the 2016/2017 academic year regular session with a population of 371 students. The survey was conducted between science and non-science student-teachers in the department of Teacher Education at Mekelle University, Ethiopia.

4.2 Sample and Sampling procedure
The stratified random sampling method was employed to select the sample about 130 student teachers were selected as sample participants for the study.

4.3 Tools and Procedures for Data Collection
A questionnaire is used for the data collection. It contained two parts such as Part-I focused on demographic factors such as gender, age, programs of study and regions of the student-teachers. Part-II focused on a scale entitled “attitude towards teaching profession” which was developed and validated by the researchers based on established procedures in (Aliyu Musa and Ado Abdu Bichi’s, 2015) literature. A scale that contained 15 items to be scored on the five-point Likert scale as Strongly Agree (SA), Agree (A), Neutral(N), Disagree (D) and Strongly Disagree (SD) was used.

4.4 The Statistical Techniques
The statistical techniques which include, percentage analysis for finding out the levels (High, Moderate and Low), mean, standard deviation and two-way analysis of variance (ANOVA) were used to find out the interaction effects of gender and programs of study on attitude towards the teaching profession of postgraduate diploma in teaching students. The data analysis of descriptive statistics through quantitative analysis by computing SPSS 16.0 (Statistical Package for the Social Sciences) for Windows 10 was done.

5. Results
This section presents of the results of the study. It particularly presents the percentage analysis for levels (high, moderate and low) in general, the mean differences between the levels of gender and programs of study and two-analysis of variance. Firstly, the percentage analysis for an attitude towards the teaching profession of PGDT students results revealed that the levels (high, moderate and low). With regards to gender, the Table-1 shows that from the male students’ 15.6 percent of them have high level, 71.9 percent of them have moderate level and 12.5 percent of them have low level of attitude towards the teaching profession. Whereas from the female students’ 16.7 percent of them have high level, 69.7 percent of them have moderate level and 13.6 percent of them have low level of attitude towards the teaching profession. As a function of programs of study, 15.8 percent, 77.6 percent, and 6.6 percent of the science students have high, moderate and low levels of attitude towards the teaching profession respectively. Whereas the response by the non-science students’ level of attitude towards the teaching profession is composed of 16.7 high level, 61.1 percent moderate level and 22.2 percent low level.

Established along the distribution presented in the above Table-1 shows that the levels of attitude towards teaching profession as a mapping of gender and programs of study were indicated moderately. In addition, Table-2 shows the descriptive statistics for an attitude towards the teaching profession of PGDT students reported to the levels of programs of study (Science and Non-science) as a function of gender (male and female). Therefore, the levels of programs of study as a function of gender on attitude towards the teaching profession show that the male non-science students are more positive than the female science students’ in their attitude towards the teaching profession.

It is inferred from the above Table-3 that the two-way analysis of variance test on attitude towards teaching profession as a function of gender [F(1, 126)= 0.012, P<0.01, Eta squared=0.000] and programs of study [F (1, 126)= 4.567, P<0.01, Eta squared=0.035] were not statistically significant. The effect of gender on attitude towards the teaching profession of PGDT students as calculated F value (0.012) is lesser than the table value (4.75) at one percentage level of significance and the effect of programs of study on attitude towards teaching profession as calculated F value (4.567) is lesser than the table value (4.75) at one percentage level of significance.

In general, the results revealed that there is no significant interaction effect of gender and programs of study on attitude towards the teaching profession [F (1, 126) = 1.307, P<0.05, Eta squared=0.010] of PGDT students. The results suggest that the effect of gender on attitude towards teaching profession does not depend on programs of study. The analysis also revealed that there is no significant interaction effect between gender and programs of study on attitude towards teaching profession as calculated F value (1.307) is lesser than the table value (3.90) at five percent level of significance. Hence, the hypothesis stated is to be accepted since there is enough evidence to conclude that as a function of gender and programs of study, there is no significant interaction effect on the mean value of an attitude towards the teaching profession.
6. Discussions

The present study was initiated to examine the attitude towards the teaching profession of PGDT students. It was particularly initiated to investigate the gender and programs of study. Consequently, it led with the main objective of the study to examine the interaction effects of gender and programs of study on attitude towards the teaching profession of PGDT students. The differences between gender and programs of study in attitude towards teaching profession were measured. The finding of the study revealed that the levels of attitude towards teaching profession as a function of gender and programs of study. Most of the levels were found to be moderate such as regarding the function of gender, male students have 71.9 percent, female students have 69.7 percent and as a function of programs of study, science students have 77.6 percent, non-science students have 61.1 percent of levels of attitude towards the teaching profession.

The second finding of the study which is about the levels of programs of study as a function of gender on attitude towards teaching profession findings show that the highest with the levels of programs of study as a function of gender, the mean score comparison, the male non-science students (72.00±0.00) are better than the female science students (65.00±1.87) in their attitude towards the teaching profession. The third finding of this study reveals that there are no significant interaction effects of gender and programs of study on attitude towards the teaching profession of PGDT students. Similar studies conducted by Senthil kumaran and Muthaiah (2017), Mohmood khan and Subash Chandra (2016), Mohammad Parvez, et al., (2013), Faiza Shaheen, et al., (2016), Aniruddha Chakraborty and Bhim Chandra Mondal, (2014), Jagminder Kaur, (2015), and Mehmood Ali and Vardah Ahmad (2016) show that gender does not affect student-teachers’ attitude towards the teaching profession. The main effect of gender on attitude towards the teaching profession of PGDT students while comparing the mean scores the male students (53.141) are better than the female students (52.967) in their attitude towards the teaching profession. However, some researches such as by Faiza Shaheen, et al., (2016) and Senthil kumaran and Muthaiah, (2017) found no significant difference between male and female students in their attitude towards the teaching profession. These studies reveal that male teachers had more positive attitudes towards the teaching profession in comparison to their female counterparts.

Likewise, inferred from Table-3 indicate that the effect of programs of study on attitude towards teaching profession of PGDT students, while comparing the mean scores the science students (54.775) are better than the non-science students (51.333) in their attitude towards the teaching profession. Nevertheless, studies by Mohammad Parvez and Mohd. Shakar (2013), Mehmood Ali and Vardah Ahmad (2016), Aniruddha Chakraborty and Bhim Chandra Mondal (2014), and Aliyu Musa and Ado Abdu Bichi (2015)) found out that the programs of studies or subject stream student-teachers were not statistically significant differencing in their attitude towards the teaching profession. It was supported by Mohammad Parvez and Mohd Shakar (2013) and Aniruddha Chakraborty and Bhim Chandra Mondal (2014) who observed that the science students had more favourable attitudes towards teaching profession than the non-science students.

In general, the results of the two-way ANOVA further demonstrated no significant interaction effects of gender and programs of study on attitude towards teaching profession [F (1, 126) = 1.307, P<0.05, Eta squared=0.010] of PGDT students. Some of the studies such as by Mohammad Parvez, et al., (2013), Mehmood Ali and Vardah Ahmad (2016) and Aniruddha Chakraborty and Bhim Chandra Mondal (2014)) examine that the effect of ‘gender’ and ‘programs of study’ or ‘fields of study’ or ‘education stream’ on attitude towards teaching profession. The present study found out that the effect of gender on attitude towards teaching profession doesn’t depend on the programs of study. The results of the correlation analyses of gender and programs of study showed that the attitude towards teaching profession was positively related to gender and programs of study. Comparing the mean scores of genders as a function of programs of study on the attitude of the teaching profession, male science students (55.783) are better than the female non-science students (52.167) in their attitude towards the teaching profession.

Therefore, there is no significant interaction effect of gender as well as programs of study on attitude towards the teaching profession of PGDT students. On the other hand, the data in Table-2 which shows the levels of programs of study as the function of gender on attitude towards teaching profession with the highest mean score comparison, the male non-science students (72.00±0.00) are better than the female science students (65.00±1.87) in their attitude towards the teaching profession. Moreover, it indicates that statistically there is no significant interaction effects between gender and programs of study on attitudes of PGDT students towards the teaching profession. Finally, the data in Table-2 and Table-3 both show that the interaction effects of gender and programs of study have differed on attitude towards the teaching profession of PGDT students.

7. Conclusion

An imperative area examined in the current study was interaction effects of gender and programs of study on attitude towards the teaching profession of PGDT students of Mekelle University, Ethiopia. The findings of the two-way analysis of variance demonstrate that there are no significant interaction effects of gender and programs of study on attitude towards the teaching profession of PGDT students. Besides, the attitudes of PGDT students...
towards teaching profession have no change according to ‘gender’ and ‘programs of study’. The study indicates that more than half of the PGDT students preferred the teaching profession and their attitudes towards the teaching profession are in high in the same manner. Because, many of the students who chose the teaching profession based on their own interest or might be interested in the teaching profession because they are influenced by others or to get employment opportunity; most of the students believe that the joining of teaching profession because they do not have other options and the other major factor that motivated students to stay in the teaching profession (Adugna Bersissa Merdassa, 2012; Koye Kassa, 2014). A few of the PGDT students have no good attitude towards teaching profession because of many reasons like salary, social value, school politicized and so forth (Aweke Shishigu, Eysasu Gecmecu, Kassa Michael, Mulugeta Atanfu and Yenealem Ayalew, 2017). To sum up, the teaching profession should be altered in every five years or three years once in terms of its theoretical and practical aspects of arriving at the highest level of attitude in the profession with the increased interest of learners in teaching.

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| Table-1 Levels of Attitude towards Teaching Profession as a Function of Gender and Programs of Study |
|-----------------------------------------------|
| Variables | Levels | Frequency | Percent |
|-----------|--------|-----------|---------|
| Gender (N=130) | Male(N=64) | High | 10 | 15.6 |
| | | Moderate | 46 | 71.9 |
| | | Low | 8 | 12.5 |
| | Female(N=66) | High | 11 | 16.7 |
| | | Moderate | 46 | 69.7 |
| | | Low | 9 | 13.6 |
| Programs of Study (N=130) | Science (N=76) | High | 12 | 15.8 |
| | | Moderate | 59 | 77.6 |
| | | Low | 5 | 6.6 |
| | Non-Science (N=54) | High | 9 | 16.7 |
| | | Moderate | 33 | 61.1 |
| | | Low | 12 | 22.2 |

**Note:** High ≥ 63; Moderate = 54(range:46-62); Low ≤ 45
Table 2: Levels of Programs of Study as the Function of Gender on Attitude towards Teaching Profession

| Gender     | Programs of Study | Level(s) | Attitude towards Teaching Profession | Mean | SD  |
|------------|-------------------|----------|-------------------------------------|------|-----|
| Male (N=64) | Science (N=46)    | High     | 66.00                               | 3.16 |     |
|            |                   | Moderate | 54.72                               | 4.27 |     |
|            |                   | Low      | 39.50                               | 2.12 |     |
|            | Non-Science (N=18)| High     | 72.00                               | 0.00 |     |
|            |                   | Moderate | 53.00                               | 6.24 |     |
|            |                   | Low      | 36.00                               | 2.19 |     |
| Female (N=66) | Science (N=30)  | High     | 65.00                               | 1.87 |     |
|            |                   | Moderate | 53.09                               | 5.06 |     |
|            |                   | Low      | 40.00                               | 6.08 |     |
|            | Non-Science (N=36)| High    | 64.00                               | 0.00 |     |
|            |                   | Moderate | 52.25                               | 5.59 |     |
|            |                   | Low      | 40.00                               | 4.38 |     |

**Note:** High ≥ 63; Moderate = 54 (range: 46-62); Low ≤ 45; SD = Standard Deviation

Table 3: Interaction Effects of Gender and Programs of Study on Attitude towards the Teaching Profession

| Source                  | Type III Sum of Square | df | Mean Square | F     | Sig. | Partial Eta Squared* |
|-------------------------|------------------------|----|-------------|-------|------|----------------------|
| Gender                  | 0.881                  | 1  | 0.881       | 0.012 | 0.914b | 0.000                |
| Programs of Study       | 342.257                | 1  | 342.257     | 4.567 | 0.035b | 0.035                |
| Gender * Programs of study | 97.984                | 1  | 97.984     | 1.307 | 0.255a | 0.010                |
| Error                   | 9442.693               | 126| 74.942      |       |       |                      |
| Total                   | 383180.000             | 130|             |       |       |                      |
| Corrected Total         | 9909.569               | 129|             |       |       |                      |

**Note:** aCorrelation is significant at 0.01; bCorrelation is significant at 0.05; R Squared=0.047 (Adjusted R Squared=0.024); df= degree of freedom; *Cohen (1988), the effect size was considered moderate (eta squared value =0.12).

Descriptions for the above Table 3

**Figure 1:** Interaction Effects of Gender and Programs of Study on Attitude towards the Teaching Profession

Estimated Marginal Means of Attitude Towards Teaching Profession

[Graph showing estimated marginal means for gender and programs of study]