

# **Primary School Pre-Service Teachers' Knowledge about Inclusive Education: The Case of Three Teachers' Training Colleges in Ethiopia**

Bitew Atnaf  
Wollo University

## ***Abstract***

*This study focuses on examining the general education primary school pre-service teachers' level knowledge of inclusive education (IE) and effect of demographic variables on the participants' knowledge about IE. The research used cross-sectional survey research design. For this purpose, 283 pre-service teachers were randomly selected from purposefully picked three general education teachers' training colleges in Ethiopia: Kotebe, Debre Berhan and Dessie teachers' training Colleges. The study result showed that pre-service teachers had low level of knowledge of IE. Analysis of demographic variables indicated that the participants' age category from 19-25 had statistically significant differences in knowledge of inclusive education than age categories less than 19 and 26-35, respectively. Additionally, participants from teachers' training College one (TTC1) had statistically significant better knowledge of inclusive education than TTC2 and TTC3. However, the study result revealed that there was no statistically significant better mean difference between male and female participants. Additionally, there were no statistically significant better mean differences among the participants who were selected from three study fields: languages, social sciences and mathematics and natural sciences. Finally, the researcher forwarded recommendations to improve these teachers' training program to enhance the trainees' knowledge of and self-efficacy belief regarding IE and to conduct further research in the area under discussion.*

**Keywords:** Primary school pre-service teachers, concept of inclusive education, student diversity, meeting student's diverse needs and abilities

## **1. Introduction**

Currently, inclusive education has gained significant place worldwide as a form of educational delivery system (Mitchell, 2010; Mukhopadhyay, Molosiwa & Moswela, 2009). Inclusive education is defined differently by different professionals. However the following definition is widely used i.e. inclusive education refers to “an ongoing process aimed at offering quality education for all while respecting diversity and the different needs and abilities, characteristics and learning expectations of the students and communities and eliminating all forms of discrimination in order to meet diverse students’ needs and abilities in regular classrooms” (UNESCO, 2008 P.3, cited in EADSNE, 2010).

These days inclusive education is a debatable issue. The opponents and supporters of inclusive education raise many issues around inclusive education. However, many research results showed that supporters of inclusive education have gained more acceptance than the opponents (Mitchell, 2010). This is because inclusive education has gained significant place in the current education system since it is supposed to overcome the 21st century great challenges that have been created in the world due to complex social, political, economical and educational changes which are in turn related with ever changing global situations (Hegarty, 1994 cited in Meijer & Hegarty, 2002).

Additionally, global acceptance of inclusive education is also related with its advantages and contribution: to exercise educational rights to all citizens and to build democratic society; and to provide quality education for all in regular class rooms (Mitchell, 2010). Furthermore, it is important in developing positive attitude to accept differences in human beings (Chopra, 2008; Ainscow et al., 2006); and achieving of psychosocial, academic and other benefits to students with and without special needs (Loreman, Deppeler & Harvey, 2005; Tirussew, 2005). Besides, inclusive education is believed: to increase people with special needs significant role in economic development (MoE, 2006); and serve as an instrument to break down the barriers that separate general and special education and make the students with diverse needs and abilities

valued and respected as members of a society (Chopra, 2008). The following statement may conclude the need for inclusive education:

*Inclusion offers an alternative approach to educational development motivated by a wish to see values of equity, entitlement, community, participation and respect for diversity put into practice within teacher education institutions and schools. Because it involves commitment to an explicit set of values it makes us accountable for our own actions to ourselves as well as to others, and thereby increases responsibility and accountability. It also nourishes the idea and practice of public service, on which must depend the future of equitable systems of teacher education and education more generally (Booth, Nes & Strømstad, 2003 p.178)*

Implementation of inclusive education needs a number of considerations of components that make it happen practically. It needs Michelle's "a multi-dimensional concept" that comprises of taking in to account of a number of elements. This multi-dimensional concept is sometimes called Michelle's 'Magic Formula'. The formula incorporates the concepts, practices and principles of inclusive education. These include: inclusive education =V+P+5As+S+R+L. When these are interpreted, inclusive education can be successful when teachers have developed commitment to it and understand "its underlying philosophy and a willingness to implement it" (**V**ision); and **P**lacement of children regardless of any differences among them in age appropriate regular classrooms. Additionally it incorporates using of 5As. That is, "**A**dapted curriculum, **A**dapted assessment, **A**dapted teaching, **A**ceptance of all students regardless of differences in needs and abilities and creating favorable conditions to **A**ccess the students to inclusive education classroom." Furthermore this should integrate issues of **S**upporting the learning of the students with diverse ability and needs; **R**esourcing the students learning with adequate human and material resources; and **L**eadership, that is, committed to turn all of the components of the "Magic Formula" elements in to reality (Mitchell, 2008 p.29).

The benefits of inclusive education to students with and without special needs can be achieved when: teachers have knowledge of types of students with diverse needs and abilities (for example, social, educational, cultural, linguistic, economic, physical, religious, ethnic, gender, health, and other differences). Moreover, this needs respecting students diversity; eliminating barriers to learning; and making of student-centered teaching-learning process (UNESCO, 2013). In addition, the inclusive education can be implemented if teachers are willing to teach the most diverse and complex students (Fekede & Gemechis, 2009) by considering physical, social and curricular inclusion of students with and without special needs in regular classrooms (Mahat, 2008).

Among others, “Teachers are both duty bearers and rights holders within the framework for the right to education, and their empowerment” to meet divers students’ needs and abilities and ensure quality education for all students (UNESCO, 2009 p.90). That is, the inclusive education can be implemented when: teachers’ are actively involved in implementation of inclusive education policy (MoE, 2012; Loreman, Deppeler & Harvey, 2005; EADSNE, 2012); and they accept the philosophy and practice of inclusive education. this include among others, taking of responsibility about adjusting schools to fit students’ needs and abilities in regular classrooms rather than making students with special needs fit to schools’ teaching-learning processes in regular classes (Sharma, Lorman & Forlin, 2012). Moreover, teachers’ role in inclusive education policy implementation is also very crucial because they can play significant role through: creating suitable teaching-learning environment to all of their students; and adjusting the methods and materials they use to meet the learning needs and abilities of their students.

Teachers (including pre-service teachers) ability to welcome diversity and see the diversity of students as strength and resources rather than problems is one f the characteristics needed from them. Besides, their willingness to accept changes to implement inclusive education by mitigating challenges and using opportunities are other important factors

that the teachers of inclusive education should have to promote inclusive education (UNESCO, 2013 p.5).

The above roles of inclusive education pre-service teachers necessitate their having necessary knowledge and skills of inclusive education and other factors like confidence in their inclusive education teaching-learning processes (Horne & Timmons, 2009 cited in Shevlin et al., 2009). Knowledge refers to a sum total of understanding, know-how, judgment and skills (Badran, 1995). Knowledge in this research context refers to the four types of knowledge: situational knowledge (a type of knowledge that deals with situations); conceptual knowledge (awareness about facts, theories, principle and concepts); procedural knowledge (knowledge of procedures/steps to solve a certain problem or situation); and strategic knowledge (knowledge about development and arrangement of methods and steps that help to solve a given problem) (Braune & Foshay, 1983; Berkum & DeJong, 1991; Posner & Mcleod, 1982, cited in DeJong & Ferguson-Hessler, 1996).

It is also important to stress that implementation of inclusive education by equipping teachers with necessary knowledge and skills about inclusive education could be effective when teacher training for inclusive education program focus on training of pre-service teachers. This can be effective and efficient when the training is focused on pre-school and primary schools pre-service teachers because these stages are decisive factors of the future inclusive education implementation. This also determines the benefit of inclusive education in holistic development of children with different needs and abilities (CRS, 2010). To this end, among other things, general education primary school pre-service teachers should have “necessary” knowledge of concept of inclusive education knowledge of diversity in students (LePage et al., 2010), knowledge and skills of teaching-learning strategies that help them meet students diverse needs and abilities (EADNSE, 2012; Loreman, 2010).

The pre-service teachers’ development of the “necessary” and “adequate” knowledge of, self-efficacy belief and attitude towards inclusive education can be developed when they are made to conduct reflection on

inclusive education theoretical and practical training program components. These components include: diversity in students that mirror an inclusive classroom; concept of inclusive education; equity pedagogy and related issues (Moran, 2009; Lucas, 2011). Besides, pre-service teachers' knowledge of and other variables towards inclusive education can be affected by coursework thorough: role-play and simulation; video-watching; discussions and presentations on concept of inclusion, diversity in students and equity pedagogy (Andrews & Clementson, 1997 cited in Theaker, 2008). These can also be affected by field experience in order to familiarize pre-service teachers with students with special needs on the issues of inclusive education through case study, action research and other means (Ahsan, Sharma & Deppeler, 2012; Bowlin, 2012; Loreman, Forlin & Sharma, 2007; Stamopoulos, 2006). Using of guest speaker(s)/lecturer(s) who are successful people with disabilities (Bustos et al., 2012); and resourcing and availing of support in the teachers' training colleges and schools for practicum (Ahsan, Sharma & Deppeler, 2012; Lambe & Bones, 2006; Malak, 2013; Pinnock & Nichollas, 2012) are also identified as some of the crucial elements for inclusive education teachers training to positively influence pre-service teachers develop necessary knowledge of, attitude and self-efficacy belief towards inclusive education.

With regard to Ethiopia, the country has accepted international inclusive education policy, legislations, and conventions in order to gain the benefits of inclusive education (MoE, 2006). Additionally, the general education teachers (including general education primary school pre-service teachers) are expected to have knowledge and skills in relation to understanding the philosophy of inclusive education policies and practices. Additionally, they are expected to identify barriers to learning and participation of students in learning as well as how to overcome these barriers. They are also required to have knowledge of providing appropriate support to students with special needs in the classroom and effectively manage inclusive classrooms. They should also understand existence of students with diverse needs and abilities in regular inclusive classrooms (MoE, 2006). Moreover, these general education teachers are expected to have knowledge and skills that help them:

*support students with special needs in their classroom; consult special needs education professionals/itinerant teachers when they are encountered with the problems she/he cannot handle by her/himself; work in close collaboration with parents of students with special needs on the progress of their learning; conducts action research to mitigate barriers to learning in classroom situation; identifies and assesses students individual abilities, learning and environmental barriers so that they can plan to remove the barriers and assist their students; and Use innovative instructional strategies, for example, cooperative and collaborative learning, peer-tutoring heterogeneous grouping (ability grouping, mixed grouping, interest based grouping), to meet the needs of all children in the classroom (MoE, 2012 pp.38-39).*

## **2. Problem Statement**

As it is stated above the Ethiopian general education teachers (including pre-service teachers) are expected to understand the philosophy and principles of inclusive education. They are required to have knowledge and skills about how to meet diverse students' needs and abilities in regular classrooms by overcoming different barriers (MoE, 2006). They are also expected work with others like parents, special needs education teachers and other relevant stakeholders in order to implement inclusive education. They need to take responsibility to teach all students in regular classrooms and develop positive attitude towards students with diverse needs and abilities. Additionally, they should develop confidence about teaching-learning activities in regular classrooms (MoE, 2012).

On the other hand, some study results conducted in different countries of the world showed that the pre-service teachers' level of knowledge of inclusive education depends mainly on training program contents and pedagogy as well as resources and supports in practicum schools (El-Ashry, 2009). To identify level of knowledge of inclusive education and factors that affect these variables, frequent study is needed to identify whether or not these teachers training is in line with inclusive education teachers training program objectives (Sze, 2009; West & Hudson,

2010).Regarding the general education primary school pre-service teachers knowledge of inclusive education in Ethiopia, the researcher believes that little or no researches are conducted. Therefore, the major objective of this study was to address the following research questions by using quantitative cross-sectional descriptive survey research design with the following main questions:

1. What is the level of the study participants' knowledge of inclusive education?
2. Is there significant mean score differences about knowledge of inclusive education due to their selected demographic variables (gender, age groups, field of study and the teachers training colleges they are selected for the study) differences?

### **3. The Research Methodology**

#### **3.1. Research Design**

The researcher used quantitative research method specifically *cross-sectional* quantitative survey method. This method helps researchers collect data at one point to study different variables regarding participants' for example: opinions, behaviors, knowledge, attitudes and beliefs, or practices. "This design has the advantage of measuring current attitudes or practices. It also provides information in a short amount of time" (Creswell, 2012 p.377).

#### **3.2. Participants and sample selection**

The participants of this study were general education primary school pre-service teachers who were selected from three teachers' training colleges: Kotebe Teachers' Training College, Debre Berhan Teachers' Training College and Dessie Teachers' Training College. These participants were third year pre-service teachers who completed their training program (both coursework and practicum). The researcher selected 302 pre-service teachers' participants from the accessible population of 1,372 through stratified random sampling. The stratification was made based on the participants' gender and field of study (language studies, social science studies, and mathematics and natural science studies). From these



pre-service teachers, 176 male and 107 females (totally 283) participants' data which were fully completed was used for the data analysis. From these participants, n=78(28%), n=121(43%) and n=84(39%) were taken from social sciences studies, mathematics and natural science studies and language studies, respectively. Moreover, with regard to the participants selection from the teachers' training colleges, among the 283 participants n=96(33.9%), n=97(34.3%) and n=90(31.8%) were selected from Kotebe Teachers' Training College, Debre Berhan Teachers' Training College and Dessie Teachers' Training College, respectively.

### **3.3. Instruments**

The researcher used Inclusive Education Factual Knowledge Questionnaire as an instrument for data collection. This questionnaire is adopted from literature to measure the pre-service teachers' factual knowledge level specifically about concept of inclusive education, types of students who need special needs education and creating inclusive settings that help the teachers meet students diverse needs and abilities in inclusive classrooms. The questionnaire was validated by the researcher using panel of judges and pilot testing to identify the research tool's validity and reliability results. This questionnaire consists of 35 items. Each item has three choices, that is, *True/ Yes*, *False/ No* and *Do not Know*. This questionnaire has reliability coefficient of Cronbach  $\alpha$  .818. The questionnaire gives total-score, the value which can range from 0 to 35 for a single participant. This was done by scoring procedure: a correct response was coded with a score of 1, and incorrect response was coded with a score of 0, and a score of 0 was used for "Do not know" response (Wang, 1997).

The scores level was delimited in to three categories based on Bowen and Power's (2005) cutting points for knowledge level of participants: a score of below 60% is considered as low knowledge; between 60% and 79% is taken as moderate knowledge and 80% and above is counted as high knowledge/knowledgeable.

### **3.4. Procedures**

Data were collected based on the permission given by the three teachers' training colleges' administrative staff personnel (deans and vice-deans). Moreover, the researcher established rapport with the study participant pre-service teachers' representatives and some teachers' trainers. They were verbally briefed about the aims and objectives of this research. Then, the researcher randomly selected the participants on the date the researcher and the participants agreed to respond to the questionnaire. Moreover, the researcher and his two research assistants' distributed the survey instruments to the participants who were selected randomly through stratification in gender and field of study. Besides, the researchers and his assistants advised the study participants that their responding to the survey instrument questionnaires was based on their voluntary participation. During the completion time, no time limitation was given to the participants. The participants completed the survey within average of 30 minutes (including other instrument that is not included in this article). Furthermore, all of the instruments used in this research were translated from Amharic to English languages and backward from English to Amharic languages by the help of one Amharic and one English language experts, respectively before the instruments were used to collect the intended data.

### **3.5. Data Analysis**

The data analysis was conducted by using SPSS version 15. Mean, standard deviation, percentage, T-test and one way ANOVA were used to determine the participants' level of knowledge of inclusive education.

### **3.6. Ethical consideration**

As it is stated in the procedures section, the researcher collected the necessary data by the permission of the research settings administrative personnel and free willingness of the participants of the study. The researcher also used codes during the data analysis not to expose the participants' identity and name and research settings names. To this end, the researcher used PT for pre-service teacher, TT for teachers' trainer and TTC for teachers' training college.

## 4. Results

### 4.1. Pre-service Teachers' Knowledge of Inclusive Education

#### 4.1.1. Pre-service Teachers' Knowledge of Concept of Inclusive Education

Table 1: *Pre-Service Teachers Knowledge of Concept of Inclusive Education*

Q.N	Item	Yes	No
		f (%)	f (%)
1	IE addresses SwSNE needs and abilities in regular classrooms.	210(74)	73 (26)
2	IE placement by fitting SwSNE in regular classrooms	122(43)	161 (57)
3	IE focuses most often on meeting SSNE in regular classrooms.	110(39)	173(61)
4	IE is beneficial for promoting SwSNE self-confidence.	175(62)	107(38)
5	IE is beneficial for promoting SwSNE social relationship skills	178(63)	105(37)
6	IE is beneficial for promoting SwSNE communication skills	188(66)	95(34)
7	IE is not beneficial for SwSNE academic achievement development	100(35)	183(65)
8	IE is beneficial for promoting SwoSNE positive attitude towards diversity.	137(48)	146(52)
9	IE is not beneficial for promoting SwoSNE helping skills.	156(55)	127(45)
	Grand Total	153(54)	130(46)

Note: "Yes" represents correct answer to given items, where as "No" represents sum of incorrect and "do not know" answers to the given items, IE= Inclusive Education, SwoSNE = Students without Special Needs Education, SwSNE, IE= Students with Special Needs Education

Regarding the concept of inclusive education, the participants' correct response to items 1, 4, 5 and 6 means their knowledge in those areas was under the range of moderate level of knowledge (60%-80%). Thus, they had moderate level of knowledge: of definition of inclusive education

(item1, 74%); of benefit of inclusive education in promoting students with special needs self-esteem (item 4, 62%). Additionally, they had moderate knowledge of item and 6, that is, the benefit of inclusive education to students with special needs development of social relation skills (item 5, 63%) and communication skills (item6, 66%). On the other hand, the participants' level of knowledge was low in items 2,3,7,8 and 9. In other words; the participants' correct responses were below 60%. For example, they had low knowledge about fitting the school system to the diverse students' needs and abilities (item2); benefit of inclusive education in improving academic achievement of students with special needs; developing students without special needs helping skills; and positive attitude towards human diversity (items 7, 8 and 9, respectively).

Although the individual items analysis indicated that the participants had moderate level of knowledge to some items and low level of knowledge to other items, Table 1 indicated that more than half of the participants (n=153/54%) responded "Yes" which showed that they had low knowledge about items indicated thereof.

#### **4.1.2. Pre-Service teachers' knowledge of diversity in students with special needs**

*Table 2 Pre-Service Teachers Knowledge of Diversity in Students with Special Needs*

Q.N	Item	Yes	No
		f (%)	f (%)
10	Students with disabilities	245(87)	38(13)
11	Gifted and talented	162(57)	121(43)
12	Economically disadvantaged	122(43)	161(57)
13	Culturally disadvantaged	73(26)	229(79)
14	Linguistically disadvantaged	92(33)	191(68)
15	Orphans	96(34)	187(66)
16	Female students	65(23)	218(77)
Grand Total		122(43)	161(57)

**Note:** "Yes" represents correct answer to given items, where as "No" represents sum of incorrect and "do not know" answers to the given items

Table 2 revealed that greater than one-third of the participants (n=122, 43%) had low level of knowledge regarding types of students who need special needs education. However, more than half of the participants (n=161, 57%) responded “No” which in turn revealed that they had lack of knowledge about the types of students with special needs.

#### 4.1.3. Pre-Service Teachers Knowledge of Creating Inclusive Setting/Classroom

*Table 3 Pre-Service Teachers Knowledge of Creating Inclusive Setting/Classroom*

Q.N	Item	Yes	No
		f (%)	f (%)
<b>Curriculum modification regarding:</b>			
17	content of instruction	184(65)	99(35)
18	teaching methodologies	167(59)	116(41)
19	developing of IEP for who need intensive support	143(50)	140(50)
21	classroom physical environment	186(66)	96(34)
22	teaching materials	124 (44)	159(56)
27	managing disruptive behaviors	93(33)	190(67)
<b>Lesson planning and students cooperative learning. implementation of IE through:</b>			
20	daily lesson planning by considering students SwoSNE	111(39)	172(61)
23	active participation of all students	185(65)	98(35)
25	peer-tutoring strategy	165(58)	118(42)
26	heterogeneous-grouping strategy	182(64)	101(36)
<b>Assessment of students learning:</b>			
31	to identify learning styles	170(60)	113(40)
32	to use results for further learning	69(25)	214(76)
33	to involve parents as sources of information	164(58)	119(42)
34	by using modified assessment tools (materials)	169(60)	114(40)
35	by using of students learning assessment to reflect curricular objectives	136(48)	147(52)

Collaborative activity with					
24	special needs education teacher for co-teaching			145(51)	138(49)
28	parents for resources contribution			178(63)	105(37)
29	parents for decision-making			170(60)	113(40)
30	parents for follow-up of students learning at home			187(66)	96(34)

**Note:** “Yes” represents correct answer to given items, where as “No” represents sum of incorrect and “do not know” answers to the given items, IE= Inclusive Education, SwSNE = Students without Special Needs Education, SwSNE, IE= Students with Special Needs Education, IEP=Individualized educational program

Table 3 revealed that the participants had moderate knowledge of items 17 and 21. That means, 65% and 66% of them correctly answered about the need to modify content of instruction and physical classroom environment to meet students’ diverse needs and abilities in regular classrooms, respectively. Additionally, more than half of the participants’ had moderate knowledge of items 28, 29 and 30. That is, n=178(63%), n= 170(60%) and n=187(66%) respectively reported “Yes” which indicated that teachers are needed to collaborate with parents as resources for information, planning activities and follow-up of their children’s learning. Furthermore, more than half of the participants had moderate knowledge of items 31 and 34 i.e. n=170/60% and n=169/60% reported “Yes” which indicated that there is a need to assess and identify students learning styles, and modification of assessment strategies to meet students diverse needs and abilities in regular classrooms, respectively. On the other hand, the participants had low level of knowledge of the rest of the items. For example, they had low level of knowledge about collaboration of general and special education teachers in teaching (items 19, 24,32and35). Generally, Table 3 shows that more than half of the study participants, n=153(54%) responded correctly by saying “Yes” that showed that they had low knowledge about creating the in inclusive setting/ classroom that help meet diverse students needs and abilities.

## 4.2. Effect of Demographic Variables on the Knowledge of Inclusive Education: Independent t-Test and One way ANOVA Analysis

The researcher used independent t-test to analyze mean score differences in relation to the participants' gender differences. One way ANOVA to analyze mean score differences based on the participants age group and training colleges differences.

*Table 5: Pre-Service Teachers' Knowledge of Inclusive Education based on Gender*

Category	S/N	Gender	n	M	SD	t-values	df	P
Gender		M	176	0.53	0.17	.743	281	.458
		F	107	0.52	0.16			

Table 5 indicates that the *t*-values for the knowledge and self-efficacy belief of the male and female participants about inclusive education was  $t(281) = .743$  and  $t(281) = -.327$ , respectively. The *p* value was .458. Thus, there was no statistically significant mean difference between male ( $M=.53$ ,  $SD= 0.17$ ) and female ( $M=0.52$ ,  $SD=0.16$ ) participants' in their knowledge of inclusive education.

*Table 6: One way ANOVA Results for the Respondents' Knowledge of Inclusive Education by Age Groups*

Group Category	SS	Df	MS	F	P
Between groups	0.995	2	.498	20.13	.000(*)
Within groups	6.922	280	.025		
Total	7.917	282			

(\*)The mean difference is significant at  $\alpha .05$  level.

The ANOVA test result indicated in Table 6 that the participants' age level had statistically significant effect on their knowledge of inclusive education,  $F(2,280)=20.13$ ,  $p < .001$  and  $F(2,280)=5.80$ ,  $p=.003$ , respectively. The post-hock analysis using Tukey HSD post-hock criterion for significance indicated that age category between 19-25 had better knowledge of inclusive education ( $M=0.56$ ,  $SD=0.16$ ) than age category  $<19(M=0.46$ ,  $SD=0.16)$  and age category 26-35( $M=0.40$ ,  $SD=0.15$ )  $F(2,280)=20.13$ ,  $p=.001$  respectively.

*Table 7: One way ANOVA Results for the Respondents' Knowledge of Inclusive Education by Teachers' Training Colleges*

<b>Group category</b>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P</i>
<b>Between groups</b>	.492	2	.246	9.267	.000(*)
<b>Within groups</b>	7.426	280	.027		
<b>Total</b>	7.917	282			

(\*)The mean difference is significant at  $\alpha .05$  level.

Table 7 shows that the participants had statistically significant mean differences about their knowledge of inclusive education,  $F(2,280)=9.267$ ,  $p<.001$ ). The post-hock analysis using Tukey HSD post-hock criterion for significance indicated that there was statistically significant mean differences in inclusive education knowledge between the participants from TTC2 ( $p<0.001$ ) and TTC1 and TTC3 ( $p=.006$ ). This demonstrated that pre-service teachers from TTC3 had better knowledge of inclusive education ( $M=0.53$ ,  $SD=0.16$ ) than TTC1 ( $M=0.51$ ,  $SD=0.17$ ) and TTC2 ( $M=0.49$ ,  $SD=0.16$ ).

*Table 8: One way ANOVA Results for the Respondents' Knowledge of Inclusive Education based on Field of Study*

<b>Group Category</b>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P</i>
<b>Between groups</b>	.050	2	.025	.897	.409
<b>Within groups</b>	7.867	280	.028		



<b>Total</b>	7.917	282
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Table 8 shows that there is no statistically significant mean differences in the knowledge of inclusive education among participants from field of studies among social sciences, languages and natural sciences and mathematics,  $F(2,280)=0.897$  and  $p=.409$ .

## **5. Discussion**

### **5.1. Pre-service Teachers Knowledge of inclusive education**

#### **5.1.1. Pre-service Teachers' Knowledge of Concept of Inclusive Education**

The study result showed that the pre-service teachers had low level of knowledge about the concept of inclusive education. They had moderate knowledge only to four out of nine items. Participants had low level of knowledge to the rest of items. Generally their moderate level of knowledge does not mean they had sufficient inclusive education concept. This suggested they had neither high nor low level of concept of knowledge.

Generally, the participants had low level of knowledge of concept of inclusive education. This study result contradicts studies done by Nketsia (2011), Lambe (2007) and Lambe and Bones (2006). For example, Lambe and Bones (2006) found that majority of the pre-service teachers had high knowledge of the benefit of inclusive education specifically in relation to promoting the students' with and without special needs development in self-esteem, social interaction skills and understanding diversity and respecting of the diversity in students. However, this study result supports study results of Simi (2008) that was carried out in the Solomon Island and El-Ashry (2009) made in Egypt who found that the pre-service teachers of primary and secondary schools had low level of knowledge about the benefit of inclusive education. Additionally, the current study participant pre-service teachers' inadequate knowledge of the concept of the inclusive education seems to confirm the report made by Paper Commissioned for the EFA Global Monitoring Report (2010).

This report states that in Ethiopia (also in Rwanda) there is no clear information to teacher trainees whether the country needs special needs education with some sort of segregation (using regular classrooms with alternative placements in special schools, special classes) or full inclusion in which students with special needs get full service in regular classrooms. This may imply that the pre-service teachers show misunderstanding towards philosophy and principles of inclusive education which in turn make them develop negative attitude towards inclusive education.

### **5.1.2. Pre-Service Teachers Knowledge of Diversity in Students with Special Needs**

The study result demonstrated that pre-service teachers had low knowledge on students' diversity. They have lack of knowledge about students with different special needs and ability differences except students with different disabilities and impairments. That means, they had high knowledge about students with different disabilities are found under categorization of students with special needs. However, they had lack of knowledge about different students with different needs and abilities other than students with disabilities can be categorized under students with special needs or not.

This study result supports studies conducted in different countries of the world. For example, in the Solomon Island, pre-service teachers and teachers' trainers had lack of knowledge of types of students with special needs. They considered students with disabilities as the only types of students who needed special needs education (Simi, 2008). Moreover, a study conducted by Mousouli et al. (2009) in Greece showed that the majority of physical education pre-service teachers considered students with intellectual disability as the only students with special needs. On the contrary, this study result contradicts, Brown's (2009) study result. Brown found that study participant pre-service teachers' had adequate knowledge of diversity in students. This may suggest that the pre-service teachers' lack of knowledge about students with diverse needs and abilities could be enhanced when the training mirrors the students with diverse needs which could found in an inclusive classroom.

### **5.1.3. Pre-Service Teachers' Knowledge of Teaching-Learning Strategies to Meet Diverse Students Needs and Abilities**

The individual items data analysis result demonstrated that study participants do not have high knowledge about inclusive education teaching learning strategies that help them meet diverse needs and abilities. Among the 15 items, the participants had moderate knowledge to 10 items. They had low level of knowledge to other five items. Their moderate (neither high nor low) level of knowledge does not mean they can effectively implement inclusive education. This suggests that they need extra training even meeting diverse students' needs and abilities in inclusive classrooms.

The study indicated that the participants had low level of knowledge about inclusive education teaching and learning strategies that help them meet diverse needs and abilities. This study result partially contradicts some studies conducted globally. For example, Nketsia's (2011) study conducted in Ghana revealed that general education pre-service teachers had high knowledge about arranging classroom to make it conducive for active participation of all students regardless of the students' diverse needs and abilities. Additionally, the research result reported by Kirk (1998 cited in El-Ashry, 2009) showed that the study participant pre-service teachers had high knowledge about strategies to meet students with diverse needs and abilities because of their getting training opportunities of 15 hours field practice training chance by focusing on meeting of the diverse students' needs and abilities in regular classrooms. On the other hand, this study result partially supports other study results carried out in different countries of the world. For instance, Cook (2002) found that the pre-service teachers' had lack of knowledge about adaptation of instructional methods and strategies, classroom management and assessment techniques that address diverse students' needs and abilities in regular classrooms.

Similarly, Hemings and Woodlock (2011) concluded that the pre-service teachers' had lack of inclusive education teaching- learning methods that help meet students with diverse needs and abilities in regular classrooms. The current study result is partly consistent with many research results in

relation to the pre-service teachers lack of knowledge about: planning and implementation of individualized educational program (IEP) (Nketsia & Saloviita, 2013); grouping students based on their ability differences; supporting students with special needs; and cooperation with special needs education teachers (Beacham & Rouse, 2012).

Overall, the present study participants' low knowledge about inclusive education regarding training problems that equip the pre-service teachers with necessary knowledge and skills about inclusive education teaching-learning practices seems to support global problem about the issue under discussion. For instance, Allday, Neilsen-Gatti and Hudson (2013) who conducted research on many teachers' training institutions in the United States found that many of these teachers' training institutions did not train their trainees on practical activities that help the teachers meet students' diverse needs and abilities in regular classrooms. However, they mainly focus on the training of the future inclusive education teaches on learning and other characteristics of students with different disabilities. Among others, such problems were also seen in Zimbabwe (Das & Ochiai, 2012) and in Egypt (El-Ashry, 2009).

Generally, the study result supports MoE which states that teachers who graduate from teachers' training institutions have lack of knowledge and skills about inclusive education. This is because "The existing special needs education/inclusive education courses in teachers' education institutions are overly theoretical and too reliant on the medical model" (MoE, 2012 p.9)

It is possible to suggest from the findings that, the study participants pre-service teachers may not be able to implement inclusive education when they become teachers. This is because they are not equipped with necessary knowledge of concept of inclusive education, diversity in students and creating inclusive teaching and learning strategies. In line with this, some research results conducted in different areas of the preparation of pre-service teachers for inclusive education indicated that teachers' low level of knowledge of inclusive education could result in negative effect on the implementation of inclusive education. For

example, lack of the pre-service teachers' knowledge of inclusive education concept may result in problems in their how to live with and how to learn one from another by accepting differences among human beings (Ainscow, 2004 cited in Opoku-Nkoom, 2010; Lewis & Bagree, 2013).

Similarly, low level of knowledge of diversity may hinder the pre-service teachers: not to create conducive learning environment to diverse students' needs and abilities; and ignore using of diverse students' needs and abilities as resources to maximize inclusive education teaching-learning processes (Alger et al., 2000; Tobias & Bang, 2008). This may also maximize marginalizing and excluding students who need special needs education from full participation based on their needs and abilities differences (Ainscow, 2004 cited in Opoku-Nkoom, 2010; MoE, 2012; Lewis & Bagree, 2013). This may also make them: develop negative attitude and low self-efficacy towards inclusive education (Forlin & Chambers, 2011; Bowlin, 2012; Nketsia, 2011); and use teacher-centered teaching methodology.

## **5.2. Effect of Demographic Variables on the Pre-Service Teachers' Knowledge of Inclusive Education**

### **5.2.1. Effect of Age and Gender Differences on the Pre-Service Teachers' Knowledge of Inclusive Education**

The study revealed that the participants who are under age category of 19-25 years had statistically significant better knowledge of inclusive education than age categories less than 19 years and those between 26 and 35 years. Moreover, age category 19-25 had statistically significant better self-efficacy than age category 26-35 towards inclusive education. The possible reason for the study participants' age category from 19-25 having statistically significant better knowledge of and self-efficacy towards inclusive education than other two categories is not clear. This needs further research. It may be because people in early 20s are in the developmental stages who "take whatever jobs, journeys, and risks they want" (Berger, 2008 p.516). Furthermore, according to Berger (2008) this stage of human development is a time in which early adults strive for

more education and change. Therefore, it is better to expose these people to new ideas, changes and innovations.

This research result indicated that the participants' scores on gender difference had no statistically significant effect on the study participants' knowledge of inclusive education. This does not support Nketsia's (2011) study result which revealed that male pre-service teachers had better knowledge and skills of inclusive education than females.

The likely reason for absence of statistically significant difference between male and female pre-service teachers' knowledge of inclusive education might be because as Pendergast, Garvis, and Keogh (2011) have stated, knowledge of inclusive education are connected with content or context that create impact on cognitive functioning rather than gender and age of pre-service teachers' towards inclusive education.

### **5.2.2. Effect of fields of study on the pre-service teachers' differences in knowledge of inclusive education**

The quantitative data analysis result showed that field of studies/disciplines had no significant differences in the participants' knowledge of, attitude and self-efficacy belief towards inclusive education. Available research results do not either support or contradict the current research result in relation to lack of statistically significant differences in knowledge of and self-efficacy belief towards inclusive education based on different field of studies.

Study participants not having statistically significant differences in their knowledge of inclusive education due to field of study differences might have happened because the training in special needs education course had the same effect on the pre-service teachers' knowledge and self-efficacy belief towards inclusive education. It might have happened because the pre-service teachers training programs did not have elements that positively affect the trainees to have statistically significant differences in their knowledge of inclusive education. In fact, this needs further research why the study participants' level of knowledge of inclusive education did not result in statistically significant differences due to

differences in study fields: language studies, social sciences, and mathematics and natural sciences

### **5.2.3. Effect of differences among the pre-service teachers' knowledge inclusive education due to the teachers' training colleges differences**

Quantitative data analysis result showed that the mean scores of the pre-service teachers from TTC3 had better knowledge of inclusive education than the other teachers training colleges (TTC1 and TTC2). Even though available study results do not either supports contradict the current study participants level of self-efficacy belief in relation to comparison of different teachers training colleges where the participants were selected, the statistically significant difference seen in the TTC1 about the pre-service teachers' knowledge of inclusive education in the current study supports other study results conducted in different countries of the world.

For example, Niketsia's (2011) study result which revealed that the pre-service teachers from one teachers training college had better knowledge of inclusive education than other two teachers training colleges. According to Niketsia's (2011) suggestion, the significant difference might have happened because one of the teachers' training colleges used better training strategies than the other two teachers' training colleges. This also partially support Ahsan, Sharma and Deppeler's (2012) finding which states that the pre-service teachers who had knowledge of local inclusive education policy had better perceived self-efficacy than those who had no such knowledge. Additionally this research result confirms study result conducted by Loreman, Sharma, Forlin and Earle (2005) on three teachers training institutions: one university in Canada (Concordia University College); and two universities in Australia (Edith Cowan University in WA and Monash University) showed that pre-service teachers from Concordia University College and Monash University had statistically significant better favorable attitude than Edith Cowan University. As Loreman, Sharma, Forlin and Earle (2005) have suggested these differences might have occurred due to the two universities better training opportunities in inclusive education than Edith Cowan University.

## **6. Conclusions**

The study result showed that the pre-service teachers' had low level of knowledge of inclusive education: concept of inclusive education, students' diversity and meeting diverse students' needs and abilities in inclusive classrooms.

Regarding effect of differences in demographic variables, participants from age category of 19-25 years had statistically significant better knowledge of inclusive education than other age categories. Further, pre-service teachers from TTC1 had statistically significant better knowledge than TTC2 and TTC3. However, the study result also indicated that the participants' gender differences did not result in statistically significant better knowledge of inclusive education among male and female participants.

Similarly, there was no statistically significant better knowledge of inclusive education between participants who had contact experience with people with disability and who had no such contact/experience. Moreover, field of study differences did not result in statistically significant difference in knowledge of inclusive education among the study participants who were selected from social sciences studies, language studies and mathematics and natural sciences studies.

Even though Ethiopia has inclusive education policy guidelines and strategies, "Policies in themselves cannot create an effective implementation of inclusive education." Teachers of inclusive education should be trained to have inclusive education "ontological and epistemological perspectives" of inclusive education that will help them to implement inclusive education based on the inclusive education principles and practices (Khan 2012, p.115). However, the result of this study suggests that training of the general education primary school pre-service teachers' is not in line with equipping the trainees with necessary knowledge and skills, to implement inclusive education policy of the country.



## 7. Recommendations

Teachers training institutions should use training strategies that enhance pre-service teachers' knowledge inclusive education. Specifically, the general education primary school pre-service training institutions should use training strategies that enhance pre-service teachers' knowledge of inclusive through theoretical and practical training strategies. The colleges should use inclusive education training methods like reflection, simulation, role-play, viewing video, using model guest lecturers with disability, and other strategies to enhance the trainees' level of concept of and diversity in students who could exist in an inclusive classroom.

Additionally, the training that enhance the trainees inclusive education concept and teaching learning strategies should be conducted through action research, case study, observation of model inclusive education teaching-learning strategies and other strategies. The teachers training colleges should implement practicum in inclusive education classrooms to enhance the trainees' knowledge and skills of inclusive teaching-learning strategies through practical training. Generally, the general education primary schools pre-service teachers' training colleges should enhance level of knowledge and skills regarding:

- ✓ Concept of inclusive education(definition of inclusive education, inclusion and exclusion, philosophy and practice of inclusive education, fitting schools system to fit students diverse needs and abilities, benefit of inclusive education, etc) ;
- ✓ Diversity in students (students with diverse backgrounds and differences that may exist in an inclusive classrooms); and
- ✓ Teaching-learning strategies that help teachers meet diverse students' needs and abilities in regular schools. Among others, these integrate: Modification of psychosocial and physical classroom environment; modification of curriculum (content, teaching methods, assessment methods, instructional materials (aides/assistive aids), developing and implementation of IEP; and working collaboratively with others like colleagues,

special needs education teachers, parents and other relevant stakeholders.

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