MANAGING SCHOOL ENVIRONMENT FOR TEACHING AND LEARNING OF ENGLISH LANGUAGE IN PRIMARY AND SECONDARY SCHOOLS IN NIGERIAN

Idialu Patricia Ejiyamenmen,

Department of Educational Foundations, University of Delta, Agbor, Delta State pmrsidialu@yahoo.com; pmrsidialu@gmail.com,

Abstract

Teaching and learning of English language require conducive environment for effectiveness. The focus of this position paper is on the teachers and school's managerial role of creating a conducive and enabling learning environment that facilitates effective teaching and learning of English language in primary and secondary schools in Nigeria. The paper examined the condition of the schools' environment in terms of school locations, sites, facilities and structures. Management, teaching and learning are the basic concepts explained in this paper. The managerial functions of the school namely: provision of positive environment; security and safety; and variables of enabling learning environment such as thermal, acoustic, aesthetic were among others. are thoroughly discussed. The factors and variables discussed are paramount to curriculum design for all school subjects

including English language. After the conclusion, this paper gave some recommendations. One of which is that the physical environment that enhances children's English language development through play-way method should be created and maintained in the schools.

Key words: environment, school management, English language, teaching, and Nigerian schools.

Introduction

Environment plays important roles in the lives and activities of human beings. Man is continually interacting with his environment for growth, development, nourishment, learning and sustenance. Environment can be explained to mean anything that surrounds us, which could be living (biotic) or non-living (abiotic) things. It includes physical, chemical and other natural forces. Environment is used to describe all the external forces, influences and conditions, which affect the life, nature, behavior, development, growth and maturation of a living organism. Teaching and learning take place in an environment, the school is an environment within environment. There are certain major environmental variables that interplay in any teaching and learning environment; these variables are spatial, thermal, visual, acoustic and aesthetic variables. Since these variables are subjective and measurable; the curriculum designers and implementers (teachers) can do a proper analysis for their thorough consideration in effecting enabling environment for effective teaching and learning of English Language. These variables exist by design or by default; they can be created to enhance conducive environment for learning.

Factors to be considered under the conducive environment for learning are the: educational location; Physical site of the school; and Facilities like building, structure and services. For instance, if the school location has been over taken by development of settlement or otherwise thereby constituting noise factors to any meaningful learning; such learning environment becomes unsatisfactory. Schools-located close to market places or high ways where there are frequent vehicular horn are bound to experience rampart assorted noise that constitute unsatisfactory learning environment. Physical site of the school is important to the policy and decision makers as well as the curriculum designers in relation to present national and local standards regarding out-door educational areas for play and organized physical educational activities; programmes, parking spaces for staff and visitors vehicles; and subsequent building expansion.

To Kirthika (2022), School management is the act of running the school along the desired educational policies; that takes into account all aspects of the school: such as policies, materials, human resources, programmes, activities, equipment etc; and integrate them into a fruitful whole. The school manager (leader, head teacher) has the responsibility within their power to create conducive school environment for teaching and learning of all school subjects including English Language. The services to be considered in the conducive

learning environment fit for learning include: electrical services, ventilation/heat/and or air conditioning services; and sanitation, storms, drainage and plumber services.

This paper examines the factors of enabling environment that enhances the effective teaching and learning of English Language in Nigerian schools; the responsibility of the school head in influencing and creating such environment; and the implications of such an environment in curriculum designers.

Conceptual Clarification

For proper comprehension, some concepts need to be explained. Management is a word used to describe the technique of coordinating human and material resources to accomplish desired goals and objectives. It involves the process of planning, organizing, staffing, directing and controlling various activities through available resources for the continual operation and growth of an organization. Management also means the act of building and maintaining a common purpose for a group of people. With good management, people could be motivated to put in their best to the works of achieving organizational purpose. Management helps to get things done and increase productivity. On the other hand, school management is not as broad and as comprehensive as the term management which has been explained above. It is the day to day (daily) management of the activities of a school by all or any of the following: the school head (Leader), teachers, staff members, appointed administrators, pupils, parents etc. School management involves the deliberate and conscious act of integrating human resources and facilities together in schools operations to achieve the educational goals and achievement of the school. Managerial functions in schools include: creating conducive learning environment; facilities maintenance; students' behaviour and discipline management; record keeping; sports; time table scheduling; classes schedules; and school budget (Yukl, 2013, Agarwal, 2007; Ugurlu & Demir 2016; and Zincirl, 2020).

According to Kirthika (2022), the aims and objectives of school management are to:

- reflect and conserve basic values;
- carry out educational functions;
- manage social changes;
- profit by experience;
- carry out modernization;
- propagate science;
- adopt technology;
- realize national integration; and
- form character and values.

Learning is explained to mean the acquisition of knowledge or skills through study, experience or being taught. The purpose of teaching is for learning though not all teaching can result in learning. Learners can interact with their learning environment and take responsibility for their learning. Houweretal (2013) defined learning as the ontogenetic

adaptation-that is, changes in the behavior of an organism that result from regularities in the environment of the organism.

A learning environment refers to an educational approach, Cultural perspectives of the school, Physical setting of schools where teaching and learning take place, learning resources and technology, means and modes of teaching and learning, the psychological mode of the classroom, People and events that surround and influence learners and their leanings.

An environment can be satisfactory or unsatisfactory for learning. The good or satisfactory environment that is conducive for teaching and learning promotes learning. An enabling environment is a rich and varied space where risks are minimized and well managed, and the children are protected from harm and abuse (Early Years Alliance 2021).

Satisfactory learning environment can be created and sustained by parents at homes, school heads at schools, teachers in classrooms, government at school level and at the curriculum design stages. The classroom teacher can create conducive learning environment in the classroom through: proper utilization of available Learning resources in teaching and learning; providing range of activities and rich learning experience; warm and welcoming atmosphere etc. Spaces for indoor and outdoor activities could be beyond the teacher and the school management; in such a case the government have to come in here. In curriculum designing and decision making, the enabling and conducive environment for effective teaching and learning should first be put into consideration.

Curriculum design as defined by Queensland University of Technology (2013) is the architecture of a course of study that embodies a philosophy of learning and teaching, articulate a clear set of desired learning outcomes and describes how the planned learning environment will support the students to achieve those learning outcomes. Curriculum design is a vital aspect of formal learning and training experiences. It is concerned with how people learn what they learn. The tentacles of curriculum design spread beyond content, learning strategies and learning materials; it is involved in creating a holistic plan for the environment where learning takes places. Considering the physical, social, digital, psychological and emotional variables that define the learning environment of a given people is a core part of curriculum designing. Curriculum design is a deliberate process of devising, planning and selecting elements, techniques and procedures that constitute curriculum. In other words, learning environment is included in curriculum design; the designers have to (like architecture) create, select and explain the teaching environment that are optimal in achieving the goals of the designed curriculum; as well as how unsatisfactory environment can be enabled to help get the best in learning. (Dodd, 2020; Gibbous, 2014; & Educause, 2017).

The focus of this paper is the management of learning environments to enhance them and make them conducive for effective teaching and learning of English language in schools. Factors and variables that make environment enabling for effective teaching and learning are discussed below.

Factors and Variables of Enabling Environment for Teaching and Learning

Learning environment can be learner centered, knowledge centered, assessment centered or community centered. Also emotional environment, indoor environment and out-door environment for play and learning are all forms of environment that can affect students learning either positively or negatively depending on their state. With proper management they become enabling environment, they become satisfactory and conducive to enhance learning. The major environmental factors and variables that exist and interplay in any teaching and learning environment that need adequate management for effective learningare discussed below:

A. Spatial Variables

Physical environment is a critical matter in school setting; school environment is constantly changing as a result of emerging technologies and applications of theories of learning. Brooks (2011 & 2012) believed that students' learning outcomes, progress, and leaning behaviours improve in active learning environments with richer space. Space is measured and interpreted in term of layout, dimension, usability and configuration. Schools located on vast space of land will have adequate spaces for educational activities (in-door and outdoor); halls, field, school gardens, vehicle parking spaces etc. inadequate land space cannot accommodate all the named above. Classroom space is not only an environment for personal learning nor teacher's use, but also a place for students' collaborative inquisitorial and contextualized learning. Space should be students centered and improved to encourage cooperation among students; and enriched learning experiences. (OECD, 2013). According to Talbert and Mou-Avi (2019), improved classroom spaces can be referred to as active learning classroom. Parson (2016) opined that abundant spatial layouts of active learning classrooms can accommodate different learning modes, diverse furniture design, students' communication and physical interactivity during instructional process. Spatial satisfaction in classroom enhances learning experiences and promote students' perceptions in the classroom. (Harrison and Hutton 2013). The classrooms should be roomy enough to ease movement of teachers and students, and to allow for proper seating arrangements of students. Congesting of students in the classroom should be avoided.

Management of the available economical space layouts in the classroom for effective learning activities is a part of the managerial responsibilities of the teacher. He must be strategic in his use of existing space in the classroom. Involving students in classroom arrangement, and rearrangement for space planning and measurement, is wholesome idea. The teacher can also create the illusion of space by the use of mirror; mirrors are capable of transforming small spaces. With good management; classroom environment can be transformed to offer a variety of technological devices, and improve the adaptability of the classroom space which can meet the specialized needs of various disciplines. (Florman, 2014; Horne et al 2012; and Wilson & Randall 2022).

Seating is very important in classroom environment of learning; the specification for seats construction for classroom use include bucket seats and straight backs. Surfaces for writing

tables need to be slanted at 45° for comfortable writing. Seating arrangement should align with instructional content and mode of delivery; this shouldn't be rigid.

Use of instructional strategies like dramatization, debate, workshop, seminar etcvor teaching for certain concepts and topics in English language will require more spacious classrooms.

B. Visual/Lighting Variables:

How well an object can be seen is a factor of the amount of light that it reflects. There are two sources of lighting in every learning environment: natural and artificial sources. Natural light is believed to be able to positively contribute to a higher academic performance in reading and science, than the artificial light. (Heschong *et al* 2002). Clerestory and Skylight are among the processes of bringing natural light into learning environment. In clerestory, the upper part of the wall of a building rises above the roof of a lower part of the same buildings and in which there are usually a number of windows for lighting to perpetrate into the environment. This practice is common with churches, mosques, auditoriums, lecture theatres and halls. Skylight is the use of transparent roofing sheets to cover buildings so as to allow sufficient light to penetrate into the environment. Some learning environments employ this. Artificial light is derived from electricity.

The degree or level of visualization in the learning environment can be affected by some factors briefly explained below:

Distance: the proximity between the object and the viewers; some learners may be suffering from Myopia (Short sightedness), hypermetropia (Long-sightedness) and astigmatism (due to old age).

Size: The bigger and larger the object, the easier and brighter the object is seen by the viewers.

Brightness of the light: The brighter the light the more an object is vividly seem and brightness is dependent on the source of the light.

Contrast: This refers to the sharpness or dullness of the light in relation to the colour of the visual environment and even the object to be viewed.

Colours: The colour of the object (whether dull or bright; electric bulb (red or blue) and even the visual environment can affect the level of visualization.

The main visual tasks that the learning environment should make provisions for are reading, writing in English. Erratic power supply, glare, inadequate contrast, dullness and fluctuating in the level of brightness should be properly controlled for effective instructional process. Good enabled learning environment should be well-illuminated in terms of required quantity and quality of both natural and artificial lights and evenly distributed (Barrett et al, 2015 and Heschong et al, 2002). Lighting is critical in media utilization. A single chalkboard for instance needs twice the amount of lightning at the teachers' position as compared to the learners' seats so that they can see properly. But on the other hand, media like films, slides and films trips require low level of light, while others such as overhead transparencies and television can tolerate higher level of light.

C. Thermal Variables:

Heat and cold are climatic weather conditions that affect people and their environment which include school learning environments. Individual concentration level can be affected by thermal condition. In Nigeria, like other countries and continent, thermal conditions differ from region to region. Heat is more of a problem in some areas than cold. In addition to learners concentrations level during learning, instructional media equipment and materials such as projector lamps and films can be affected by heat as well as damage and malfunctioning of equipment.

The thermal condition of a place are affected by temperature, rain falls, humidity, winds, attitude, latitude and continentality (Crahmline 2021). The individual thermal receptivity is usually affected by physical factors such as:

Age: Younger people easily adapt to any climate conditions than older people: this is due to their stronger immune body system.

Sex: Males seem to adjust and adapt more to any climate conditions than their female counterparts in the same age group.

Colour: The skin colour of the individual react to particular climatic conditions of their natural habitat, fair completion people are more prone to sunburns and other weather related skin disorders than the dark complexioned people.

Weight: The human body has a way of adjusting to the climate condition it finds itself. For instance over weight and obsessed people find it more difficult to adjust to high heat in the tropical climate than the slime people.

Rate of Metabolism: The human body metabolism is subject to prevailing climate conditions; it slows down under extreme cold climatic condition and the reverse becomes the case under extreme heat weather.

All these physiological factors should be considered in the provision for and adjustment of thermal facilities for a meaningful effective conducive and comfortable teaching and learning environment for English language. The best possible optimum thermal condition for a conducive learning environment and maximum teaching and learning effectiveness and efficiency are recommended as follow:

Air Temperature 22.2°C – 26.1°C

Since the normal human body temperature is 36.8°C, the atmosphere for maximum learning to take place; warmer temperature is usually associated with increase in errors particularly when learning calculations.

Relative Humidity: 40% - 60%

Any reading outside the range can affect the rate of learning negatively. At 100% the air becomes saturated and cannot hold all its water vapour which leads to condensation in form of dew, fog or rain.

Optimum air Velocity: 6.1 - 12.2 per minute. Learners should always be given access or break for relaxation so that they can get more fresh air outside the classroom. (ISO 7730, 2005; and Fabri, 2015)

The control system for thermal environment are natural and artificial.

Natural control

- Trees planting to provide shades
- Cross ventilation through windows and doors.

Artificial control

- Fanning system (manual or mechanical)
- Air conditioning system (in tropical regions to cool their environment
- Electronic heating system) not really applicable to Nigeria
- Double Glazing

Thermal control facilities are essentials for thermal environment to be conducive and comfortable for teaching and learning process. (Woodcoock, 2005; Harish, 2016 and Crahmaline 2021).

D. Acoustics Variable:

The concern here is the sound in the learning environment, the volumes and the articulation of the sounds from the teacher's voice; audio component of the instructional materials and the quality of audio-recording. The auditory sensory modality like visual and tactile. The climate condition of the learning environment is pervaded with sound; excess reverberation due to the quality and kind of materials used to construct the learning environment, can constitute "noise factors" to effective instructional process if not properly controlled. This can affect learners' auditory discrimination in phonetics classes.

Different people react to sounds in different ways depending on age, sex, colour, weigh and culture. Whereas many people enjoy noisy environment, mission schools especially catholic schools and Priests/teachers have very low tolerance for noisy environment. People that are with obesity in terms of weight are more prone to shock from a loud sound vibration. Excessive noise can cause environment pollution which can in turn lead to high blood pressure, headaches, emotional instability and disturbances.(Bluyssen, 2017; cannolly et al 2019; Reinten *et al*, 2017; and santos et al 2013)

For effective teaching and learning of English language in Nigerian schools, a sound controlled environment is necessary. Rural areas in this country are fast developing into urban areas with assorted noise factors that disturb pedagogical practices. External noise pollution can be controlled by architectural design. The measures for controlling sound in a learning environment include the following:

Structural materials: this is achievable through porous, materially conditioning and non porous materially conditioning.

- Porous materially conditioning is done through acoustical ceilings, carpeting, draperies (wood), heavy curtains in glassy windows that help to absorb sounds.

- Non Porous materially conditioning are the use of materials such as concrete wall, plaster and glossy wood; these do not absorb sound rather, only reflect the sound, which reach them.

In structural Design: This can be achieved through non-paralled surfaces, walls, sawtooth walls which disallow reflection, certain louvers can also be used for acoustic conditioning, they are called acoustic louvers, they too absorb sound. Conducive and healthy acoustic environment help to make teaching-learning environment enabled for effective instructional process. (Berowits, 1998). There are certain decibel levels of sound to be heard from physiological point of view, the levels based on decibel bearing are as follows:-

Level in percentage (%)

	······································	
-	Threshold of hearing	0%
-	Whispering	15-20%
-	Talking. normal conversation	40-60%
-	Thunder sound	110%
-	Factory and industrial noises	100-140%
-	Painful sound that disturbs the ears	120-140%
-	Multiple engine jets	140-180%
~		

Source: CEF (1998) Guide for planning educational facilities. USA.

E. Aesthetic Variables:

Beauty, they say is in the eyes of the beholder, beautiful and hygienic environment has positive influence on learners attention and concentration in learning. Colours, proportion of colour, harmony of colour, structural expressional (in-terms of colour too), general appearance, spatial distribution (space) and fluidity (quality) are essential factors in the beautification of learning environment at the interior and at the exterior levels. The interior (inner parts of the learning environment) should be more aesthetically appreciated where possible more than the exterior (the outside) so that the learners will be highly motivated to learn. The walls, ceilings and floors of the inner part of the learning environment need to be beatifically painted and decorated with terrazzo, ceramic tiles, carpet, linoleum e.t.c. These too can enhance the acoustic, thermal and visual conditions of the environment. For the exterior (outside) environments; the buildings, walls, windows, doors, pillars and roof should be painted with attractive and plausible colours. The functionality of the environment is another factor in the aesthetic variables. A good aesthetic environment should be functional, in other words, it should not only attract people but should be utilized for the purpose of its establishing (Beronita 2002; Bonell et al 2011; and Temple 2007).

Curriculum Implications of Enabling Environment for Effective Teaching and Learning of English Language

In designing the school curriculum, learning environment should be put into consideration. Curriculum designers like the teachers are vital instruments in creating, enhancing, selecting and maintaining conducive learning environment. The curriculum designers need to know the suitable and available facilities and the structures on ground that can enhance effective learning of English language. They need to consider the following: - Age, cultural habit, sex, colour, weight, and other physiological and psychological makeup and dispositions of the learners and teachers, the school location and site, as well as the cultural beliefs/influences of the communities where schools are located, the spatial, acoustic, aesthetic, visual, thermal, lighting and illumination conditions of the learning environment. These are environmental factors that can either enhance or negatively affect learning of English language in Nigerian schools.

The curriculum designers should also considers the emotional environment of the learners, their outdoor/indoor activities as well as the safety of such environment. The school environment is within the community environment and it is affected and influenced by the cultural practices and activities of the community environment. In Nigeria, some schools and learners have suffered certain unrest due to the unrest issues in their host community, some of such schools have to be closed down temporarily or permanently. Schools can keep students safe by providing a supportive, respectful and a caring environment where students are most secured from physical harm and emotional toxicities (such as bulling and prejudice), nourished by the community, and connections to caring teachers. Effective school environment create strong conditions for learning where students are physically and emotionally safe, connected to and are supported by their teachers and schools. (Osher, *et al* 2012; Osher, *et al* Woodruff and Sim 2002: Osher, *et al* 2004: Jemings and Greenberg 2009).

- Conducive and satisfactory learning environment is an enabling learning environment that provide a safe platform for learners.
- Enabling school environment consist of geographical, manmade, land, water, plant, air e.t.c. which make it rich and adequate for academic process.
- Anxiety, frustrations and stress of teaching and learning of English language can be reduced by enhancing positive learning environment.
- An active enabling learning environment can help in the emotional and behavioural regulation of the students which in turn promotes their easy learning of English language.
- Conducive learning environment is attractive, and it helps to improve the attention and concentration of learners to their studies.
- Because active school environment for teaching and learning can be created, it helps and encourages the curriculum designers, the teachers and the school heads to be creative and to think critically.
- Enabling learning environment is technological compliance especially with new modern technologies of instructions.
- Outdoor activities, scenes and scenario are good environment of inspiration for the learner and teachers; connecting with nature is made possible when these are properly integrated into the school curriculum.

- Flexibility rather than rigidity in curriculum design and implementation by the designers and the teachers will help to achieve positive environment for effective teaching and learning of English language in Nigerian schools.
- Adaptability and creativity are essential ingredients for creating and sustaining conducive and enabling environment for teaching and learning,

Omar, (2013) believed that, learners can with positive environment, express their good opinions, ideas, and be motivated to learn, participate actively and safely in school activities that satisfy their psychological, physical and intellectual needs, as well as acquire problem solving skills. Students' active participation in the activities in their rich positive environment can go a long way to assist them in gaining relevant knowledge in English language which is the language of their school immediate environment.

The school management has a lot to do in protecting the environment of the school from harmful practices that obstruct the effective teaching and learning of English language. Atuoi, (2001) and Carpenter (2002) maintained that the school head is saddled with the responsibility to create an appropriate learning environment for the school and to generate a desire to learn in the minds of the students and teachers. While Hussein & Hussein (2010) asserted that, the major responsibility of the school is to provide security and safety in the school environment that would be free from the factors that can lead to the emergence of violence and quarrel.

Language laboratory is an essential facility of the school environment. With this facility, students and teachers can engage in meaningful learning activities in English language. Planning, organizing, coordinating, monitoring and following up activities at the Language laboratory to maximize learning in English language should be a priority of the school administration.

Conclusion

Conducive, positive, active and enabling environment for effective teaching and learning of English language is achievable. The curriculum designers, the school and the teachers have to consider the factors and variables that enhance satisfactory learning environment. Conceptual clarification, factors and variables that enhance enabling environment; and the curriculum implications of the conducive learning environment have been discussed so far. Below are the recommendations and references sections of this paper.

Recommendation

They are as follows:

- 1. Physical environment that enhance children English language development through play; how they feel and act should be created and maintained in schools.
- 2. Physiological and psychological factors that affect learners and learning of English language vis-à-vis their learning environments should be considered in English language curriculum designs by the designers and implementation by the teachers of English language.

- 3. Parents need to provide their children and ward with rich, stimulating home environment; discipline, social, emotional support, safety, and opportunity for learning and exploration in English language studies.
- 4. Environmental aesthetic education should be integrated in school curriculum for all levels.
- 5. Every school in Nigeria should have a language laboratory to enhance quality instructional process of English language.

References

Aggarwal, J.C (2007). School management. New Delhin Shipra Publications.

- Barrett, P, Davies, F., Zhang, Y., Barret, L. (2015). The impact of classroom design on pupils learning: a result of a holistic multi-level analysis. Build Environ: 89 (May) 188 - 33
- Beronita, N. (2002). *Aesthetic environment of educational facilities*: a guide for policy makers planners.
- Bluyssen, P.M. (201). Health, comfort and performance of children in classrooms New direction for research.Indoor And Buist Environment, 26 (8), 1040 1050
- Brooks, D.C. (2011). Space Matters: the impact of formal learning environments on student learning. *Br. J. Educ. Technology*42, 719 726
- Brooks, D.C (2012). Space and consequences: the impact of different formal learning spaces on instructor and students' behaviour. J. Learn. Spaces 1
- CEFP (1998.) Guide for planning educational facilities, Ohio.
- Connolly, D., Dockrell, J., shield, B., Conetta, R., Mydlare, C. & Cox, T (2019). The effects of classrooms noise on the reading comprehension of adolescence. *The Journal of the Acoustical Society of America*. 145 (1), 372 381
- Crahmalive, R (2021). Thermal Comfort in Building: how to better control and predict. SimScale.com/blog/ther
- Dodd, B.J. (2020). Curriculum design processes. In J.K Mc Donald & R.E. West, Design for learning principles, processes and praxis. Edtech Books. Retrieved from https://edtechbooks.org/id/c
- Early Years Alherice (2021). Enabling Environments Eyalliance. Org.uk
- Educause, (201). Seven things you should know about adaptive learning. Retrieved from https://edtechbooks.org/-uk
- Fabbri, K (2015). Thermal comfort perception, a brief history of thermal comfort: from effective temperature to adaptive thermal comfort. Switzerland Sprinter International Publishing.
- Florman, J.C. (2014). Tile at lowa: adoption and adaptation. *New Dir. Teach. Learn* 2014, 77 84

Gibbson, A.S. (2014). An architectural approach to instructional design. Routledge.

Gill, R. (2011). *Theory and practice of leadership*. Sage.

- Harish, A. (2016). How to improve thermal comfort in an office environment.SimScale Blog. <u>SimScale Public Projects Library</u>
- Harrison, A. & Hutton, L. (2013). *Design for the changing educational landscape: space, place and the future of learning.* Taylor and Francis
- Hesohong, L. Wright, R.L., &Okure, S. (2002). Day lighting impacts on human Performance in school. J.in Engsoc July 1, 31 (2): 01 14
- Horne, S.V Murniati, C., Jon, D.H.G., & Jesse, iii. (292). Promoting active learning in technology-infused TILE classrooms at the university of Lowa. J. Learn. Spaces 1
- Houwer, J.D.; Balnes-Holmes, D. & Moors, A. (2013). What is Learning? On the nature and merits of a functional definition of learning USA: Springer. Psychomotor Bulletin and Review vol. 20, Issue 4 pp. 631-642.
- ISO 7730 (2005).Ergonomics of the thermal environment. Analytical determination and interpretation of thermal comfort using calculation of the PMU and PPD indices and local thermal control Criteria.
- Jemings, P. A & Greenberg, M. T. (2009). The Practical classroom: Teacher social & emotional competence in relation to student and classroom outcomes. Review of Educational Research, 79:491-525
- Kirthika (2022). School Management meaning, concepts, definitions, objectives, characteristics, scope. Teacherscript.com. https://www.teacherscript.com
- Krishnamacharyulu, V. (2011). School Management and system of education. Hyderabad: Neelkamal Publications Private Limited.
- OECD, (2013). Innovative learning environments. Doi:10.1787/9789264203488-en
- Osher, D.; Dwiyer, K. & Jackson, S. (2004) Safe, supportive, and successful schools, step by step. Longmart. Co: Sopris West.
- Osher, D.; Duiyer, DK; Jimmerson, S.R. & Brown, J.A (2012). Developing safe, supportive, and effective schools: Facilitating student success to reduce school violence in S.R. Jimmerson, A. B. Nickerson, M.J. Mayer & M.J.Furlong (eds), Handbook of Social violence and school safety International Research and practice (2nded) Mahwah NJ: Lawrence Eribaum Association.
- Osher, D.; Woodruff, D. & Sims, A. (2002). Schools make a difference: the relationship between education services for African American children and youth, their overrepresentation in the Juvenis justice system. In D. Losen (ed). Minority Issues in special education. Cambridge, MA: Haruard Education publishing Graup.
- Parsons, C.S. (2016). Space and consequences: the influence of the roundtable classroom design on student dialogue. J. Learn. Spaces 5, 15 25
- Pratt, D. (1980). Curriculum design and development. Harcourt Brace.
- Queensland University of Technology (2003). Final report review of the University online teaching activities. Brisbane: QUT.
- Rerowits, (1999). Environment of educational facilities: a guide to planners and administrator. Syracuse University Research Institute.