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The Study of Physical Environment of the Primary Schools to Implement Inclusive Education: The Case of Addis Ababa, Ethiopia

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Abstract

The purpose of this study was to describe the current condition of physical environment of primary schools to implement inclusive education including students with sensory and physical impairments: the case of Addis Ababa, Ethiopia. The current study has the paramount significance in contributing to the development of inclusive education in Ethiopia, as physical environment of schools are essential for everybody's learning and support official policy. Seventy schools out of the total of 728 schools were randomly selected from ten sub cities to answer what is the status of physical environment of primary schools to implement inclusive education? Multiple methods of data collection including observation, interviews, Google Earth map, measurement, photographing, and questionnaires were used with the total of 1122 participants (592 teachers, 460 students, and 70 principals) who were selected using both simple random sampling and purposive sampling methods. The research design used was mixed research design (both quantitative and qualitative research method). Pilot study was also carried out and validity and reliability of the instruments were determined. In this study, SPSS software was used to process data and for analysis. Hence, percentage, mean, and standard deviation were used to analyze the collected data. Thus, the current results show that schools' physical environment were not found to be in good conditions so as to implement inclusive education. Hence, schools' geographical location, classrooms' and buildings' organization or layout, neatness, furniture, air quality, materials used for construction, lighting system etc should be given adequate attention.

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***Key words*:** Physical environment; inclusive education; primary school; implement; students

1. Introduction

The school's environments can be perceived from physical and social dimensions. The physical environment of schools, which is a focus of this study consists of objects and spaces in which the person interacts; whereas, the social environment consists of social groups [1]. The school's physical environment refers to the buildings, grounds and equipment in and surrounding the school such as: the building design and location; the provision of natural light and adequate shade; the creation of space for physical activity and facilities for learning and healthy eating. On the other hand, the social environment of the school is a combination of the quality of the relationships among and between staff and students [2].

According to a survey that was conducted in elementary schools' teachers of Pakistan in 2013 mentioned that the school physical environment, which includes the school building and the surrounding, classroom, furniture, layout, noise, temperature, lighting etc have great educational effect. Hence, a safe, clean, flexible layout, enough space in classroom, well-organized and well-maintained school with a positive psycho social climate and structure can promote school output, which in turn boosts student and staff health, as well as students' educational achievement [3]. In other words, creating a good learning environment is needed [4].However , inequalities and disparities in education have been demonstrated in African Countries due to lack of conducive physical learning environment which is true particularly those learners with some kinds of impairments[5].

To create conducive school's physical environment, school design must begin with an understanding that effective learning and teaching take place in a well- designed school that focuses on how the school's physical environment is structured to support learning of all learners, including those students with special needs and with some types of impairment and assist teachers to teach effectively and properly in the schools. For example, environmentally responsive heating, air conditioning and ventilating system of school provide a more comfortable learning environment [6]

Regarding the location of the school, the school site and its immediate vicinity shall be free from any condition endangering the health, safety and moral growth of the students. Hence it should be geographically located beyond 200 meter from busy road [7]. A leveled site is more suitable than a sloping one because a school which is geographically located on sloping land is unsuitable for social interaction [8].

The schools' grounds need accessible environment for all students including those students with impairments that they can have the maximum opportunity for interaction with each other [9]. Signage requirements make accessibility easier for everyone to see and understand, and signs and directory give everyone full information as to where to go [10].

Concerning classroom's condition the choice of materials for floor, wall and ceiling coverings are all important factors in the acoustics of a classroom to achieve the desired acoustic qualities, whereas in reality this is untrue. On the other hand they indicated that many schools do not have the adequate space required, clean environment and appropriate lighting system and furniture for large number of students [11]. However, clean environment

has positive effect on a child's personality. Hence, it is important to keep and maintain the cleanliness of the classroom's environment at all times. However, if it fails students face a number of possible problems such as, health problem, lack of beauty, bad smell and spread of dirt from one to other, leaking ceilings with tears or cracks in the ceiling[12].

Adequate lighting allows for signage to be read in a classroom and creates the opportunity for effective communication among all students, and between students and teachers [13]. Furniture should be arranged in such a way so as to make students comfortable and enable them to adjust to the primary sources or different sources of information [14].

The supportive physical facilities of school help to enhance the learning of the students Hence, the availability and accessibility of the supportive physical facilities including drinking water, lighting, toilets, furniture, playgrounds, libraries, laboratory, and resource room have a significant positive influence on the performance of the students and their achievement [15].

In Ethiopia, physical environment like classroom layout and appearance, classroom arrangement, furniture arrangement etc contribute a lot to promote active-learning method. There should be adequate, well-maintained and furnished classrooms to effectively conduct teaching-learning process. Therefore, the place where a student is positioned in a class, the way classrooms are arranged, the effects of irrelevant sound (acoustic issue) and the condition of a building, etc play a vital role in enhancing or retarding the teaching-learning process of all students [16].

1.1. Educational or scientific importance of the study

The purpose of this study was to describe the existing conditions of primary schools' physical environment to implement inclusive education in Addis Ababa. Hence, the current study acquires its paramount significance in contributing to the development of inclusive education in Ethiopia in general and in Addis Ababa in particular. The output of this research helps to increase the number of school buildings that will enable all students to enter through the same door, attend the same classes, and navigate the same halls side by side. As a result, the number of students attending the school would increase due to an inclusive school design that creates accessibility and conducive physical environment for all students with or without impairments and those with special needs. In addition, the findings of the study are also important in providing empirical data and direction for action by government, and school-community occupants have better understanding of the ways in which the physical environment of their school enhances or impedes teaching and learning processes.

Therefore, based on the literature reviewed, the researcher answered the following research questions. To what extent do the primary schools' physical environments in Addis Ababa enable/disable the implementation of inclusive education/educational inclusion? What are the limitations of school's physical environment on teaching and learning processes? Does physical environment limit pedagogical approach? Are schools geographically located in good environment?

2. Research methods

Research design

The purpose of this study was to describe the current status of primary schools' physical environment to implement inclusive education in Addis Ababa. In this study, the researcher used mixed research design. Mixed research design uses both the quantitative (more specifically descriptive survey method) and qualitative techniques within the same frame work [17]. In other words, the study adopted a concurrent mixed method approach where the researchers collected both quantitative and qualitative data at the same time and then integrated the information in the interpretation of the overall results.

The goal of mixed-method research is not to replace either of these approaches but rather to draw from the strengths and minimize the weakness of both (quantitative and qualitative) in single research study [18]. Mixed method approach leads to comprehensive analysis of the research problem [19].The validating quantitative data model of triangulation design was found appropriate and employed in this study. Triangulation design enables one to obtain different but complementary data on the same issue. In this study the researcher sought and obtained varied but complementary information on physical environment of school.

Research Setting and Participants

The setting of this research study was in elementary schools of Addis Ababa city in 10 sub-cities. This study was carried out in selected primary schools, grades 1-8, located in 5 sub-cities out of the 10 sub-cities.

The target population for this study was comprised all primary (private, public, NGOs, government, missionary, church, mosque, and foreign community) schools in ten sub cities of the total of 728 primary schools in which 40 schools are defined that they are practicing inclusive education policy. All teachers, schools' principals and students with and without impairments in all regular primary schools where inclusive education has been practiced and not practiced too were included in the target population.

Concerning selection of participants, five sub-cities out of the ten total sub-cities in Addis Ababa were selected using simple random method. In this case, an up-dated list of all primary schools in five sub cities was obtained from the Addis Ababa City Administrative Education Bureau. In all five sub-cities, equal number of sample schools were given (i.e., 14 schools for each sub-city) and were drawn based on quota system, of 10% of the total population was taken. Hence, seventy schools (four from those defined as inclusive schools and sixty six from these defined as non-inclusive schools were selected using simple random sampling method.

From the population of 728 primary schools, 592 teachers (300 males and 292 females) who are working in 70 schools were selected through simple random sampling techniques. Out of 592 teachers, 64 of them, two teachers from each grade level (from grade one to grade eight) were from schools where inclusive education is practiced. From the same population, 45,983 (98.95%) of students without impairments who are currently attending their classes and 484 (1.04%) of students with different impairments, 460 students (202 males and 258 females, in which 96 (20.9%) of them are with different impairments) were also selected based on simple

random sampling, in which 64 students (i.e., 8 students from each school, from grade 5-8) were also drawn from schools where inclusive education is practiced. In addition, purposive sampling was used for the participants of the 70 schools' principals (59 males and 11 females). In general, 1122 participants, of whom 561 of them were females, were involved in the study.

Data Collection Instruments

In order to obtain pertinent information for the study, it was important to use various data gathering tools. Accordingly, six different instruments were used to gather relevant data for both quantitative and qualitative research of this study. Namely: questionnaire, unstructured interview, photographing, Google earth, measurement, and observation checklist were employed.

Pilot Study

It is absolutely crucial to pilot the instruments in order to test how long it takes to complete the questionnaire, to check whether all questions and instructions that were clear and to try to expose any items that would not generate usable data and to check the validity and reliability of an instrument [20]. Hence, the samples of the pilot study were randomly selected from the five other sub cities that were not included in the main study and consisted of 30 participants for each questionnaire. The questionnaires which were developed by researcher were administered to the school's directors, teachers and students.

Validity and Reliability

Validity is established using both a team of experts and a field test [21]. Construct validity is used to ensure that the measure is actually measure what it is intended to measure (i.e. the construct), and not other variables. According to them, using a panel of experts familiar with the construct is a way in which this type of validity can be assessed. The experts can examine the items and decide what that specific item is intended to measure. Hence, to ensure the validity of the questionnaires, the questionnaires were presented to experts who were four PhD holders. One is from abroad (Finland), the other two professionals are from the Department of Special Needs Education of Addis Ababa University, and the other one is from the Department of Statistics at Haramaya University. In addition, one local staff with the rank of lecturer from the Language Department in Adama Science and Technology University was involved in commenting on language aspects of the questionnaires. In the light of their opinion, necessary amendments were made with regard to number of questions, content, language and format of the tool, prior to data collection

In addition, pilot test of the questionnaires was also carried out. Reliability and validity of an instrument could be established by using a pilot test by collecting data from 20-30 subjects that will not be included in the main study [22]. Hence, the researcher collected data from total of 90 participants to test students', teachers' and principals' questionnaires by taking 30 participants for each questionnaire. The collected data for the pilot test was analyzed by using Statistical Package for Social Sciences, version 20.0 and Cronbach's alpha coefficient was calculated. The calculated Cronbach's alpha coefficient in pilot test was 0.75, 0.80, and 0.82 of students', teachers' and schools' principals' questionnaires respectively. So, internal consistency among the items was

found moderate, within normal range. This is in line with what, [23] stated, that if a test has a strong internal consistency, most measurement experts agree that it should show only moderate correlation among items (i.e., 0.70 to 0.90).

Procedures

Before developing the instruments, related literature was thoroughly examined. Then, based on literature and the researcher's experience, structured closed ended questionnaires were developed by the researchers in English. The researcher developed the instrument because no standardized questionnaires that met the specific objectives of this study could be found. Then, the questionnaire was given for comment to professionals and modified based on their comments by adding new items and removing of some items. Next considering the difficulty of the English language for the respondents or for clarity, the questionnaire was translated into local languages (i.e., Amharic,) by the language experts before pilot testing. Then, the translation of the Amharic versions back to English was done by independent experts. The difference that was appeared in the forward and backward translations was corrected by the translators jointly and rewritten accordingly.

Before pilot test was administered, the researcher obtained a list of all sub- cities and all school in Addis Ababa. Next, the questionnaires that were developed by the researcher were tested in a pilot study that was carried out by taking 30 participants for each questionnaire). The feedback obtained from the pilot test was only used to refine the questionnaires to incorporate the new ones and to delete items that had deficiencies. In this case, before administering the questionnaires for the main study, the validity and reliability of the questionnaires was calculated and Cronbach's alpha was 0.75, 0.80 and 0.82 for students, principals and teachers respectively. Similarly, the Cronbach's alpha for the main study was calculated and found 0.82, 0.90 and 0.92 for students, principals and teachers respectively.

Before the pilot test was carried out, the researcher applied and got the permission from the concerned bodies. Then, the researcher administered the surveys during school days at each school. The researcher explained the general purpose of the study to the participants, assured the confidentiality of all responses, and asked teachers, school principals and both students with impairments and without impairments to complete the questionnaires through the assistance of schools' coordinators like schools' principals, schools' secretaries and those teachers who were nominated by schools' principals as active cooperative teachers at school.

The data gathering processes through different instruments were as follows. First, distribution of questionnaires for students, teachers and principals were carried out by the researcher and his assistants. Second, observation, measuring and photographing, and interviewing activities and collecting the distributed questionnaires were undertaken simultaneously. Thirdly, data gathering through Google Earth was carried out. After the data gathering processes were over, organization of all data thematically (putting similar ideas together and creating theme) for analysis followed. In the case of analysis of items to compare students' and teachers' perceptions, five point scales was changed to three point scale. Finally, in order to improve the quality of the study, the whole text i.e., from introduction to recommendation part was evaluated by eight professionals from view point of both scientific way of writing the research and language area and their feedback was incorporated to final

write up of the study.

Data Analysis

After the researcher had collected the data through questionnaires, the important task was to prepare data obtained to a form fitting for analysis. The responses of participants to the questionnaires were coded-that is transforming raw data (responses to questionnaires) into standardized form, for data processing and analysis. The researcher used descriptive statistical analysis in processing data and analyzing for this empirical study using Statistical Package for the Social Sciences (SPSS) version 20.0. The analyses were presented in the form of frequency, percentages, mean, and standard deviation to describe and interpret the responses.

Data that were gathered through observation, measurement, interview, Google Earth, and photographing were mixed during analysis and interpretation. Data gathered using observation checklist and photo were analyzed using SPSS version 20.0 to calculate the frequencies. The data that were gathered using measurements of different dimensions of schools' physical environment such as measurement of the area of classrooms in square meter, height of ceilings of classrooms from the floor in meter, distance of school from main road in meter using Google Erath ruler, and the coverage of trees on the schools' yard in square meter were also analyzed by using frequency. The data collected through interviews were thematically organized and interpreted to support the data that gathered through other instruments. In this case, the interview data were collected by using tape record and then transcribed the text word for word. The transcribed text then becomes the data that were analyzed by crating themes followed by interpretation. At the end of every day of interviewing, the researcher reviewed the recorded data and wrote a report that summarizes and interprets the information obtained. This was done based on Creswell [19] steps used to analyze qualitative data.Ethical Considerations

An educational researcher needs to have professional and personal integrity. All social research involves consent, access and associated ethical issues, since it is based on data from people about people [24]. Therefore, the study ensured the informed consent to participants. Informed consent means that participants must know enough about the research to decide whether to participate, and they must agree to participate voluntarily. The participants also need full information about the research including the reasons for which they have been chosen to participate. As a result, the researcher explained precisely and clearly all the important points to them. Participants' privacy, confidentiality and anonymity were guaranteed.

3. Results

In order to examine the mean score of participants on accessibility, conduciveness, limitation on teachimg-learning, pedagogical implecation and inclusivess scores of school's compound, classrooms, buildings, and facilities, descriptive statistics was used.

Table 1: Descriptive statistics of teacher particpants' perceptions on current physical environment of schoools

Dependent variable	N	Mean	SD	minimum	maximum
Sch. Physical env. enable imple. of IE	592	28.51	6.78	13	41
Limitations on teachimg-learning	592	91.8	14.59	43	121
Pedagogical implication	592	81.10	13.46	42	110
Condition of school's surrounding	592	38.21	8.85	11.00	55.00

Note: Sch. Physical env. enable imple. of IE refers to schools' physical environment enable to implement inclusive education

The results of the data analysis are presented in line with the research questions: (1) do schools' physical environments limit teaching and learning processes? (2) Does physical environment limit pedagogical approach? (3)To what extent primary schools' physical environments enable/disable the implementation of inclusive education? (4) Are schools geographically located in good environment?

Hence, schools' physical environment enables the implementation of inclusive education containing 9 items, schools' physical environment limitations on teachimg-learning proccesses containing 29 items and limitations on pedagogical approach of physical environment of schools containing 26 items, condition of schools' surrounding containing 11 items with five – point responses were administered. All variables were measured on a five point Likert scale, with 3 being the midpoint. Hence, the total mean score on schools' physical environment enable to implement inclusive education was equal to 28.51 with the cutoff mean score of 27 (3 x 9 items = 27 mean), the total mean score on school's physical environment limitations on teachimg-learning was 91.85 with the cut off mean score of 87 (3 x 29 items = 87), the total mean score on schools' physical environment limitation on pedagogical approach was equal to 81.10 with the cutoff mean score of 78 (3 x 26 items = 78), and the total mean score on the condition of schools' buildings environment scale was equal to 38.21 with the cutoff mean score of 33 (i.e., 3 x11 items = 33). The total mean scores of all variables mentioned above were higher than the cut off mean scores. Hence, teachers perceived the schools' physical environment were unable to implement inclusive education, limits the teaching-learning processes and pedagogical approach and schools are not located in good physical environment.

Conduciveness score containing 24 items, schools' physical environment limitations on teachimg-learning proccesses containing 33 items, and limitations on pedagogical approach of physical environment of schools containing 5 items with three – point responses were administered. In all variables on three point Likert scale, 2 considered as a midpoint. Hence, the total mean score on conduciveness was equal to 58.16 with the cutoff mean value of 48 (2 x 24 items=48), the total mean score on school's physical environment limitations on teachimg-learning was 76.74 with the cut off mean score of 66 (2 x 33 items = 66), the total mean score on schools' physical environment limitation on pedagogical approach was equal to 12.68 with the cutoff mean

score of 10 (2 x 5 items=10). The total mean scores were higher than the cut off mean scores in all the above mentioned variables. Thus, it can be concluded that students perceived the schools' physical environment were inaccessible, not conducive, the teaching-learning processes and pedagogical approaches were limited.

Table 2: Descriptive statistics of student particpants' perception on physical environment

Dependent variable	N	Mean	SD	minimum	maximum
Conduciveness	460	58.16	5.27	29	70
Effects on teachimg-learning	460	76.74	7.36	38	95
Pedagogical implication	460	12.68	1.46	6	15

Table 3: Descriptive statistics of pricipal particpants' perceptions of current physical environment of school

Dependent variable	N	Mean	SD	minimum	maximum
Sch. Physical env. enable imple. of IE	70	29.621	2.160	18.00	27.00

Note: Sch. Physical env. enable imple. of IE refers to schools' physical environment enable to implement inclusive education

In order to examine the inclusiveness of physical environment of schools, a five point Likert scale containing 9 items were administered. The mean score for the perceptions' of principals on school's physical environment inclusiveness was equal to 29.621. The cutoff mean score, in a 5- point-Likert type scale is 3 x 9 items which equals to 27 mean score and can be considered as average. Therefore, a mean score value of 27 indicates that overall principals who participated in this study seem to have above average of the cutoff mean score (27) that implies that schools' physical environment did not enable the implementation of inclusive education.

Data gathered through observation, photographing, measurement, Google earth and interviews confirmed the perceptions of teachers, students and principals. For example, the acoustics in the schools were found to be poor due to the low quality materials that were used in their construction. Lack of regular maintenance, lack of dense trees and the geographical location of the schools that were nearer to the main road added to the already existing problem. Most of the schools were located near social serving centers like religious, shopping and bus station. A few of them were located on sloping land with yards full of obstacles, and thus lacked safety (i.e., due to lack of speed breaker and zebra crossing), green area, leveled, less asphalted areas and the directions of the buildings were inappropriate. In addition more than fifty percent of the size of the schools' yard and student's private space in the classrooms were below the required standard to carryout different outdoor and indoor activities

when compared to the number of students. The other issue that affected the conduciveness of classroom is poor air quality and temperature. This resulted from poor hygiene, poor materials used for construction, crowded classroom, and absence of fan and shaded areas in the schools, short height of the ceilings, and lack of good direction layout of buildings in the schools' yard. The poor hygiene disturbed the health of the students, especially those with asthma and allergy problems.

The collected data confirmed the fact that the schools' physical environment limited the teaching-learning processes and also adversely impacted the pedagogical approaches that could be used by the teachers. It hindered students' learning, especially those with low vision and other impairments. For example, the types of seating arrangements that are usually used in all schools were row and column seating arrangement due to lack of enough space, flexible and adjustable furniture. This made it impossible for teachers to use different seating arrangements to employ various teaching methods and the schools could not implement active learning methods. Hence, it can be concluded that the schools' physical environment disables the implementation of inclusive education.

4. Discussion

The core concept of this study is the role of physical environment of elementary schools in implementing inclusive education. The data collected provides ample proof that both teachers and students perceived that the schools' physical environment was not conducive, and hence it was not possible to implement inclusive education. Further, it hampered the teaching-learning processes and pedagogical approaches that could have been used if the conditions were better and conducive. They also indicated that most of the schools were not located in good physical environment.

For example, schools were found acoustically poor due to poor materials used for construction, lack of regular maintenance, lack of dense trees. The schools were geographically located nearer to the main road and not located in good physical environment because they were nearer to social serving centers like religious, shopping and bus station. However, the previous study indicated that the school site and its immediate vicinity shall be free from any condition endangering the health, safety and moral growth of the students. Hence it should be geographically located 200 meters beyond the busy roads [7, 8]. The choice of materials for floor, wall and ceiling coverings are all important factors in the acoustics of a classroom and they help achieve the desired acoustic qualities [11]. On the other hand, most schools were located on sloping land with obstacles in the yards, and they lacked safety (i.e., due to lack of speed breaker and zebra crossing, green areas, leveled yards, less asphalted areas, and inappropriate direction of buildings. A leveled site is more suitable than a sloping one [8].

When compared to the number of students, more than fifty percent of the size of the schools' yard and student's private space in the classrooms were below the standard and did not allow students to carryout different outdoor and indoor activities. Similarly, the previous studies like [12] indicated that many schools do not have the adequate spacing required for many students.

The other issue that affected the conduciveness of classroom was poor air quality and temperature. This resulted

from poor hygiene, poor materials used for construction, crowded classrooms, and absence of fan and shading areas in the schools, short height of the ceilings, and lack of good direction of laid of buildings on the schools' yard. The poor hygiene also affected the health of the students, especially those with asthma and allergy problems. Clean environment has positive effect on child's personality [12]. Hence, it is important to keep and maintain a classroom's environment at any time. However, if it fails a numbers of possible problems occur such as, health problems, lack of beauty, bad smell and spread of dirt from one to the other, and leaking ceilings with tears or cracks in them.

Teaching-learning processes were negatively impacted by the physical environment because the poor lighting system in the classroom hindered the learning of students with low vision. This finding can be supported by [13] who mentioned that adequate lighting allows for signage to be read in a classroom and creates the opportunity for effective communication among all students, and between students and teachers.

The data also confirmed that the schools' physical environment limits the pedagogical approaches that teachers needed to use as a part of active learning. For example, the types of seating arrangements that are usually used in all schools were row and column seating arrangement due to lack of enough space, flexible and adjustable furniture. Hence, it was impossible to use different seating arrangements to employ various teaching methods and thus they could not implement active learning methods. Therefore, schools' physical environment disabled the implementation of inclusive education. However, furniture is arranged with the intention that students may feel comfortable and they may be adjusted to the primary sources or different sources of information [14].

Supportive physical learning environment to teaching and learning processes were also discussed in this study. Although teaching-learning process mainly takes place in the classroom, it is not limited to the classrooms' physical learning environment alone. However, there are other areas of the physical learning environment of a school which directly or indirectly supports the teaching-learning processes. Different issues such as library, laboratory, pedagogical center, resource center, creativity center, toilet, drinking fountain and dining place were discussed in terms of accessibility, hygiene and organization and found not at good condition in all variables mentioned here. However, the previous researches indicated that the physical facilities of school help to enhance the learning of the students [12 Hence, the availability and accessibility of the supportive physical facilities including drinking water, lighting, toilets, furniture, playgrounds, libraries, laboratory, and resource room have a significant positive influence on the performance of the students and their achievement [15]

5. Conclusion and recommendation

Based on the findings of the current study, it is possible to conclude that the geographical location of schools, schools' design or layout, raw materials used for construction of buildings and rooms including classrooms and supportive physical environment, direction of buildings laid on yard of schools were arbitrary, and not thoughtfully designed in both inclusive and non-inclusive schools. They were unable to meet the diversified needs of the students, particularly those with some kinds of impairments like physical and sensory impairments.

In general, the various aspects of physical learning environments of schools like lighting, acoustics, space in the

classrooms and size of schools' yard, noise, maintenance, hygienic, furniture, seating arrangements, etc., have an effect on learning and health condition of the students. Admittedly, the extent to which the physical environment plays a role in the learning process remains an issue of contention. It is clear that the physical environment has been unappreciated for its potentially supportive role in student learning. Based on the conclusions made, the researcher recommended that the relationships between the physical environment, pedagogical, psychological and social variables have yet to be explored to a great extent by educational researchers. In addition, restructuring/modifying and adapting schools' physical environments are needed to implement inclusive education successfully and effectively, in both schools which were defined as inclusive and non-inclusive schools. The restructuring or modification of physical environment of schools may be in terms of geographical location, classroom's furniture and neatness, acoustic issue, lighting system, direction of buildings, circulation spaces, classroom size and class size, etc.

6. Limitation of the study

Though, the study will pave ways for other scholars to undertake intensive research on the issue, it was not free of limitations. Firstly, the research was not analyzed school by school; rather the seventy schools conditions were aggregated and analyzed together. In addition, schools were not analyzed based on background variables like private and government school, religious and non religious school. Secondly, the perceptions of Ministry of Education of Ethiopia, Education Bureau of Addis Ababa Administrative City were not included.

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