



Relationships of Learning Environment, School Type and Secondary School Students' Academic Achievement Marakwet East Sub-County, Kenya

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Abstract: This study was developed purposely to investigate the relationships between learning environment, secondary school type and students' academic achievement in secondary schools located in Marakwet East Sub-County, Kenya. The study aimed at providing answers to the research questions; what is the relationship between learning environment and students' academic achievements? What learning environment exists in Marakwet East Sub-County? What is the level of academic achievement of public secondary schools in the Sub-County? Are there relationships between school learning environment, school type and secondary school students' academic achievements? The study adopted the theory of socio-cultural theory of Lev Vygotsky (1978) that believes that parents, caregivers, students' peers and the peoples' cultural heritage are responsible for all human development. It also assumes that most human learning take place in processes or steps and requires being a social venture. This takes learning as a social matter. Educationists Piaget and Boyle (1994) believed that learners are constructors of their own purposeful reality, knowledge, and understanding of many varied things and experiences and therefore reflecting on their own experiences. The research adopted mixed embedded methods of research that combined use of quantitative and qualitative designs. The study targeted 18 secondary schools, 18 directors of studies, and 140 teachers across the area. The study used stratified and simple random sampling techniques. Data collection was done using; questionnaires, in-depth interview guide, document analysis, checklist and observation. These instrument results were subjected to content validity in order to remove ambiguities. Two secondary schools were piloted. Test-re-test as used to obtain reliability of the instruments' results. The researcher analyzed qualitative data thematically and presented using in-depth explanations, narratives and verbatim. The study findings showed that secondary schools for boys had better teaching and learning environments while mixed day schools had unsupportive physical learning environments. This indicated that boys' only schools did better than either girls or mixed schools. The study concluded that learning environment and school type affected students' academic achievement. The study recommended for adequate funding to support physical development, resources mobilization, equipment, social and other learning environment resources. The study implores education stakeholders to pull resources for enhanced secondary school students' academic achievements.

Keywords: Learning Environment, School Type, Students, students' Academic Achievement

1. INTRODUCTION

Aspects surrounding students' academic achievement have been the subject of debates by various groups and in many quarters among parents, educators, academicians and policy makers. This has therefore led to carrying out this study to explore and explain the relationships between school learning environment, school type and students' academic achievements. Various studies have attempted to define learning environment. According to Richard and Mishra (2018), learning environment can be defined as the diversified physical location, context and culture in which students learn. Students can be exposed to a range of settings both within and outside the classroom to achieve this goal. This term has traditionally included the physical characteristics that young people are exposed to. These include classrooms with structured rows, desks, blackboards, laboratories, dorms and school administration. All these are directly or indirectly engaged with classroom instructions.

Lawrence and Tar (2018) referred learning environment as elements that influence the teaching-learning processes within the school. They defined learning environment as the overall design and arrangement of a given school centres and its learning. According to these authors, the classrooms, teaching learning materials, library, technical workshops, teachers' quality, teaching methods, peers and other variables can affect the teaching learning processes. In essence it calls on schools to organize their rooms, materials and furnishings in ways that makes every learner access maximum learning and involvement. Other studies and authors have defined learning environment as the social

characteristics that surround learners while they are learning (Vanoostveen, Desjardins & Bullock, 2019). These social characteristics include class culture, ethos, ideals and school cultures that govern how different people in the school interact and treat each other. It is a concept that includes planning and organizations that teachers do to make teaching and learning smooth. In New Zealand Rohana (2017, p.2) attempted to define learning environments as organized set ups that encompasses norms, values, expectations and school climate that give support to students in regard to and ensure their safety, social, emotional and physical feelings.

The school can be said to provide safety, social and emotional support when students' activities are properly planned, organized, managed and controlled to the advantage of all members of the school. Therefore, it is the cardinal responsibility of the teachers and the school support staff to provide conducive environment for academic and non-academic programmes. For instance, students with furnished classrooms, halls of residence, teachers who provide team work and with support staff who serve them food, feel safe and emotionally stable. This requires that all teachers require formally planning all school activities and also providing the requisite control measures. Activities outside the school classrooms like sports and games provide students with avenues for socialization and emotional support. Through sports and games they get to relieve themselves of excess motor and in return get to relax and enjoy themselves. This comes about when they engage in games and sports of their interest. The teachers' presence both in and outside the classroom; guidance and counseling will be taken by the students as important support services advanced to them. Schools that provide such service do them all with love and kindness. Democratically and formally planned/arranged schools' activities consider students' expectations, follow school policies, and regulations makes a school assume very positive school climate. Schools that ensure every member feel respected and which take every member as important, make students feel valued, loved, safe and emotionally stable. Therefore, all students will be at peace and will ever learn well.

Secondary schools are formal organizations where teachers and students' activities are planned, organized and equally controlled internally and externally following the individual school's laid down policies and procedures. The students spent more and longer hours in school while carrying out learning activities, making the school second home to students. The school learning environments need to be noble for it to benefit, encourage and nurture desirable and positive values and attitudes. This will lead to schools producing polished students who will be good citizens in the society. It therefore means that schools with poorly planned learning environments, activities, programmes and those without proper internal and external control systems will always under-achieve their set targets. The definitions have highlighted the importance of learning environment in schools in terms of academic achievements. Academic achievements will almost improve certainly if the learning environment is favourable.

Sentiments that were expressed by Kothari Commission (1966) in India stated that the fate of India is being shaped in the classrooms, and that maintaining a healthy school environment is critical due to children being the nation's backbone. This implies that poor learning environments in impoverished countries have traditionally been regarded as important factors that lead to poor performance in public secondary schools as echoed by UNICEF (1990). Osei-Tutu (2014) in a study done in Ghana reported that disparities in educational resources have resulted in discrepancies in the school environment which have hurt the country's educational quality. This means educational resources are critical components of learning environment. According to UN global vision countries and states are called upon across the whole world to provide environments that ensure equal access to effective learning for all young people (UNESCO 2011). For this great vision to be realized, strategies should focus on developing feasible and sustainable social learning environments in the context of individual learners' local or immediate conditions. According to Obagi and Ogachi (2014), there is still inadequacies in schools' learning environment as far as this vision is concerned and cited issues to do with physical environment and educational facilities which they said needed quick attention.

According to UNESCO assessment report of the year 2020, most learning settings in Eastern and Central African nations of Ethiopia, Uganda, Zimbabwe, Malawi and Congo were found underdeveloped. The physical settings of the schools were observed to be in bad conditions. The learner population per class was found crowded with about 70 students per class. This showed that the

learning settings in the schools were inadequate. Such overcrowded learning environments leads to suboptimal teaching and learning quality and will defeat reasons of accessing better education (Teixeira, Okuniewicz, Malone, Coux, Rio, and Lehmann, 2017). Basic school characteristics in Uganda for example have a variety of effects on teachers, students and the learning processes. The teaching-learning process was observed to be complicated by poor illumination, noise and excessive levels of carbon dioxide in classrooms, and fluctuating temperatures. Accordingly, poor maintenance and ineffective ventilations system result in poor student health and higher absenteeism rates in the country (Frazier, 2002; Lyons, 2001; Ostendorf, 2001).

The extent to which students learn could be improved depending on the resources available to both the learners and the teachers in the classrooms. Therefore, a well-planned school would help students achieve expected educational objectives such as good social, political and economic independence, effective teaching learning processes and a stronger academic achievement as noted by Williams, et al, (2008). School environment reflects the physical and psychological aspects of the school that are more susceptible to change and which provide the pre-conditions necessary for teaching and learning to take place. This is in support of arguments such as made by Akube (2016) who said that a noble learning environment has a singular merit of fostering positive attitudes and desirable behaviours.

Mege (2014) in a study done in Kenya observed that inadequacy of physical facilities in most schools and insufficiencies of instructional resources have significantly impacted on the teaching learning processes. This supported earlier claims by Makori (2003) who had said that that Free Primary Education (FPE) in Kenya has resulted in overcrowding and packed classrooms, death of teachers and teaching learning materials. The results according to his survey are that Kenyan schools are severely hampered by shortage of teaching tools, deplorable classroom environments, large an unmanageable class sizes and understaffing.

Lin and Tsai (2011) have attempted to define academic achievement which they referred to as the status of the subject matter, the knowledge gained, attitudes and skills acquired by a student at one point in time that is measured by a standardized test. Academic achievement also refers to the degree to which a learner or institution meets their short-term or long-term educational objectives. As far as this study is concerned academic achievement are all the cognitive scores and grades a student in secondary school attains at the end of four years in high school and which is measured by the Kenya National Examinations Council (KNEC) results. Secondary school students' academic achievements refers to the grades, points, marks or scores that are earned by a student after sitting for the Kenya Certificate of Secondary Examinations (KCSE). Continuous tests or examinations are widely used to evaluate students' progress academically. How it should be assessed is a subject of discussion without end.

Poor academic performance of students in public secondary schools especially in national tests had made many stakeholders lose confidence on the ability to earn good grades. Researches have indicated that there were high rates of indiscipline in most secondary schools (Yusuf, 2004; Adeyemi, 2008). It has also been reported that absence from school, quarrelling, rudeness and disrespectful to authority, physical harming of others, forgery, lateness to school, exam cheating, and other uncouth behaviours were events taking place in secondary schools on daily basis. The results have made schools ineffective. Conspicuously seen in high crime waves is traceable to the non-teaching of ethics at the primary school level. This means schools with adequate learning environment contributes a lot to mopping up of expected learning outcomes which eventually will facilitate better academic developments.

According to Yusuf and Adigun (2010) students' academic achievement is a pointer of the effectiveness of schools as well as a major determinant of the well-being of young people and a nation. The students' academic achievements in Marakwet East Sub-County have been on a low key for quite a time. For instance in the year 2017 KCSE examinations results, only 38 candidates who sat for the national exams met the minimum university entry points of a C+ (7 points). The mean score of the Sub-County for the year was 3.395 which is a grade equivalent to 3 points out of the 12 maximum points. In the year before then, 2016 there were only 29 candidates from across the Sub-County scored grades slightly above C+ and qualified to enroll with the universities.

According to the Ministry of Education Science and Technology report (MOE, 2018) mean score of the Sub-County was 3.95 in 2017, 3.333 in 2016, 5.796 in 2015, 5.53 in 2014, 4.458 in 2013, 4.712 in 2012 and 4.722 in 2011. Stakeholders in education from the area who include parents, professionals, academicians, educationists, and policy makers have raised concerns over the continued low performances by students despite the many efforts they put to make schools stable, equipped and safe for all to access education for the development of every learner's potential. There is a general feeling that if this trend is not reversed, there is the danger of Marakwet East Sub-County lagging behind in social, physical, political, and economic development. In the long makes the area less developed.

2. STATEMENT OF THE PROBLEM

Public Schools' learning environment has been a challenge to many aspects of teaching and learning in Marakwet East Sub-County. This has been by environments that have been in existence for a while. A Ministry of Education Report of 2014 indicates that there have been congestions in the classrooms due to FPE and FDSE. Inadequate laboratories, libraries and dilapidated facilities like toilets and leaking roofs have been reported. Coupled with these has been the insecurity witnessed in the region that has led to shortage of teachers. These concerns have been escalating despite efforts by government and development partners to speed up educational capitation to public schools. Many Non-governmental organizations- such as World Vision Kenya, Area Development Programme and Christian Children's Fund have been working in Marakwet East Sub-County with the aim of reducing the effects of socio-cultural activities that could interfere with realization of desired educational goals.

Various stakeholders, who include County government, Faith Based Groups, parents and professionals, have raised concerns on the impacts that the aforementioned school environment has had on the performance of the students academically. Records indicate that Marakwet East Sub-County has remained low. For instance, only 12 candidates met the requirements for university admission in 2019 compared to only 10 candidates in 2018, and 38 in 2017. In the Sub-County, school means and grades have similarly remained low. The schools' mean grade has also remained a D+ in the years 2019, 2018, 2017, 2016, 2015, 2014, and 2013(MOE Report, 2019). There were noted disparities in performances between male and female students. If the same situation was to be left unchecked, there will be low number of educated persons, less job opportunities and less leadership roles in the society. The situation on academic achievement needs attention for political and social developments.

Many studies on academic achievements have been done which includes Kiptum's(2018) on the influence of school physical environment on teachers' satisfaction in selected public primary schools in Elgeyo Marakwet County; Lulley (2018), the effects of social tensions on teaching and learning in public primary schools in Elgeyo Marakwet County and Chebii (2014) who studied factors impacting pupil performance in the KCPE in Kapsowar Division. Though these studies showed relationships between school physical environment and teachers' satisfaction, none of them had conducted a study on effects of learning environment on students' academic achievement in public secondary schools in Marakwet East Sub-County Kenya. Therefore, this study investigated the effects and relationships of learning environment, school type and students' academic achievements in Marakwet East Sub-County, Kenya and expose existing gaps for remediation.

2.1. Research Questions

Here below are the research questions that guided this study;

- i).What is the relationship between learning environment and students' academic achievements?
- ii).What learning environment exists in Marakwet East Sub-County?
- iii).What is the level of academic achievement of public secondary schools in the Sub-County?
- iv).Are there relationships between school learning environment, school type and secondary school students' academic achievements?

2.2. Research study Hypotheses

H1 There is a statistically significant difference between mean learning environment scores and students' academic achievements

H3 There is a statistically significant difference between school type and academic achievements

H4 There is relationships between learning environment, school type and students' academic achievements.

2.3. Theoretical Frame

This study was anchored on Socio-cultural Learning Theory of cognitive Development that was developed by a Russian psychologist called Lev Vygotsky (1896-1934) that was published Harvard University Press. Vygotsky believed that socialization and classroom interactions by the learners and their teachers led to meaningful learning. The theory is a social science theory that is based on uniqueness of other sciences, research and observations (Ameri, 2020, p.1530). As far as the theory is concerned Care givers, children's Parents, peers and the school cultures are responsible for developing functional abilities of every human being. In line with the theory believe, this theory put forward suggestions that all human beings require to be social. Therefore, imply that humans should socialize and get involved in interactions. Therefore, every learner requires unlimited access to environmental information, which is integrated in an individual's learning processes. Learning also should involve interactions.

The theory belief that knowledge is gained through access to environmental information which individual learner integrates at her own level and pace. Social interactions are essentially important because they play paramount duties in cognitive development (Vygotsky, 1978). The theory asserts that development could differ from or between different cultures. The course of development in the Western cultures, for instance, might be different from it is in Eastern cultures. Similarly, the course of development in African culture also differs from both the Western and Eastern cultures. This shows each culture presents unique differences. The theory suggests that both the course and content of intellectual development are not universal as noted by Piaget (1896-1980) who wanted his stand point to be believed. The socio-cultural theory of cognitive development stresses the importance of play in learning. Teachers and parents are therefore called up on to provide every child with opportunities for play experiences in plenty. The theory informs schools with limited spaces for socialization and play to be aware that they are doing a disservice and physical harm if not denying learners justice just because the learning environment do not accommodate play activities due to lack of space.

The Ministry of Education guidelines for standards and quality assurances require that every secondary school should strive to provide spacious play grounds, spacious classrooms, availing school common social halls, opportunities for student interactions and socialization and individual learner's own time and schedules. The theory is a catalyst in the study at hand because it provides information to the schools to look at school learning environment, school culture, and students' academic development and growth. A study by Adewuyi (2012) said that a healthy learning environment is critical to school effectiveness. This is because it offers supportive learning environment which in essence influences students' attitudes and academic performances. According to the theory, playing and imagining can make children enabled to stretch their knowledge and hidden abilities of their environment and the world around and beyond them. Play such as role-plays, games, imaginary plays and reenacting real events helps learners in fostering their learning as well as promoting learners' growth of abstract thoughts and thinking. The theory is premised on the belief that children are born with basic biological constraints in their minds.

However, each culture provided tools of intellectual adaptations which allow children to apply their abilities in ways that are adaptive to the culture they live in. A particular culture could be emphasizing memory strategies like note-taking, whereas another might use tools like reminders or rote memorization methods. These are common practices in secondary schools, where some use one, two or more or even a combination of both and that have formed certain school's culture. Sociocultural theory place more emphasis on how social factors influence learner development. The theory looks at important contributions society makes to individual person's development as reported by Ameri (2020). This is because it stresses much o culture and human interactions. Ameri (2020) explained that learning is largely a social affair and process as opposed to other assumptions by many philosophers who think learning take place naturally and fluidly.

Vygotsky's theory of socio-cultural cognitive development believed in the learners engaging actively in their acquisition of knowledge. However, this school of thought has been criticized heavily especially for not considering slower learners with slower rate of cognitive growth. Freire (2016) supported Vygotsky's consequential form of learning by arguing that there is need for persistent emphasis and a focus on pedagogies of possibilities and hope. Sadiq (2018) on the other hand was categorical that cultural mechanisms that bring the end into the beginning in learning processes and

that both pedagogy and traditions should be highlighted. This theory is calling for considerations of present family roles, on the past, negotiating contemporary activities, adherence to routines and many other practices for individual children's socialization, learning and society.

2.4. Learning Environment in Public Secondary Schools

A research study conducted by Samani (2011, p.133) in Malaysia's multimedia university found out that improving lighting in learning environment was critical for increasing students' desire to learn more. The purpose of the study was to find out important aspects of education, the learning environments, and effects of learning environment on student's academic achievements. This study showed how lighting as a requirement of the learning environment affected students' academic performances. Samani (2011) study used survey methods to analyze collected data. In the United Kingdom (UK), Argyropoulous (2019, p.3) examined the impacts of school physical environment in the provision of quality secondary school education in the United Kingdom. The study revealed that most schools had classrooms that were not decent, that lacked space, ventilators and heat insulation poorly done, urinals and incinerators were inconveniently located and that most schools' plant was in poor conditions

These were combined shortcomings that pointed significant gaps in the consistency of the learning environment and thus resulted in non-attainment of secondary school expectations and goals. The study greatly highlighted adverse effects of physical learning environment in the provision of quality education which translates to underachievement of the students. The study found UK public school physical environment was in dilapidated situations. Therefore, they were inadequately equipped to offer quality education to the UK secondary students. The physical environments of urban and rural secondary schools according to a study done in Brazil by DiGropello(2014) used experimental research design to compare schools in both urban and rural areas of Brazil. Brazilian schools were insufficiently funded, have poorly trained teachers, use rigid pedagogies and overly regulated management. The inadequate funding has hampered the construction of physical infrastructures. Schools in metropolitan areas were fairly equipped compared to poorly equipped rural secondary schools which did not meet educational needs (DiGropello, 2014).

A study that investigated the Perception of teachers on availability of instructional materials and physical facilities in secondary schools in Arusha Tanzania (Limo,Too and Kipnetich, 2017) found that there was insufficient number of reference materials, books, globes and maps for teachers and learners' uses. This was as a result of increased number of community schools. The study also revealed that there were inadequate physical facilities. Classrooms, poorly constructed classrooms, there were inadequate spaces in some classrooms, lack of furniture, desks, chairs, and that the available classrooms were poorly done. This study recommended to the policy makers and Tanzania Institute of Education (TIE) to come up with policy guidelines on procuring and provision of instructional materials and facilities in schools. It also recommended for Curriculum developers at TIE to develop and supply to schools standard materials for teaching learning purposes.

In Kenya, Korir and Kipkemoi (2014) had conducted a study that investigated Impacts of School Environments and Peer Influences on Students' Academic Performance in Vihiga County. The study carried out an assessment on the 21 secondary schools focusing on the level of psychological impacts of environmental factors on students. This study used the theory of Social Learning theory by Albert Bandura which beliefs learning to be an interaction between 'environment, behaviour and a person's psychological process'. Correlation research design was used where schools' environment and peer influences were the independent variables and students' academic performances constituted the dependent variable.

The study findings revealed that schools were faced with the problems of overcrowding, inadequate furniture, and students were mismanaging the little resources available through breakage. Based on these findings, the study recommended that national and county governments, parents and local leaderships to build more classrooms to reduce overcrowding and provide conducive teaching learning environment that enables all learners to achieve; recommended for provision of enough furniture; teach the students on best management practices of keeping facilities and values not to destroy property; and all parties need to give the necessary attention to both the provision of quality education and getting many children accessing formal education.

Another study that was conducted in Bungoma County of Western region of Kenya was one by Likoko, Mutsotso and Nasongo (2013) that examined adequacy of instructional materials and physical facilities in eight teachers training colleges located in this western part of Kenya. Simple random sampling and purposive sampling techniques were used to select participating colleges. The study targeted college principals, tutors and second year teacher trainees. Questionnaires and observation checklists were used to collect data. This was a study that was done to investigate the Adequacy of Instructional Materials and Physical Facilities on Quality of Teacher Preparation in Emerging Private Primary Teacher Training Colleges in Bungoma County, Kenya. Collected data were analyzed using descriptive statistics like frequencies and percentages with help of SPSS computer packages. Frequency tables and pie charts were used to present the results. The study revealed that there robust emergence of many privately owned teacher training colleges in the region. It also established that there was negative impact on the quality teacher preparation and that these institutions lacked basic facilities like libraries and instructional materials. These affected and compromised quality of teacher graduates from the institutions. In Marakwet East Sub-County, infrastructural facilities are either insufficiently provided or in dilapidated state. The secondary schools face challenges that emanate from access and equity, overstretched facilities, inappropriate sanitations, huge student population and harsh physical learning environment. According to Asiago (2018) deficiency of infrastructure affected quality of teaching and learning, create health and safety concerns to both the staff and the learners

2.5. Level of Academic Achievement in Public Secondary Schools

The Corona Virus Disease (COVID-19) pandemic had caused profound disruption to all educational programmes in the history of human world over as showed by the UNESCO Annual Report of the year 2020 (UN, 2020). The report that is titled #Save Our Future campaign advised governments and the International community to combine efforts and prioritize education at the forefront recovery agendas in every nation or state. This aimed at protecting investments in education as it seeks to maintain universal relevance. The other aim of this was to give education a lifelong perspective, holistic and humanistic nature of Sustainable Development Goals (SDG) in education 2020 World focus.

UNESCO report of 2014 hold data that indicate that boys' academic achievement was better in most commonwealth and in African countries. However, the UNESCO Report the year 2020, has revealed that socio-political and economic factors had influence on students' academic achievement in secondary schools. The qualitative report provides descriptive reasons to explain the male gender dominance in academics, which is due to socio-economic and political leadership positions held by males. Arun, Per, and Mark (2021) study in the Netherlands, which evaluated the effects of school closures on primary school performances in the Netherlands, reported that there was a learning loss of 3%(0.08 std. Dev) whose effect was equivalent to one-fifth of the school year, the same period that schools remained closed in that country.

The findings of this study showed a loss of 60% larger amongst students from less educated families. This confirmed worries on the uneven toll of the pandemic on school children, families and communities.

In California, Ergene (2011) investigated effects of scholastic domains and other subjects on students' academic achievement and found that students' proficiency in a particular scholastic domain such as performance in either reading, mathematics, science, social studies or other subjects, was the degree of measurement. This was the opposite of the study in Marakwet East Sub-County.

Despite World Bank Report of the year 2020 indicating that education in Africa was expanding drastically despite facing many challenges, Evans and Acosta (2021) study that explored the means of increasing access to and improving the quality of education in the African continent, the study established that there were impacts of pedagogy intervention inputs such as training of teachers, lesson plans, teacher programmes, mother tongue instruction intervention and provision of requisite student materials. Findings of this study showed that lower secondary school completion rate in the period 1971 – 2015 rose from 5% to 40% and showed that this is the lowest performing region of the world. The world's secondary school completion rate stood at 75% then. The study showed that private schools formed an important part of Sub-Saharan Africa educational landscape. Parents perceive private schools to be of higher quality than public.

Wamalwa and Burns (2018) is quoted by Evans, et al (2021) whose study made a comparison of private schools and public schools attending siblings within the same households in Kenya. The study identified that students attending private schools had gained more in literacy and numeracy skills and knowledge. Abdulraheem (2020) who evaluated the effectiveness of peer tutoring instructional technique in enhancing students' academic proficiency in financial accounting subjects in Southern Nigeria, found secondary school teachers did not use peer tutoring approach in the teaching of the subject. The study recommended for practical-oriented teaching approach because it helps learners develop effective skills, concepts, competencies, life skills and self-reliance.

A comparative study that was done by Kinai, Ndambuki, and Mwaura (2019) in Kiambu County on teachers and students' attributions regarding mathematics, found that secondary school students pegged their successes in National Examinations to hard work, effort and ability. Underachievement to most students was blamed on external causes. The study determined predictors of students' academic achievement. However, findings revealed that students who employ inappropriate patterns of attribution develop persistent beliefs that success is not possible, and thus lose motivation of putting more efforts. The study proposed for a re-train of students to make appropriate attributions.

2.6. Relationships between School Type and Students' Academic Achievement

According to the systematic analysis by Mahat, Liu, Knck and Imms (2018) different blended learning environments, creative learning environment(ILE), open-plan, and traditional learning was believed to have effects on student learning outcomes. This was an analysis of 20 out of 5,521 papers that were available. This review study was conducted to address student-learning outcomes in a variety of environments in both primary and secondary educational settings. According to the reviewed study, Mahat, et al (2018) indicated that availability and viability of scientific evidence raised major methodological concerns. The study examined how researchers assessed improvements in secondary schools and students performances. This is because of changes to the learning conditions in schools. Quantitative data was collected using a customized form.

The researcher used different to determine bias, reliability and validity. This was done in order to give track to improvements in discrete academic and learning outcomes. The study uncovered a number of reliable and relevant instruments for evaluating effects of different spatial layout on students' learning in the 21st century. The layouts included learning domains of innovation, critical thinking, communication, team work, and problem solving. The study found that there are connections between improved student academic achievements and improved learning environments.

A study on the Perceptions of teachers on availability of instructional materials and physical facilities in secondary schools in Arusha District in Tanzania that used a descriptive case study design revealed that students in Community Secondary Schools in Tanzania's District of Arusha were poorly stocked in terms of text books, reference materials for the teachers, maps globes and other instructional materials. This is unlike government schools that were better equipped. The study also found that the Community schools were poorly constructed and the aisles or spacing was inadequately done. The research also found that physical facilities such as classrooms and the furniture were also wanting. The study recommended the development of proper policy guidelines that enhances provision and supply of instructional materials and physical facilities to the community schools by the Curriculum Developers at Tanzania Institute of Education (TIE) and Ministry of Education in Tanzania(Limo, Too and Kipng'etich,2017).

According to an assessment done by Korir and Kipkemboi (2014)of secondary schools on the environmental factors and peer influences in terms of the level of psychological impacts on learners in Vihiga County, revealed that public secondary schools in Sabatia District(now Sub-County) had few classrooms and many students were crowding in the existing classrooms without enough space. The assessment also found these public schools stocked with insufficient furniture. Public school learners too were found to be irresponsible as many cases of property destruction were reported. The study on the Impact of School Environment and Peer Influences on Students' academic Performance in Vihiga County, Kenya (Korir and Kipkemboi, 2014) recommended for proportionate provision of facilities to schools that match the population, for attention on quality of facilities, and policy making that guide provision of quality education at all levels. In the City County of Nairobi, Kenya Aloyo (2015)

conducted a study that investigated the relationships between physical environment and academic achievement in public secondary schools in Nairobi City County, Kenya. Does the settings where learning occurs matter?

The study by Aloyo (2015) sought to contribute to factors that explain learning achievement from the perspective of an architect planner rather than the predominantly descriptive educationists' viewpoints. The purpose of the study were to assess the quality of the school physical environment, evaluate academic achievements of form four students and also explain the relationship between the school physical environment and student achievements. The researcher used a case study design. Public schools were stratified into boys, girls, and mixed categories. Again these were further stratified along eight geopolitical divisions in Nairobi County. Schools were proportionately allocated divisions. Simple random and systematic sampling techniques were used to select the 36 secondary schools the study examined.

An Interview schedule, an observation schedule and a revised Commonwealth Association of Physical Environment questionnaire were used to collect data. The study findings revealed that the overall average quality of mixed schools' index of 126 was lower than that of boys' and girls' schools which stood at 134. In the Kenya Certificate of Secondary Education results of 2011, girls recorded the best performance with a mean grade score of 51.9 followed by boys' and mixed schools with scores of 46.2 and 31.2 in that order. Analysis of variance tests indicated that the impact of the internal environment and facilities on students' achievement differed among boys', girls' and mixed schools.

There is dismal status of physical infrastructures in public secondary schools in Marakwet East Sub-County has posed serious effect on students' academic achievements. The public schools' buildings that exist in this Sub-County lack adequate maintenance attention. Therefore, assume conditions that appear deplorable and extreme viewpoint, students were highlighted in the media studying under trees and some in muddy classrooms. The same students are expected to sit for same national examinations and compete with their counterparts in well-developed physical environments with all the requisite learning teaching resources. These well-developed facilities are found in Extra-County Schools, National Schools and in privately owned secondary schools.

These poor state of the schools' physical learning environment demonstrates clearly on the educational inequalities that exist in the Kenyan education system which put the students attending school in Marakwet East Sub-County at a risk of not achieving their academic achievements due to being treated unequally however able they are.

3. FINDINGS

H₀₁: There is a statistically significant difference between mean learning environment scores and students' academic achievements

The following null hypothesisH₁₀₁: there is no statistically significant difference between mean learning environment scores and secondary students' academic achievement as was tested at 0.05 level of significance. Table 1 below displays the mean summary.

Table1. *Descriptive statistics for H₁.*

	N	Mean	Std. Deviation
Negative	4	3.4225	.18839
Moderate	4	4.1275	.28710
Positive	2	5.0850	.07778
Total	10	4.0370	.67492

Students' academic achievement was examined with the view of the physical learning environment in secondary schools that was rated to be very negative, negative, moderate, positive and very positive. The dependent was students' academic achievement that showed a mean of 3.42, SD= .19 which is in negative environment, 4.13, SD= 3.68 in moderate environment and 5.09, SD =5.09 in positive environments.

Table2. ANOVA Summary Table for Hypothesis One

ANOVA					
Mean					
	Sum of Square	df	Mean Square	F	Sign.
Between groups	3.740	2	1.870	36.379	.000
Within groups	.360	7	.051		
Total	4.100	9			

A one-way between groups analysis of variance $F(2,7)=36.379$, $p<.05$ indicated that there was statistically significant difference between mean learning environment scores and students' academic achievement. Therefore we reject the null hypothesis and accept the alternative hypothesis that there was statistically significant difference between mean learning environment scores and students' academic achievement.

H₀₃: There is a statistically significant difference between school type and academic achievements

	Boys				Girls				Mixed				Overall			
	N	Mean	SD	G	N	Mean	SD	G	N	Mean	SD	G	N	Mean	SD	G
2016	3	4.53	0.872	C-	3	3.3	0.361	D	4	3.15	0.511	D	10	3.66	0.757	D
2017	3	4.67	0.937	C-	3	3.37	0.363	D	4	3.16	0.573	D	10	3.73	0.818	D
2018	3	5.34	1.04	C-	3	3.93	0.366	D+	4	3.63	0.672	D+	10	4.30	0.913	D+
2019	3	4.89	0.211	C-	3	4.97	0.291	C-	4	4.18	0.501	D+	10	4.68	0.435	C
Average	3	4.858	.3542	C-	3	3.893	0.771	D+	4	3.53	.4878	D	10	4.09	.4853	D+

Table3 revealed that academic achievement in the schools differed depending on the gender of the pupils. Based on the means, the boys' only gender fared better than the girls' only gender, and the boys and girls (mixed gender). Throughout the four-year study period, the boys' gender maintained a mean of 4.6 – 5.3. Statistical tests will be used to determine whether or not the means within the individuals were equal. It's worth noting that the boys were superior from a descriptive standpoint. The significant efforts that the communities have put in place to develop the boy child could be one of the reasons behind this. This occurs when against a backdrop of concerted efforts to raise the position of girls in society.

H₀₄ There is a relationship between learning environment, school type and students' academic achievements.

The following null hypothesis H₀₄: there is no significant difference between learning environment, school type and students' academic achievement was tested at 0.05 level of significance using tw-way ANNOVA.

Tests of Between-Subjects Effects						
Dependent Variable: MEAN						
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Squared
Corrected Model	27.053a	7	3.865	119.229	.000	.929
Intercept	395.089	1	395.089	12188.758	.000	.995
Learning Environment	1.244	4	.311	9.593	.000	.375
School Type	17.605	2	8.802	271.563	.000	.895
Learning environment*	.256	1	.256	7.902	.007	.110
School Type						
Error	2.075	64	.032			
Total	1197.989	72				
Corrected Total	29.128	71				

a. R Square = 9.29 (Adjusted R Square = .921)

There was a significant relationship between learning environment scores. School type and students' academic achievement, according to a two-way ANOVA $F(1) = 0.007$, $p<.05$. As a result, we reject the null hypothesis that there is no statistically interaction between the mean learning environment scores, school type and the academic achievement of pupils.

4. SUMMARY

The study findings indicated that boys' schools had a more stimulating learning environment and with a clear and consistent focus on students' learning and opportunities to learn and improve self. The boys' schools had a positive learning environment which was statistically significant as compared to girls' and mixed secondary schools. Girls were rated highly in relation to school norms, while mixed schools had better application of new pedagogic ideas.

5. CONCLUSION

There was evidence of a substantial association between the learning environment and academic achievement of students in public secondary schools in Marakwet East Sub-County according to the findings of this study. Notably, the very unsupportive learning environment hampered secondary school students' ability to achieve higher levels of accomplishment the teaching learning resources were severely lacking. For example, professional development was found to be poor as evidenced by a small number of teachers who were not active in career advancement. The majority of mixed schools had a very unsupportive physical teaching and learning environment in most of the areas studied, including opportunities to learn, provision of stimulating environments, operating under higher expectations, and having clear and consistent focus on learning.

The study concluded that secondary students' academic progress in mixed schools, though accommodating many students, was influenced by their physical, social, and economic learning environments. Despite this, the teachers used a variety of pedagogical strategies while adhering to national curriculum design criteria. There were gaps in the physical environment in the schools under investigation. The teachers' workload, for instance was unmanageable due to large class size. This resulted in crowded classrooms with limited space. The situation was more acute in mixed schools, than in boys' and girls' schools. This had an unsupportive influence on students' academic growth in mixed schools when compared to other schools. There was a link between academic achievement and the type of school. Boys' and girls' schools did better than mixed schools.

6. RECOMMENDATIONS

According to the findings and conclusions of this study, the learning environment is an important driver of students' academic progress. All public secondary schools ought to work together to ensure that they provide effective teaching and learning, provide physical, and social environments that are safe and conducive. Due to secondary schools in Marakwet East Sub-County, especially mixed schools, and by extension, the Sub-County schools, lack sufficient and permanent classrooms. There is a major pressing need for concerted efforts to develop knowledge of good educational practice and of building strong and inclusive school systems for provision of Education for All.

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