Introduction

Inclusive education (IE) has gained significant place in the 21st century education system of the world. IE is defined differently by different professionals. For example, Ainscow et al.(2006) stated that there are different ways of conceptualization of IE. Even though there are different definitions about IE, the following definition is widely used. IE 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, as cited in EADSNE, 2010).

Literature review indicated that IE has become a debatable issue in the world education system. This has happened because it has got opponents and proponents. However, many research results demonstrated that supporters of IE have gained more acceptance than the opponents (Mitchell, 2010). As a result, IE has gained significant place in the current education system because it is supposed: to overcome the current great challenges that have been created in the world due to complex social, political, economical and educational changes that are created due to ever changing globalization (Pijl,Meijer and Hegarty,2002).It is also recognized as the major source of quality education to both students with and without special educational needs (SEN) (MoE,2012); and creating an inclusive society where every individual is valued and respected regardless of diverse background differences (Mitchell, 2010). This notion has made many countries of the world (including Ethiopia) to accept IE as main education policy (Peters, 2004).

The above benefits of inclusive education can be achieved when especially pre-primary and primary school pre-service teachers get effective training on IE. This is because conducting inclusive education at pre-primary and primary schools by equipping pre-service teachers are fundamental source of effective IE implementation. This helps a country to create new breeds of IE teachers and to create an inclusive society (Catholic Relief Services Vietnam, 2010).

Among others, the inclusive education can be implemented when: teachers' are actively involved in implementation of inclusive education policy (MoE, 2012; Loreman, Deppeler and Harvey, 2005; EADSNE, 2012); by taking of responsibility about adjusting schools to fit students needs and abilities in regular classrooms rather than making the students with SEN fit to schools' teaching-learning processes (Sharma, Lorman and Forlin, 2012). Moreover, the

implementation of IE relies "upon the nature and quality of teaching -learning" strategies that help teachers meet diverse students needs ability differences in an inclusive classroom (UNESCO, 2013, P.2). Students with diverse needs and ability differences include: differences in students physical, psycho-social, cognitive, academic, background experience, preferences and other needs (Alberta Education, 2010). They also can have linguistic, cultural and learning style differences that need to be considered during teaching-learning processes (Terry and Irving (2010). IE teaching-learning strategies in this study context refers to using of different approaches in which teaching-learning methods which are "meaningful, relevant and accessible to all" students regardless of differences among them. "It embraces a view of the individual and individual difference as the source of diversity that can enrich the lives and learning of others" (Hockings, 2010, p.1).Teaching-learning strategies (inclusive pedagogy) includes: modifications of teaching-learning methods, assessment strategies, social and physical classroom management strategies, cooperative learning and collaborative teaching, IEP development and implementation and others strategies that help teachers and stakeholders meet students with and without SENs' needs and ability differences (Loreman, 2010; EADSNE, 2012).

Pre-service teachers' knowledge of IE is important in meeting diverse students' needs and abilities by overcoming barriers to inclusive education (UNESCO, 2013). It is also essential to develop positive attitude towards IE (Bowlin, 2012) and confidence regarding IE implementation (UNESCO, 2013). Conversely, this implies that if they have lack of knowledge of teaching-learning strategies, they could not teach students in inclusive classroom by meeting these students' diverse needs and abilities. They may also develop negative attitude and low confidence regarding IE.

Studies conducted for over the past 20 years showed that the implementation of IE resulted in benefits to both students with and without SENs' development in academic, social, behavioral and other areas. This happened due to the IE teachers': using of quality individualized educational program (IEP); making the students with and without special needs education actively engage in their learning; and effective use of instructional time and other teaching-learning strategies (Maryland Coalition for Inclusive Education, 2009). Study results also indicated that pre-service teachers knowledge of IE depend on their training quality on IE. For instance, study results done by Nketsia (2011) and Kirk (1998) indicated that pre-service teachers had high teaching-learning methods because of practical training on IE. On the other

hand, Das and Ochiai (2012), Nimante and Tubele (2010) found that pre-service teachers had low knowledge of teaching-learning strategies that meet students' diverse needs and ability differences in regular classrooms. Study results also indicated that teacher training programs which focus on theoretical aspects and give little attention to practical aspects of IE are main source of pre-service teachers' inadequate practical knowledge of IE (Allday, Neilsen-Gatti, and Hudson, 2013; European Training foundation, 2010).

The above discussion suggests that pre-service teachers' knowledge of IE teaching-learning strategies depend on their training program quality. In line with this, literature review indicated that teacher training for IE should be designed and implemented in a way it develops the trainees' knowledge of, attitude and related factors regarding IE. For example, researchers recommend the following training program methods to achieve this goal: using balanced conceptual and practical aspects of IE (Lewis and Bagree, 2013); mainstreaming issues of IE across courses (LMLIP and PPCII, 2012; Lewis and Bagree, 2013); collaborative training between general and special education teacher training departments (Peters, 2004); and conducting practicum in inclusive schools (Ahsan,Sharma and Deppeler, 2012). Moreover, pre-service teachers' knowledge about equity pedagogy can be enhanced through training program delivery strategies that focus on concept, diversity among students and teaching-learning strategies. Among others, these include: reflection (Lucas, 2011), role-play, simulation and video-viewing and discussions on it (Andrews and Clementson, 1997 as cited in Theaker, 2008).

Pre-service teachers' demographic variables such as age, gender, and contact with student/adults with disability, field of study/disciplines can have effect on their knowledge and skills of IE (Bradshaw and Mundia, 2006; Theaker, 2008; Ahsan et al., 2012).

The above discussion implies that pre-service teachers' knowledge of IE teaching-learning strategies result from a number of factors that are interrelated. This also suggests that studies that investigate the trainees' knowledge of IE teaching learning strategies should include assessing of these factors among others. In line with this, Sindelar, Brownell and Billingsley (2010) assert that studies that aim at studying teacher training program for inclusive education competence development should focus on the investigation of: training program elements or variables that positively affect their competence development in knowledge and attitude about IE and how to make training effective to develop trainees' necessary IE competence. Moreover, it is suggested that issues of pre-service teachers' knowledge of and attitude towards IE and other

related issues need frequent study so as to identify whether or not these teachers training is in line with developing trainees IE competence (Sze, 2009; West and Hudson, 2010). It is also stressed that without addressing the above issues , pre-service teachers training to develop necessary knowledge of inclusive education that help them meet students diverse needs and ability differences in inclusive classrooms can not be possible. This may result in producing teachers who cannot implement IE (Bowlin, 2012)

In Ethiopia, the general education teachers (at pre-primary, primary, secondary and tertiary levels) are expected to understand philosophy and principles of inclusive education. They are required to meet diverse students' needs and abilities in regular classrooms by overcoming different barriers including their attitude towards IE (MoE, 2006). They are also expected to work with others like parents, special needs education teachers and other relevant stakeholders in order to implement IE. In addition, they are expected to develop positive attitude towards students with diverse needs and abilities IE and confidence in teaching these students in inclusive classrooms (MoE, 2012). For this purpose, pre-service teachers are required to take only 3 credit hours on Introduction to Special Needs Education course along with other professional, subject area courses and practicum which constitute 25% of the training program. However, there is limited research on the investigation of pre-service teachers' knowledge of IE teaching-learning strategies. Existing researches focus on in-service teachers' attitude towards inclusive education (for example, Fekede and Gemechis (2009) and practicum implementation for general education (for instance, Taddesse 2006).The researcher believes that little or no research is conducted to investigate primary school pre-service teachers education knowledge of inclusive education that help them meet students diverse needs and ability differences in an inclusive classroom and factors that affect this knowledge development. Therefore, the current study was done to fill this gap. Hence, the study was aimed at addressing the following research questions:

1. What is pre-service teachers' level of knowledge of inclusive education teaching-learning strategies?
2. Is there any significant relationship between pre-service teachers' knowledge of inclusive education teaching-learning strategies and the following demographic variables: gender, age, social contact with people with disability, teaching students with disability during practicum, field of study and teacher training colleges training program?

3. Do pre-service teachers have had training opportunities on factors that affect their knowledge of inclusive education teaching-learning strategies?

4. What issues do the study participants believe that need to be addressed to improve pre-service teachers' knowledge of inclusive education teaching-learning strategies?

The Research Methodology

Research Design

The researcher used embedded mixed methods research design: embedded survey model. The quantitative method played dominant role but the qualitative method was employed to support quantitative data analysis results (Creswell, 2012). That means, qualitative research was used to find reasons for quantitative result by using qualitative study result.

Participants

The participants of the study were general education primary school pre-service teachers who were selected from three teachers' training colleges: Kotebe Debre Berhan and Dessie Teacher Training Colleges. These participants were third year pre-service teachers who completed their training program (both coursework and practicum) and prospective graduates. The researcher selected 302 pre-service teachers' from the accessible population of 1,372 through stratified random sampling methods. The stratification was made based on the participants' gender and field of study (language studies, social science studies and mathematics and natural science studies). Finally, 94% of participants (n=283) who completed the questionnaire fully were participated in the study. Moreover, the participants for qualitative part of the study included purposely selected 11 pre-service teachers and five teacher trainers. These participants were selected from the tree teachers training colleges.

Instrumentation

Demographic Variables Questionnaire

Demographic variables questionnaire which was developed by the researcher was used to collect some basic demographic variables. These include: sex, contact with people with disability, age, teaching experience of students with disabilities during practicum, field of study and teacher training colleges.

Factual Knowledge of Inclusive Education Questionnaire (FKIEQ)

FKIEQ) deals with measuring the participants' factual knowledge of inclusive education teaching-learning strategies. Some of the items (six) were adapted from Çavusculu's (2006) instrument that was used to assess primary school teachers' level of knowledge and views towards teaching students with special needs in inclusive settings. Others were developed from literature review especially from the works of Loreman, Deppeler and Harvey (2005), Michell (2010) and Le Page et al. (2010). The development was mad based on Passmore and Parchman's (2002) recommendation entitled as "guidelines for constructing a survey." The guideline includes: "stating the research problem, planning the project/research, review of the literature, developing/adapting the research instrument, constructing the survey, pilot testing the survey and administering the survey" (p.282). The pilot testing result of this developed FKIEQ demonstrated that it had reliability cronbach alpha (α) coefficient of .805. This showed that the instrument had adequate reliability to collect the needed data.

Interview Guide and Document Analysis Checklist

These instruments were developed from literature review. Interview guide included semi-structured interview questions focused on identifying the factors that affect pre-service teachers' knowledge of inclusive education teaching-learning strategies and suggested solutions that could improve pre-service teachers' knowledge of inclusive education. Similarly document analysis checklist was used to collect data from documents selected for the study. The data collected through document analysis checklist were used to support interview data.

Procedures

Both quantitative and qualitative data were collected based on the permission given by the three teachers' training colleges' administrative staff personnel and consent obtained from the participants. The participants completed the survey within average of 30 minutes (including other instruments that are 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.

Data Analysis

The data collected through true/false, yes/no and do not know alternatives were scored based on experience of Wang (1997). That is, score of 1was assigned for correct answer, where as score of 0 was assigned for incorrect "Do not know" answers. Based on this, the highest score for one respondent would be 35x 1 = 35 (100%), while the lowest score would be 35x 0 = 0(0%).The analysis was made based on the following cut of points low knowledge (<60%), medium/moderate knowledge between 60% and 79 % and high knowledge between 80% and 100% (Bowen and Power, 2005). The data analysis was conducted by using SPSS version 15. Mean, standard deviation, percentage, and multiple regressions were used to analyze quantitative data. Besides, the qualitative data which were thematically processed were analyzed inductively and deductively.

Ethical Considerations

The researcher collected the necessary data by the permission of the research settings administrative personnel and research participants. The anonymity of the research participants and study settings was kept by using codes, such as PT for pre-service teacher, TT for teachers' trainer and TTC for teachers' training college.

Results and Discussion

Demographic Characteristics of the Study Participants

The data analysis result showed that *n*= 96 (34%) , *n*= 97/34%) and *n*=90 (32%) of the participants were selected from Kotebe Teacher Training College, Debre Berhan Teacher Training College and Dessie Teacher Training College, respectively. Among these participants, 176(62%) were males and 107(38%) were females. Regarding age of the participants (*n*=209 /74 *%)* were under the age category of 19-25(young middle adults), *n*=39 (14%) and *n*=35(12%) were under the age category <19 (adolescents) and 26-35(young middle adults). Moreover, n=117(41%) and *n*=166 (59%) of the participants had familiarity or social contact with people with disabilities and had no such contact, respectively. In addition, *n*= 52 (18%) and *n*=231(82%) of the participants reported that they taught and did not teach students with disabilities (students with SEN) during their practicum, respectively. Furthermore, *n*=84 (29%), *n*=78 (28%) and *n*=121(43%) of the participants were selected from language studies social science studies natural science and mathematics field of studies, respectively.

Pre-service Teachers' Knowledge of IE Teaching-Learning Strategies

Table 1

Pre-Service Teachers' Knowledge of IE Teaching-Learning Strategies in relation to Correct Answers for Each Item of the Questionnaire

Q. N	Item	*n(%)*	*M*	*SD*
	Modification:			
1	Modification of content of instruction for IE.	184(65)	0.65	0.476
2	Modification of teaching methodologies for IE.	167(59)	0.59	0.493
3	Modification of curriculum to develop and implement IEP	143(51)	0.51	0.501
4	Conducting daily lesson planning by considering. SwoSEN learning needs and ability.	111(39)	0.39	0.489
5	Modification of physical IE classroom environment.	186(65)	0.65	0.477
6	Modification of teaching materials for IE.	124 (44)	0.44	0.497
11	Modification of IE classroom climate to manage disruptive behaviors.	93(33)	0.33	0.472
18	Modification of assessment tools (activities) for IE.	169(60)	0.60	0.491
	Students' Cooperative Learning			
7	Making students with diverse needs and abilities actively participate in their IE learning.	185(65)	0.65	0.477
9	Using of peer-tutoring strategy to facilitate IE.	165(58)	0.58	0.494
10	Using of heterogeneous-grouping strategy to facilitate IE.	182(64)	0.64	
	Assessment of Students Learning			
15	Assessment of students learning to identify learning styles of students with various needs and abilities.	170(60)	0.60	0.491
16	Assessment of students learning to use results for their further learning.	69(24)	0.24	0.430
17	Assessment of students learning by involving parents as sources of information.	164(59)	0.59	0.493
19	Assessment of students learning to reflect about curricular objectives achievement.	136(48)	0.48	0.501
	General Education Teachers Collaboration with Others			
8	General education teachers' collaboration with special needs education teachers for co-teaching in inclusive classrooms.	145(51)	0.51	0.501
12	General education teachers' collaboration with parents for resources contribution for IE.	178(63)	0.63	0.485
13	General education teachers' collaboration with parents for decision-making about IE.	170(60)	0.60	0.491
14	General education teachers' collaboration with parents for follow-up of students learning at home.	187(66)	0.66	0.474
	Grand Total(from Items 17-35)	**153(54)**	**0.54**	0.20

Note: *IE= Inclusive Education; SwoSNE = Students without Special Needs Education; SwSNE= Students with Special Needs Education; IEP=Individualized Educational Program; M=Mean; SD= Standard deviation; n (%) =number (percentage)*

Table 1 revealed that the percentage scores ranged between 24% and 66%. The grand average revealed that they had low level of knowledge about teaching-learning strategies that

help them meet students' diverse needs and abilities in inclusive classrooms (54 % /*M*= 0.54, *SD*= 0.20).

The overall result indicated that even though the study participants had low level of knowledge of inclusive education, they had moderate level of knowledge to some items. This could have happened due to their training on theoretical aspect of special needs education, civics and ethical education, gender and skills development course and student centered teaching strategies. This is because these elements may serve as inputs for inclusive education. On the other hand, the participants having moderate knowledge to some items does not mean they can implement inclusive education. This implies they need more training (Sarı, Çeliköz and Seçer, 2009).

On the other hand, the current qualitative study result indicated that the participants' lack of knowledge of IE regarding teaching-learning strategies that meet students' diverse needs and ability differences in inclusive classrooms attributed to their lack of training on IE issues. For example, the following excerpts could show their lack of knowledge about curriculum modification due to their limited training on curriculum modification/adaptation elements mentioned above:

> A special curriculum should be modified based on students' ability level. The special modified curriculum should be used to teach students with special needs education alone by using strategies such as supporting them out of scheduled teaching period and by preparing questions that help them understand a given course (PT11).

> Curriculum modification is using of specialized two types of curricula for students with special needs and students without special needs to teach them based on their ability and understanding level differences(PT8).

Moreover, the following responses from the interviewees' might indicate their lack of knowledge about IEP and other individual students supporting strategies with in inclusive classrooms:

> I did not learn about individual education program. I have not heard even its name (PT3).

> I do not know about individual education program. I think planning individual education programs that considers each student's need and ability difference could be time consuming and difficult to implement in regular classrooms (PT2).

Moreover, lack of training on practical aspects of IE and assistive aides like sign language, Braille and other teaching aids and assistive devices had negative impact on their IE

teaching-learning strategies. For instance, the following responses from the interviewees' might indicate their lack of knowledge about these issues:

> I do not think I have ability to plan a lesson that considers different ability and needs of students. I do not have knowledge and skills about developing IEP and modification of curriculum based on the students with special needs ability and other differences because I did not learn such strategies (PT11).

> I cannot teach students who are blind and who are deaf because I have no knowledge and skills about using sign language, Braille and other supporting materials because the college did not train me to use such things. Additionally, I did not learn practically designing lesson plans that meet students with different abilities and supporting these students by using teaching aids and modification of instructional delivery strategies (PT3).

Furthermore, most of the interviewee pre-service teachers (8 out of 11) responded that they had lack of knowledge about modification of assessment of students learning. They reported that the assessment of the students learning should be the same to all students regardless of students' differences in their needs and abilities. The following excerpt taken from interview results which in turn indicated the trainees' lack of training on this issue:

> I believe that students with special needs should always be assessed as others by the same levels of assessment method and contents. If all students learn equally in the same classroom, I assess them by using the same assessment methods and the same contents. If students with special needs education do not achieve like students without special needs education, I will re-teach them and assess their learning again by using the same level of complexity of tests that other students are assessed (PT8).

The interviewee teacher trainers suggested mainstreaming of issues of inclusive education across courses, capacity building teacher trainers and other stakeholders on inclusive education monitoring and evaluation of training program effectiveness. Besides, interviewee pre-service teachers and teacher trainers suggested a need for more training on IE to enhance pre-service teachers' knowledge of teaching-learning strategies to meet students' diverse needs and ability differences in inclusive classrooms. The following quotations could exemplify the trainees suggested solutions about the issue under discussion:

> The issue of teacher training for inclusive education has to get due emphasis by mainstreaming it in all teacher training courses and other programs. When such activities are practiced, teacher trainers, administrative personnel and teacher trainees will be actively involved in inclusive education. This may make pre-service teachers' training program effective in developing their knowledge and skills about and positive attitude

> towards inclusive education because they may think that inclusive education is the main part of their duty (TT5).
>
> One Introductory Course in Special Needs education is not enough to equip the teacher trainees in inclusive education. If general education teacher trainees are required to teach students with disability in regular classrooms, they have to take adequate theoretical and practical training in inclusive education like special needs education teacher trainees. So the general education teacher trainees should be made to take many more courses with practical activities (PT5).

In addition, pre-service teachers' lack of knowledge of IE teaching-learning strategies attributed to their teacher-centered training delivery strategy which mainly depended on lecture method of training. All interviewee trainee teachers and teacher trainers reported this fact. For instance the following quotation exemplifies this issue:

> Using different teachers' training methods in Special Needs Education course is not possible because the course is only 3 credit hour course with many units to be covered in a semester. Due to such problems, the Special Needs Education course teacher trainers do not use different training activities. For example, case studies, action research, reflection, role-play, demonstrations, etc. We simply give training through lecture method and sometimes by using group discussions and assignments which are not enough to train the trainees in practical activities and equip them with necessary knowledge and skills about and positive attitude towards inclusive education (TT2).

The current study result partially contradicts with some studies results conducted globally. For example, Nketsia's (2011) study conducted in Ghana revealed that general education study participant pre-service teachers had high level of knowledge about arranging classroom to make it conducive for active participation of students with diverse needs and abilities. Another example is the research result reported by Kirk (1998) which showed that the study participant pre-service teachers had high level of knowledge about strategies to meet students with diverse needs and abilities in inclusive classrooms. These participants' high level of knowledge about the issue stated above attributed to their field practice training chance given for 15 hours focusing on the meeting of students' diverse needs and abilities in regular classrooms. However, the current study result partially supports other study results carried out in different countries of the world. For instance, study results of Cook (2002), Hemings and Woodlock (2011), Nimante and Tubele (2010) and Mafa and Chaminuka (2012) and Das and Ochi (2012) revealed that pre0service teachers had low knowledge of inclusive education that help them meet students diverse needs and ability differences in an inclusive classroom. A case in Pont is MoE's (2012)

report. It says that "The existing special needs education/inclusive education courses in teachers' education institutions are overly theoretical and too reliant on the medical model. Hence, graduates lack practical skills to be effective at school level" (p.9).

The above discussion suggests that pre-service teachers' knowledge of teaching-learning strategies that meet students' diverse needs and abilities in inclusive classrooms attributed to quality of their training program effectiveness on practical aspect of IE. This is consistent with the current study results. This implies that teacher training colleges in Ethiopia should use practical training strategies that enhance the pre-service teachers' knowledge of teaching-learning strategies that meet students' diverse needs and abilities in inclusive classrooms.

Effect of Demographic Variables on Pre-service Teachers' Knowledge of IE Teaching-Learning Strategies

To examine pre-service teachers' knowledge of inclusive education scores predictive variables effect, Multiple Regression analysis method (Morgan, Leech, Gloeckner and Barrett, 2007, as cited in Ahsan, et al., and 2012) was used. The result of the analysis showed $F(2,276)=$ 7.418, $p < .001$. Moreover, *R* square was. 139, (Standard Error-*SE*=.188).This revealed that the model elucidated 14% of the variance in the pre-service teachers' knowledge of inclusive education teaching-learning-strategies score. This gives an insight that there were many other variables which were not included in this study that predict pre-service teachers' knowledge of IE teaching-learning strategies. Even though these variables had small predictive power, teaching students with disability during practicum and teacher training colleges training program differences were significant predictors of pre-service teachers' knowledge of IE teaching-learning strategies (see Table2).

Table 2

Multiple Regressions Result for Variables Predicting Knowledge of IE Teaching-Learning Strategies

Dependent Variable	Predictor Variables	Standardized Coefficient Beta(*β)*	Standard Error	t value	Sig.
	Constant		.088	4.658	.000
Knowledge of Inclusive Education*	Gender	-.092	. .024	-1.564	.119
	Age of Respondents	-.094	.022	-1.675	.095
	Interaction with People with Disability	-.046	-.046	-.825	.410
	Teaching experience of Students with Disability	.195	.029	3.450	.001
	Field of Study	-.087	.014	-1.528	.128
	Teacher Training Colleges Training Program	. 311	015	5.165	.000

* Knowledge of inclusive education model ($F_{6, 276}$ = 6.170, p < .001; R square=.139, Standard Error= .188)

Table 2 revealed that teacher training colleges training program (*β*=.311, *SE*=.015) was the strongest significant predictor of pre-service teachers knowledge of IE teaching-learning strategies. This shows that TTC3's (M=0.61, SD=0.18) teacher training program has better the best predictive effect than TTC2 (*M*=0.47, *SD*=0.19*)* and TTC1 (*M*=0.55, *SD*=0.21) teacher training colleges, respectively.

The current study participants from TTC3's teacher training program had best significant relationship with knowledge of IE teaching-learning strategies. This could have happened because the current qualitative study showed that pre-service teachers selected from TTC3 were trained on special needs education course that contain contents that were not included in TTC 2 and TTC 1. For instance, they got training on medical versus social model of disability.

The current study result partly supports Niketsia's (2011), Ahsan et al. (2012) and Loreman, Sharma, Forlin and Earle (2005) findings. The above mentioned researchers suggested that although this needs further research, the pre-service teachers' differences in their knowledge of IE depend on differences in their training program quality. For example, Ahsan, et al (2012) stated that one of the teacher training colleges pre-service teachers had better knowledge of IE policy than others because they had better training than other participants selected from different teacher training colleges.

Pre-service teachers' teaching experience of students with disability during their practicum in regular classrooms (β =.195, *SE*=.029) was the second predictor of pre-service

teachers knowledge of IE teaching-learning strategies scores. This showed that, pre-service teachers who had teaching experience of students with disability during their practicum (*M*=0.57, *SD* = 0.19) had higher knowledge of IE than pre-service teachers who had no this teaching experience (*M*= 0.45, *SD*=0.23). This result supports research results, such as Nketsia and Saloviita's (2013) and Varcoe and Boyle (2013). Even though this result needs further research, this could have happened because as Hannah, 1998, as cited in El-Ashry (2009) argues that pre-service teachers' knowledge of and attitude towards IE may result in better awareness and positive attitude when their interaction with children/adults with disabilities is meaningful and pleasant. In addition, Bowlin (2012) asserts that pre-service teachers' development of better knowledge about and positive attitude towards IE depends on the amount of positive and pleasant interaction/ familiarity with people with disabilities.

As Table 2 shows, pre-service teachers: gender, age, social interaction with people with disability did not show predictive power about pre-service teachers' knowledge of inclusive education teaching-learning strategies. Regarding, the pre-service teachers contact experience with people with disability. Moreover, studies indicated that gender and age differences did not result in significant effect on pre-service teachers' knowledge of IE teaching-learning strategies. Concerning gender, the current study result does not agree with studies done by Nketsia (2011) and Ahsan, et al. (2012). Similarly, age differences relationship with pre-service teachers knowledge of IE teaching-learning strategies does not support studies results of Kessell, Wingenbach and Lawver (2009) and Sharma, Ee and Desai (2003). Even if it needs further research, the current study result about lack of significant gender and age differences impact on pre-service teachers knowledge of IE could have happened because Pendergast et al. (2011) suggestion which states that knowledge of and self-efficacy belief towards inclusive education are connected with contents and/ or circumstances that create impact on the teacher trainees cognitive functioning rather than their gender and age category differences.

This study has limitations that limit generalizability of the findings. One of the limitations is small number of the participants which could not be representative of the primary school pre-service teachers which are found in different teacher training colleges of Ethiopia. Another limitation is concerned with instrumentation. Although the instrument had adequate reliability and considerable validly, it may have limited coverage. Therefore future research should consider these issues.

Conclusion

The study result showed that the pre-service teachers had low level of knowledge about IE teaching-learning strategies that help them meet students' diverse needs and abilities in inclusive classrooms. This result most probably attributed to their lack of training on issues that help them develop their knowledge about inclusive pedagogy and IE training program delivery strategies, such as role-play, simulation, reflection, and contact with people with disability, practicum in inclusive schools, action research, and case study and so on. The training program did not also include mainstreaming issues of inclusive education across courses in addition to compulsory course on introduction to special needs education.

The result of the study may suggest that the participants' could not implement IE when they become teachers of IE. This is because their low level of knowledge of IE teaching-learning strategies may make them unable to link what they learned in theory to practical IE activities that help them meet diverse students needs and ability differences in inclusive classrooms (Kaplan, 2012, as cited in UNESCO, 2013).They may not also be able to assess students' learning through modified instructional activities and alternative and continuous assessment strategies (UNESCO, 2013). Their lack of knowledge of teaching-learning strategies may lead them develop negative attitude (Bowlin, 2012) and lack of confidence regarding IE (UNESCO, 2013). This suggests that GENERAL education primary school pre-service teacher training program for IE needs to be reformed in a way it enhances pre-service teachers' knowledge IE teaching-learning strategies.

Implications for Reforming Teacher Training Program

The findings of quantitative and qualitative study indicated that pre-service teachers' low level of knowledge of IE teaching-learning strategies attributed to the trainees limited training that enhance their conceptual and practical aspects of knowledge of IE teaching-learning strategies. Therefore, in order to enhance necessary pre-service teachers' knowledge of IE teaching-learning strategies, teacher training colleges should reform the training program by incorporating the following issues among others:

- ☞ Improving existing special needs/inclusive education course by incorporating sound theoretical and practical aspects of IE and conduct practicum in inclusive schools by making pre-service teachers practice actual inclusive education implementation.

- ☞ Improving using of IE teacher training program delivery strategies(such as collaborative teaching and learning, case study and action research, reflection, simulation, contact experiences with people with disability and so on)
- ☞ Using of necessary facilities /resources and support services that enhance pre-service teacher' knowledge of IE teaching-learning strategies.
- ☞ Mainstreaming issues of IE across courses that include: concept of IE, diversity among students and inclusive pedagogy in addition to training on compulsory special/IE course(s).
- ☞ Conducting further research on level of pre-service teachers' knowledge of inclusive education and factors that affect the pre-service teachers' knowledge of IE teaching-learning strategies.

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Appendix

Questions Raised Answers given to the Audience by the Presenter during the Symposium

Questions and Answers

1. Inclusive education seems a good educational delivery system but it seems ideal. Do you think teachers can implement it?

Studies revealed that currently inclusive education is the most accepted educational delivery system. Studies also showed that both students with and without special educational needs benefited from inclusive education in relation to academic, social, communication and other aspects. Although its implementation depends on a number of factors such as of availability of necessary human and material resources and support services, it can be implemented practically when these resources and support services are available and stakeholders are committed to implement it.

2. Is it possible to plan a lesson that helps teachers meets students with diverse needs and abilities in a regular classroom?

Yes. It is possible to plan a lesson that can address students' diverse needs and ability differences in regular classrooms. This can be possible when the teachers have knowledge and skills of teaching-learning strategies, positive attitude and high confidence towards inclusive education implementation. This can also be possible when teachers have knowledge of students' as a group and as individuals. Moreover, before the teachers begin to plan a lesson, they should have knowledge of their students' needs, abilities, background and other relevant issues and necessary resources and support services. Therefore, teachers can plan a lesson and implement it based on these issues.

3. How a teacher can teach, for example, both gifted students and students with intellectual disability by meeting their ability differences in an inclusive classroom?

An inclusive education teacher can teach students with intellectual disability and talented and gifted students in an inclusive classroom. Even though these students have different needs and

ability differences, they can be educated together. For example, teachers can modify educational delivery system to gifted students in a way their learning can be appropriate to their level of understanding. Teachers can also make these children challenged and motivated to learn based on their ability level. This may need adaptation/modification of a given curriculum and searching for necessary resources and support services from stakeholders. Similarly, students with intellectual disability can learn in inclusive classroom by making the instructional delivery modification based on their needs and ability differences. For example, they may need simplified instruction, concrete example, collaborative learning and so on. Moreover, both gifted and talented students and students with intellectual disability can be educated by using individualized educational program (IEP) which involves assessment of these students needs and ability, planning with stakeholders and implementation with the stakeholders.

4. This study should have included other areas of inclusive education like pre-service teachers attitude towards inclusive education, self-efficacy regarding inclusive education and other areas. Why the presenter did not consider these issues together?

Since this study is part of the dissertation work, this study (presented for the symposium) did not include other issues. This is done purposely because time and space did not allow the presenter to include other areas of the study. For you information, the dissertation included other areas of study, such as pre-service teachers' knowledge of concept of inclusive and pre-service teachers' knowledge of diversity among students. It also included pre-service teachers' attitude and self-efficacy belief towards inclusive education.

5. You said that theory of inclusive education/special needs education, student-centered training strategies, focus on gender equity pedagogy, civics and ethical education course, different learning styles, and different group learning strategies, for example, one –in-five can be inputs to develop the trainees knowledge of inclusive education teaching-learning strategies. How one-in-five grouping system and civics and ethical education can serve as inputs for this purpose?

Yes, one-in-five grouping system and civics and ethical education can serve as inputs for teachers' knowledge of and attitude towards inclusive education. For example, one-in-five grouping system may help students with diverse needs and ability differences learn cooperatively. Moreover, students with better ability can support others by using this grouping system. However, this grouping system should be flexible. It should not be fixed because group leaders may dominate others and majority of students may not get adequate opportunity to actively participate in their learning. Other grouping systems such as the same ability or the same background, the same interest or the same learning style, etc can be grouped alternatively. Likewise, since respecting and valuing diversity among students is one of the core values of inclusive education, civics and ethical education course helps pre-service teachers develop positive attitude towards diversity among students in relation to ,for example, disability, religion, ethnic background, and other differences.

6. What level of knowledge of inclusive education teaching-learning strategies is expected from teacher trainees to implement inclusive education successfully?

In this study the researcher used the following cut off points to determine the study participant pre-service teachers' level of knowledge of inclusive education teaching-learning strategies. Low level of knowledge was used when pre-service teachers scored below 60% of correct answer to given items. In the same vein, the pre-service teachers were said to have moderate knowledge when they correctly answered 60%-79% to the given items. Finally, 80%-100% correct answer to given items was taken as high level of knowledge of inclusive education teaching-learning strategies.

7. The study did not include pre-service teachers' knowledge of inclusive education teaching-learning strategies skills. Would you say something about it?

The researcher did not study pre-service teachers' inclusive education skills because examining these participants' skills needs practical activity. However, these participants were not made to be involved in practical inclusive education teaching-learning strategies like modification of content of teaching, modification of assessment strategies of students learning, etc.

8.This study should have included other stakeholders such as supervisors, school principals and others contribution in the implementation of inclusive education. What do you say about this issue?

Yes, the study should have included but it needs extra time and resources that could not be covered in this study. The researcher left this part for other researchers. If this area is studied, it may support/supplement the current study and give better awareness to successfully accomplish reforming of the general education primary school pre-service teachers training program for inclusive education.

9. Do you think that universities and colleges teacher trainers and administrative body believe that their teacher trainees can implement inclusive education when they become teachers of inclusive education?

This issue needs in-depth study. Even though the researcher interviewed about support and collaboration of colleges administrative staff about training of pre-service teachers training for inclusive education, the researcher did not try to investigate universities administrative and teacher trainers' belief about this issue. Interviewee teacher trainers stated that those colleges' teacher trainers and administrative staff considerer issues of special needs/inclusive education as issues of special needs education teacher trainers and others concerned with issues of inclusive education like NGOs and charity organizations.