# Attitude of Postgraduate Diploma in Teaching (PGDT) Student Teachers towards Teaching Profession in Ethiopian University College of Teacher Education

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#### Abstract

This paper is a survey conducted to explore the attitude of Postgraduate Diploma in Teaching (PGDT) students towards their profession in the College of Education and Behavioral sciences, Haramaya University, Ethiopia. The study was conducted on a sample of 305 PGDT student teachers studying in the college. Among them 246 were males and 59 were females and methodology wise 15 were Amharic, 38 Biology, 58 Chemistry, 37 Civics, 26 English, 12 Geography, 14 History, 43 Mathematics, 46 Physics, and 16 were sport Sciences student teachers. They were administered for questionnaire developed by the investigator. The questionnaire consisted of 24 attitude items with 5 point Likert scale and multiple choice items as well as rank order items. The collected data were analyzed with frequency, percent, weighted mean, standard deviation and t-test to see differences across sex and work place. Except Geography and Sport sciences, no statistically significant difference in attitude is observed across specialization of student teachers. The first major reason of PGDT student teachers for joining the teaching profession was lack of other options and the first major factor that motivated student teachers to stay in the teaching profession was working environment. Finally the Ministry of Education, the Regional Education Bureaus, teacher Education Institution and teacher educators should promote about the relevance of the profession and being a teacher is recommended as a means to improve attitude towards teaching professionals

#### Keywords

Attitude, PGDT, Student Teachers, Teaching, Profession

### Introduction

Education can be regarded as the key that unlocks the development of personal and national potential and all kinds of rights and powers. The increasing awareness of the importance of

education to the up liftmen of the individual and societal standards has awakened in people and nations a conscious effort at devoting their meagre resources to acquiring qualitative education. Balogun (2010) opined that education is the light, without which, the whole world would be in darkness. It is the basis of scientific and technological breakthroughs and the basis of modernity, which have made all nations of the world accord immense priority to it, even though, the levels of priority range from one country to another. What makes a good system of education depends on the quality of teachers available in the system. According to Ibukun (2004), the quality of human resources in form of teachers, often dictates the extent of the effectiveness of educational programmes. In order to achieve any socio-political, economic and scientific development in a country, there is the calamitous need for qualified teachers who are equipped with the desired knowledge, skills, competence and commitment, and who are empowered to perform their tasks professionally. Ayalew (2009) further states that undeniably teachers are the most important elements in the realization of educational goals and the strength of any educational system, largely depends on the quality and commitment of its teachers meaning that, every educational system should strive to attract qualified people to the profession and to provide them with the best possible working conditions and material incentives that will satisfy their needs.

The educational sector in Ethiopia has been given powerful impetus after the overthrow of the military government in 1991. Since then, education has been a development priority on the national agenda. The Government of Ethiopia has developed Education Training Policy (ETP) and Education Sector Strategy in 1994.

The current Education Sector Development Program (ESDP IV; MoE, 2010a) lists the development of teachers and school leaders first among its priorities for improving the quality of primary and secondary education (World Bank, 2013). This priority is consistent with international experience and evidence. It is also a task that has often been more difficult and challenging than expected. But it must be addressed successfully if the education system is to effectively support the growth and transformation of the economy, as teacher performance is one of the major determinants of student learning achievement.

The teacher training system in Ethiopia is divided into two parts, one for primary and one for secondary teachers. Colleges of Teacher Education (CTEs) train teachers for the first (grades 1–4) and second (grades 5–8) cycles of primary education. While training for the first cycle concentrates on preparing teachers for an integrated curriculum, the second cycle prepares teachers for a subject-based curriculum (World Bank, 2013). Until academic year 2009/10 the qualification required for the first cycle was a one-year certificate in teachers' training upon completion of grade 10 and for the second cycle, a three-year diploma upon completion of grade 10.

Secondary teachers in Ethiopia have traditionally been trained at universities in four-year degree programs, which combined educational coursework and practicum experience with academic courses in various disciplines. However, recently, the selection criteria and the training strategies of secondary school teachers are changed (Adugna, 2012). Educational coursework was conducted by members of the faculties of education. Qualification requirements were raised in 2010 and the first-cycle primary school teacher training was changed from a one-year certificate to a three-year diploma program. Secondary teacher training changed from an integrated four year educational bachelor's degree to a three-year degree course in a major field, plus an additional year of professional teacher training to obtain a Post-Graduate Diploma in Teaching (PGDT). The one-year

professional education program consists of training in educational foundations, pedagogy, and school-based practicum experience.

In other words, primarily, students join universities and graduate in applied programs/ departments. Then, those who are interested in the profession and can satisfy the requirements of MoE will be selected for the teaching profession. In the year 2011 and 2012, among the students graduated in applied fields those with better CGPA preferred the teaching profession and enrolled themselves in the Postgraduate Diploma in Teaching (PGDT) to become secondary school teachers (Adugna, 2012).

The National Curriculum Framework of Ethiopia (2009), states that:

The secondary school teacher education envisions seeing secondary school teachers who are capable of producing responsible and competent citizens, committed to their profession and ready to lifelong learning, and who respect and behave in accordance with the democratic principles enshrined in the constitution.

Moreover, the frame work states that the very intension of the new teacher training program (PGDT) is to alleviate the problems that appeared in the previous teacher training system particularly TESO. The major problems in secondary teachers' capacity and performance identified in 2008 Ministry of Education document and quoted in the Curriculum Framework, are the following (MOE, 2008; MOE, 2009b): Teachers' subject matter competence is inadequate, Active learning methods are not properly and sufficiently employed, Professional commitment and work ethics are not demonstrated as desired, and Teachers' interest to follow up and assist students is low. From the above justifications we can understand that professional commitment and work ethics are the competencies expected of secondary school teachers which are core elements of attitude. Literally, attitude refers to a negative or positive evaluation of objects (Schuman, cited in Franzoi, 2000), which partly determine human behavior. This indicates that, the behavior expected of individuals is largely affected by the attitude they have.

Teachers' interest is considered as one of the criteria to select or admit applicants to the PGDT program and it is believed that the PGDT student teachers joined the profession because they love it. On the other hand, from his practical experience as coordinator of the PGDT programme and instructor of courses, the investigator of this study, could understand that the student teachers were not motivated and committed enough for their leanings. Many student teachers dropped out; for instance the first 2011 entrants about 21 and from 2012 entrants 18 dropped out with unknown reason. In addition, many of them left their profession after graduation and join to other professions. Thus, studying the attitude of student teachers is a major issue to be studied.

## Objectives

- To explore the attitude of PGDT students towards teaching profession,
- To see whether there is significant difference between students' attitude towards teaching across gender, specialization and place of work,
- To identify the possible reasons of PGDT students to become teachers, and

• To investigate the possible factors that motivate PGDT students stay in teaching profession.

## Methodology

#### Sample and Sampling Technique

There were 625 PGDT students in two batches. The number of the first year were 453 (373 males and 78 females) and the second year were 172 (146 males and 26 females). Of this total population, 305 (246 males and 59 females) were selected using simple random sampling technique and included in the study as respondents. Table 1 below shows the number of total sample population across gender and fields of specialization or streams.

S. No.		First Y	ear	Second	Second Year			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
1.	Amharic	9	2	11	0	4	4	9	6	15
2	Biology	17	9	26	9	3	12	26	12	38
3	Chemistry	36	11	47	9	2	11	45	13	58
4	Civics	22	7	29	6	2	8	28	9	37
5	English	14	2	16	10	0	10	24	2	26
6	Geography	6	2	8	2	2	4	8	4	12
7	History	11	1	12	2	0	2	13	1	14
8	Mathematics	29	0	29	14	0	14	43	0	43
9	Physics	29	5	34	11	1	12	40	6	46
10	Sport Sciences	9	6	15	1	0	1	10	6	16
Total		182	45	227	64	14	78	246	59	305

Table 1: sample PGDT student teachers taken as respondents

Regarding their work area/region, 174(57%) the sample PGDT student teachers were from Oromia region, 114 (37.4%) from Somali and the rest 17 (5.6%) were from South Nations Nationalities and Peoples Region (SNNPR).

#### Instrument for Data Collection

Questionnaire was used to collect data. The student teachers attitude scale was developed by the study investigator and validated by experts' opinion. The tool consists of three parts: part one is about general information of respondents, part two consists 24 attitude items. In part three multiple choice item questions for ranking alternatives were presented. The attitude items were a five point scale with Strongly Agree, Agree, Undecided, Disagree and Strongly Disagree. The value for the alternatives ranges from one to five. The following scheme has been used for the scoring of responses.

	SA	А	U	D	SD
Favorable statements	5	4	3	2	1
Unfavorable statements	1	2	3	4	5

#### Procedure

The questionnaire was distributed to 305 PGDT student teachers studying in Haramaya University. The students were briefed about the purpose of the questionnaire and how to fill in it. The questionnaire was distributed and collected back by the enumerators.

#### Method of Data Analysis

The data obtained from the sample of 305 PGDT students teachers were scored and analyzed using frequency, percentage, mean, standard deviation and t-test.

## **Results and Discussion**

Table 2 shows that the attitude of PGDT students towards teaching profession rests on "Undecided" category (mean=3.17) which is difficult to judge as favorable or unfavorable. Students teachers' response is 'agree' to the statements "Teaching is one of the best means of serving humanity (mean=4.16) and I like teaching because it helps me think logically (mean =4.01").

C NI-	Charles and	Resp	onses					Mean
5. INO.	Statement	SD	DA	UD	А	SA	Total	
1.	I am proud to be a teacher and feel proud to express it.	43	89	27	91	55	305	3.09
2.	Teaching is a noble profession.	59	78	29	73	66	305	3.03
3.	Teachers are good trainers of other professionals.	60	71	15	59	100	305	3.22
4.	I would encourage able and sincere individuals to join the teaching profession.	51	92	47	84	31	305	2.84
5.	Teaching is a profession for frustrated and poor people.	80	71	34	67	53	305	2.81
6.	I am sure I would enjoy teaching.	46	61	20	106	72	305	3.31
7.	I think teaching becomes boring after some time.	33	86	40	90	56	305	3.16
8.	Teaching is less satisfying job when compared to other jobs. (reverse value calculated)	45	58	28	74	100	305	3.41
9.	Teaching is one of the best means of serving humanity.	11	18	24	109	143	305	4.16
10.	I like teaching because helps me think logically.	19	16	25	128	117	305	4.01
11.	Teaching profession is not socially ranked high(reverse value calculated)	98	112	16	59	20	305	3.69
12.	A respectable status can be enjoyed in teaching profession.	40	99	43	98	25	305	2.90
13.	Other professionals respect teachers.	83	121	27	50	24	305	2.38
14.	Teachers are not considered among professionals rendering important service. (reverse value calculated)	58	101	37	64	45	305	2.78

Table 2: PGDT student teachers' attitude towards teaching profession

C Nc	Statement	Resp	onses					Mean
5. INO.	Statement	SD	DA	UD	А	SA	Total	
15.	The general public respect teachers (parents for instance).	47	132	44	57	25	305	2.60
16.	I plan to remain in teaching until I am eligible for retirement.	:70	96	80	43	16	305	2.47
17.	I will leave the teaching profession as soon as I can.	27	50	46	105	77	305	3.50
18.	I will continue teaching unless something better comes along.	13	46	38	131	77	305	3.69
19.	I would like to be skilled in other profession than continuing in teaching in future.	27	45	39	97	97	305	3.62
20.	I am not willing to invest my time outside of contact hours with students (reverse value calculated)	31	109	25	90	50	305	3.05
21.	Satisfying students' emotional need is parent responsibility. Teachers should focus only on their academic need (reverse value calculated)		105	16	102	36	305	2.93
22.	It is teachers' role to prepare students for the future.	46	78	24	86	71	305	3.18
23.	Given the opportunity, I will continue taking professional courses after graduation (professional, research)	44	85	22	88	66	305	3.15
24.	I would like to read course(s) related to teaching in future.	55	81	24	82	63	305	3.05
Grand	l mean	I		1	1	I		3.17

Value range for decision- ≥4.5 strongly Agree, ≥3.5 Agree, ≥2.5 Undecided, ≥1.5 Disagree and <1.5 strongly Disagree

On the other hand, their response is almost disagree to the statements "I plan to remain in teaching until I am eligible for retirement (mean=2.47) and other professionals respect teachers (mean=2.38). Moreover, they agreed on the statement "I would like to be skilled in other profession than continuing in teaching in future."

N=305	Respor	idents											
	Rank	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>	6 <sup>th</sup>	7 <sup>th</sup>	8 <sup>th</sup>	9 <sup>th</sup>	10 <sup>th</sup>	Weighted	
Professional	Value	10	9	8	7	6	5	4	3	2	1	mean	Rank
Engineer		51	73	47	36	30	20	18	12	9	9	7.2	1
Physician		62	41	33	23	33	24	21	21	34	13	6.4	2
Accountant		21	35	38	46	40	47	30	24	18	6	6.1	3
Software engin	neer	37	37	36	40	31	24	29	34	26	11	6.1	3
Manager		23	31	32	41	49	46	24	30	20	9	5.9	5
Lawyer		23	26	35	32	34	39	32	32	35	17	5.5	6
Sociologist		4	11	29	30	29	40	47	51	49	15	4.6	7
Journalist		12	17	17	25	30	33	51	41	42	37	4.5	8
Teacher		54	13	15	17	16	15	18	18	25	114	4.4	9
Politician		17	21	23	17	15	17	34	41	46	74	4.1	10

Table 3 Rank given to teaching by student teachers

Table 3 indicates that PGDT student teachers make teacher the ninth out of ten professionals. The professionals that were chosen in the first, second, and third position were engineer, physician and software engineer.

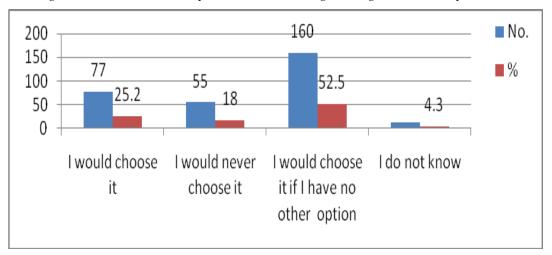


Figure 2: Student teachers' response towards choosing teaching as their future profession

Student teachers were asked their likely decision to choose teaching as their future profession if they were given the opportunity to choose once again. Consequently, as can be seen from Figure 1 above, the majority 160 (52.5 %) responded as "I would choose teaching if I have no other option", 77 (25.5%) responded as "I would choose teaching", 55(18%) responded as "I would never choose teaching" and 13(4.3%) responded as "I don't know"

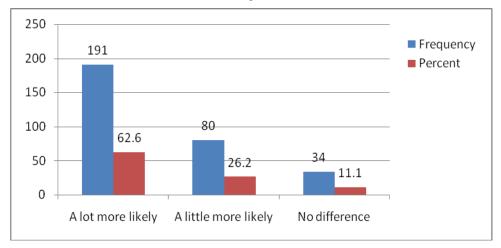
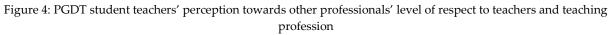


Figure 3: Student teachers perception towards the increment of payment by teaching profession to consider becoming teacher.

Figure 2 depicts that majority 191 (62.2%) of PGDT student teachers confirmed that if teaching paid a lot more than it does now, this make the a lot more likely to consider becoming a teacher.



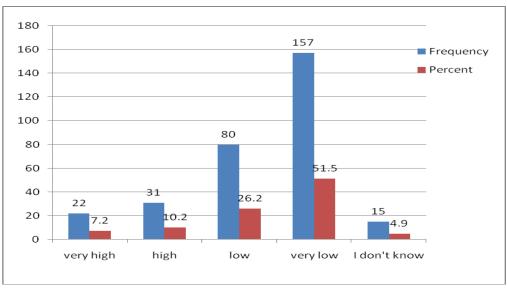


Figure 3 shows that most of the PGDT students 157 (51.5%) responded that the level of respect given for teachers and teaching profession by other professionals is very low.

Respondent (n=305)	Ν	Mean	Std. Dev	df	t-value
Male	246	76.00	7.564	202	
Female	59	76.64	6.464	303	607

Table 4 comparison of male and female PGDT student teachers attitude

Table 4 reveals that the calculated 't' value for 303 degree of freedom was not significant at 0.05 level. This means that the male and female PGDT students did not significantly differ in their attitude.

S. No.	Region category	Ν	Mean	Std. De	df	t-value
1.	Oromia	174	76.94	7.331	286	2.106
	Somali	114	75.06	7.478		
2.	Oromia	174	76.94	7.331	189	1.119
	SNNPR	17	74.88	5.988		
3.	Somali	114	75.06	7.478	129	.094
	SNNPR	17	74.88	5.988		

Table 5 comparison between areas of work or region on PGDT student teachers attitude

Table 5 shows that the calculated 't' values for students attitude across their working areas were not significantly different at 0.05 level. This means PGDT students who were working and who were assigned to work in the three different regions did not significantly differ in their attitude.

Table 6 indicates that the calculated 't' values for student teachers attitude across their specialization were not significant at 0.05 level except Geography and Sport sciences. For Geography and Sport sciences, the calculated 't' value for 52 degree of freedom was significant at 0.05 level (Refer to the Appendix).

N=305		Responses	6						
Reasons	Rank	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>	6 <sup>th</sup>	Weighed	
Keasons	Value	6	5	4	3	2	1	mean	Rank
I have no other option		170	17	14	10	19	75	4.3	1
I love teaching		72	43	24	30	44	92	3.3	5
To make a difference		7	47	40	61	102	48	2.9	6
To experience the	joy of seeing	4	68	89	74	49	21		3
children								3.5	
To have a high level of a	utonomy	15	49	84	82	50	25	3.4	4
To be a lifelong leaner		37	80	53	48	43	44	3.6	2

Table 7: Reason of PGDT student teachers to join to the teaching profession

As can be witnessed from table 7, they responded as I have no other option, to be a lifelong leaner, to experience the joy of seeing children, to have a high level of autonomy, I love teaching, and to make a difference were ranked from one to six respectively. From the date one can infer that the major reason the PGDT students join to teaching is because of lack of alternatives than loving the profession.

N=305	Respond	ents										
	Rank	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>	6 <sup>th</sup>	7 <sup>th</sup>	8 <sup>th</sup>	9 <sup>th</sup>		
	Value	9	8	7	6	5	4	3	2	1	Mean	Rank
Money		104	8	15	4	9	7	11	16	131	4.58	8
Students' dise	cipline	17	38	32	39	34	49	31	42	23	4.86	6
Desire to help	others	55	34	38	38	43	36	33	20	8	5.79	2
Working env	vironment	53	59	54	46	34	23	20	15	1	6.41	1
School leader	ship	18	32	40	44	47	39	35	36	14	5.06	3
Social status		11	42	36	44	35	36	39	35	27	4.87	5
Love for stud	ents	13	41	42	34	33	45	44	35	18	4.94	4
Making a diff	erence	14	19	22	13	39	33	47	73	45	3.83	9
Students' pro	gress	21	32	26	44	30	38	44	33	37	4.68	7

Table 8: Factors that motivated student teachers to stay in the teaching profession

Table 8 illustrates that the major factors that motivate student teachers to stay in the teaching profession were working environment, Desire to help others, School leadership, Love for Students, Social status, Students discipline, Students progress, Money and making a difference in rank order respectively.

## **Conclusions and Recommendations**

#### Conclusions

In the attitude items the attitude of PGDT students studying in Haramaya University is almost undecided (total attitude mean=3.17). Though they have been favorable for some of the statements about teaching profession, they have still been unfavorable to the teaching profession. On the other hand, majority of them believe that teachers and teaching profession deserve low social respect by other professionals; they would like to be skilled in other profession than continuing in teaching in future, they put teaching profession ninth in ranking order out of ten professions. Thus, it is possible to say that PGDT students have unfavorable attitude towards teaching profession.

- PGDT student teachers attitude did not differ across sex and place of work. Except Geography and Sport sciences there is no significant difference in attitude across PGDT student teachers specialization.
- Majority of the student teachers believe that they joined the teaching profession because of lack of other options, but not because they love it. This may indicate that they are living in the profession till they get other options and using teaching as a spring board to look for other profession and may not devote to their level best for teaching as a profession.
- The most important factors that motivate PGDT student teachers to stay in teaching profession are working environment, desire to help others and school leadership.

This may show us that teaching as a profession doesn't have attractive incentive and respect. And this may push them to look for other options than living in the profession.

#### Recommendations

Based on the findings, the following recommendations were made. People's behavior or actions are very much influenced by their attitudes. To get teachers who are committed to their profession, first it is necessary to build positive attitude towards the profession to do so,

- The Ministry of Education, the Regional Education Bureaus, Teacher Education Institution and teacher educators should promote about the relevance of the profession and being a teacher.
- As much as possible, the Ministry of Education, the Regional Education Bureaus, try their best to make the payment rate of teachers attractive enough.
- The Ministry of Education and the Regional Education Bureaus should make the school leadership and working environment conducive.

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## Appendix

Table 6 comparison between fields of specialization on PGDT student teachers attitude
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S.No.	Subject category	Ν	Mean	Std. Dev	df	t-value
1	Amharic	15	75.80	5.281	54	254
1.	Biology	38	75.08	7.080	51	.356
_	Amharic	15	75.80	5.281		
2.	Chemistry	58	77.45	7.472	71	802
_	Amharic	15	75.80	5.281		
3.	Civics	37	77.19	6.960	50	695
	Amharic	15	75.80	5.281		
4.	English	26	76.69	6.614		446
	Amharic	15	75.80	5.281		
5.	Geography	12	70.83	5.997	25	2.287
	Amharic	15	75.80	5.281		
6.	History	14	76.29	6.866	27	214
_	Amharic	15	75.80	5.281		
7.	Mathematics	43	74.98	7.427	56	.395
0	Amharic	15	75.80	5.281	50	222
8.	Physics	46	75.26	8.397	59	.233
0	Amharic	15	75.80	5.281	20	1.001
9.	Sport Sciences	16	80.06	7.425	29	-1.831
	Biology	38	75.08	7.080	94	1 551
10.	Chemistry	58	77.45	7.472	94	-1.551
	Biology	38	75.08	7.080	73	-1.301
11.	Civics	37	77.19	6.960		
12.	Biology	38	75.08	7.080	62	919
12.	English	26	76.69	6.614		
13.	Biology	38	75.08	7.080	48	1.873
10.	Geography	12	70.83	5.997		1.07.0
14.	Biology	38	75.08	7.080		549
	History	14	76.29	6.866		
15.	Biology	38	75.08	7.080	79	.063
	Mathematics	43	74.98	7.427		
16.	Biology	38	75.08	7.080		106
	Physics	46	75.26	8.397		

5.No.	Subject category	Ν	Mean	Std. Dev	df	t-value
. –	Biology	38	75.08	7.080		
17.	Sport Sciences	16	80.06	7.425		-2.329
	Chemistry	58	77.45	7.472		
18.	Civics	37	77.19	6.960	93	.169
10	Chemistry	58	77.45	7.472		
19.	English	26	76.69	6.614	82	.444
•	Chemistry	58	77.45	7.472	(0)	
20.	Geography	12	70.83	5.997	68	2.876
01	Chemistry	58	77.45	7.472	70	520
21.	History	14	76.29	6.866	70	.530
22	Chemistry	58	77.45	7.472	00	1 ( 40
22.	Mathematics	43	74.98	7.427		1.648
23.	Chemistry	58	77.45	7.472	102	1.404
20.	Physics	46	75.26	8.397	102	1.101
24	Chemistry	58	77.45	7.472	70	1 0 1 1
24.	Sport Sciences	16	80.06	7.425	72	-1.241
	Civics	37	77.19	6.960	(1	205
25.	English	26	76.69	6.614	61	.285
	Civics	37	77.19	6.960		
26.	Geography	12	70.83	5.997		2.836
	Civics	37	77.19	6.960		
27.	History	14	76.29	6.866	49	.415
	Civics	37	77.19	6.960		
28.	Mathematics	43	74.98	7.427	78	1.367
	Civics	37	77.19	6.960		
29.	Physics	46	75.26	8.397		1.121
	Civics	37	77.19	6.960		
30.	Sport Sciences	16	80.06	7.425	51	-1.353
	English	26	76.69	6.614		
31.	Geography	12	70.83	5.997		2.610
	English	26	76.69	6.614		
32.	History	14	76.29	6.866		.183
	English	26	76.69	6.614		0.15
33.	Mathematics	43	74.98	7.427	67	.968

S.No.	Subject category	Ν	Mean	Std. Dev	df	t-value
34.	English	26	76.69	6.614	70	.747
	Physics	46	75.26	8.397		
35.	English	26	76.69	6.614	40	-1.531
	Sport Sciences	16	80.06	7.425		
36.	Geography	12	70.83	5.997	24	-2.138
	History	14	76.29	6.866		
37.	Geography	12	70.83	5.997	53	-1.774
	Mathematics	43	74.98	7.427		
38.	Geography	12	70.83	5.997	56	-1.711
	Physics	46	75.26	8.397		
39.	Geography	12	70.83	5.997	26	-3.524*
	Sport Sciences	16	80.06	7.425		
40.	History	14	76.29	6.866	55	.583
	Mathematics	43	74.98	7.427		
41.	History	14	76.29	6.866	58	.416
	Physics	46	75.26	8.397		
42.	History	14	76.29	6.866	28	-1.439
	Sport Sciences	16	80.06	7.425		
43.	Mathematics	43	74.98	7.427		169
	Physics	46	75.26	8.397		
44.	Mathematics	43	74.98	7.427		-2.338
	Sport Sciences	16	80.06	7.425		
45.	Physics	46	75.26	8.397	60	-2.026
	Sport Sciences	16	80.06	7.425		

\*p<0.05 statistically significant