

The Effects of Institution's Physical Infrastructure on Social and Academic Experience on Students

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Abstract: *Institutions such as universities and colleges are places where students acquire knowledge. These students are taught in environments that are supposedly conducive for effective learning to take place. Bad infrastructure and social environments have proved to hinder academic excellence and at the same time good infrastructure and social environments promotes academic achievements.*

1. INTRODUCTION

This presentation discusses the effects of the institution's physical infrastructure in the students' social and academic experience. The key terms used in this discussion are physical infrastructure; social and academic experience. The term physical infrastructure refers to the basic physical and organizational structures and facilities for example buildings, roads, power supplies needed for the operation of a society or institution. For the purposes of this discussion this term refers to the buildings, sporting facilities, roads dusty and muddy pavements in comparison to paved roads; lawns, flowers; for example a medical Doctor's surgery welcoming environment; equipment such as laboratory equipment and social surroundings. The term social refers to a characteristic of living organisms as applied to populations of humans and other animals. It always refers to the interaction of organisms with other organisms and to their collective co-existence, irrespective of whether they are aware of it or not, and irrespective of whether the interaction is voluntary or involuntary. In this discussion, it specifically refers to the students' social behavior and how they relate with other individuals surrounding them as well as how the physical infrastructure influences their general attitude. The term 'academic experience' refers to the way in which the students' learning processes are influenced by their surroundings either positively or negatively.

2. THE PHYSICAL ENVIRONMENT AND STUDENT ACHIEVEMENT

Studies about student academic achievement and building condition conclude that the quality of the physical environment significantly affects student achievement. 'There is sufficient research to state without doubt that the building in which students spends a good deal of their time learning influences how well they learn' (Earthman, 2004). Wilson and Kelling (1982) assert that neglect and disrepair lead to a dysfunctional environment and to dysfunctional behavior as well.

Desirable designs include having 'friendly and agreeable' entrance areas, supervised private places for students, as well as public spaces that foster a sense of community, with particular attention to the color used (Fisher, 2000 in McGregor, J 2004). Academic institutions must create spaces that students want to go to, similar to the way cafes attract people, rather than the space being purely functional (Bunting 2004). The quality of the institutions' infrastructure has a significant effect on the social and academic experience of the students. Students are less likely to choose institutions in need of structural repairs that use temporary structures and those that have limited services for their use such as limited library facilities, sports facilities, residences and learning facilities. Wilson and Kelling 1982 argue that, if a building has a broken window and the window is not replaced, all the other windows will soon be broken. This leads to a culture of neglect and vandalizing property and furniture within the institution, hence this will bring about a culture of disorder, fear, isolation and labeling of the institution that is the institution will be labeled as a bad one by the potential and current students. According to Wilson and Kelling's theory 1982, the condition of the school's or institution's infrastructure has crucial consequences for academic performance. It can be positive or negative depending on the condition of the infrastructure.

If an institution's infrastructure is damaged and left unrestored, the disrepair will create an atmosphere of instability and despondency that tends to disrupt social order and the educational process. In such an environment, students tend to feel that they are not special and they also regard education as unimportant. They would feel as if no one cares about them and the likely result is that they will not place any value on their education. The same also applies if students are streamed in such a way that the most intelligent or academically gifted students are placed in one class and the least intelligent/less gifted students are left on their own. In most instances, the educators will put more effort in instructing the most intelligent classes and in terms of facilities, these are the classes that are given priority and on the other hand, the ones who are least gifted are neglected to the point that in their social behavior, the gifted students will be very well behaved as opposed to the rowdy and truant ones who will be found in the lower classes. Even in terms of selecting student leaders, in many cases, there is a bias on the institutional authorities to elect the most brilliant students and rarely would they reward good behavior among the least gifted academically.

Other research has acknowledged that 'student achievement lags in shabby school buildings' but go on to say that this research 'does not show that student performance rises when facilities go from decent buildings to those equipped with fancy classrooms, swimming pools, television studios and the like' (Lane et al. 1993). In one study the significant improvements in the learning environment were attributed to the better attitudes to teaching and learning the improvements in the physical environment created amongst all users (Lane et al. 1993). In the Zimbabwean context, the location of an institution has a bearing on the label or status that the institution is given for instance; rural and or schools in the high density suburbs or informal settlements or overcrowded settlements are ranked lowly as compared to schools in low density suburbs or well established mission establishments. The rationale for this being that the schools in informal settlements, high density suburbs and rural areas do not have adequate facilities or sometimes have dilapidated facilities as compared to those in the low density suburbs, established mission institutions that are well equipped and have maintained facilities. This has in most cases translated into the behavior and grades of the students being different in terms of their academic achievements and social behaviors.

Structural designs influence human behavior, mood, and health. Doors, windows, light, colors, space, and other features can impose changes to the physical and psychological aspects of an individual. The shape of a structure simulating the natural environment using curvilinear geometrical structures can trigger a positive psychological and physiological reaction in an individual. Humans favor natural elements using cognitive assessments on that environment. When certain features are present in the setting, the individual favors the environment. For instance, the paved roads, ever green lawn and blooming flowers within an institution motivates students to learn better because their mood is uplifted. Conversely, dusty, dirty and littered classrooms and shabby surroundings will impact negatively on their moods, health and well being and consequently on their academic performance.

Geographer Appleton 1975 approached the idea that human inclination for landscape and a natural setting links to two environmental qualities, to prospect and refuge (Barker, 2012.). Access inside a structure can favor free behaviors in that environment. Strategically placement of doors can restrict those free behaviors from occurring. A room containing too many items creates excessive stimulation, which increases stress levels. Controlling the architecture of an office, not exposing too many people together in an open space, helps control the illusion of crowding, which leads to stress. In an academic institution this has to do with the teaching space available, how the rooms are organized and how the furniture is arranged can improve or distract the learning process. Students must be in a comfortable space where they can interact with fellow learners freely as well as with the educator and also allowing free movement for both learners and the educator.

Similar to doors windows can control mood and behavior. Light has a direct impact on the mood an individual has, including the length of time one recovers from an illness. Patients with a window and plenty of light inside their rooms seem to have a faster recovery than patients inside rooms with poor lighting or without windows. Students working under an environment lacking artificial light or windows are less productive and show less motivation for their work environment.

Personal space and the illusion of ample room space are very important to humans. As population density increases, architectural structures for residential and commercial must cater to the developing needs. High density to an individual could give the illusion of crowding, which could also trigger feelings of confinement. A building with a more organic structure promotes less stress, according to

Gestalt theorists, light can promote physical and mental health, and some colors may even trigger aggression or create the feeling of calmness. In designing classrooms and study rooms as well as students' residential places, all these issues must be given due consideration.

According to Barker 2012 research shows that considering the architecture when building a commercial property, one must ensure to have patrons in mind. Building a not esthetically pleasing structure may distract patrons from the product. Considering human visual perception is important and during the last few decades building and zoning departments took notice, promoting esthetically pleasing regulations for their areas. A room setting can promote calmness by using earth tone colors giving a natural setting or organic setting. Earth tones promote a peaceful and restful environment, essential for a residential space. Using bright colors promotes an increase in productivity and high energy. Some researchers believe that reds and oranges can promote intense emotions, not suited for a commercial structure or work environment.

Research shows that persistent noise triggers physical and mental pathologies. When designing students' residential places, care must be taken to ensure proper noise insulation. Building physical structure must protect noise from penetrating living and working space to promote wellness and happier individuals. One must also consider the effects of noise exposure to students when they are studying either in the institutions' libraries or any academic structure. Research shows that interrupted learning sessions and reading when exposed to noise, can lead to memory impairment, maladaptive listening skills, and high levels of stress. This goes to say that for instance at Midlands State University students must not be made to attend lectures at the multi-purpose hall (MPH) that are not conducive for learning, worse still for writing their final exams. The reason being that the hall is very large and there can be a lot of lectures that can occur concurrently and the concentration of students is disturbed because of the noise generated. The hall is also very hot and very humid and so this affects the concentration of the students resulting in them having a negative attitude towards their studies.

Teacher student ratios have a bearing on the interaction and behavior of the students. Overcrowded classes can affect a teacher's ability to produce maximum student achievement (Smith and Glass, 1980; Congested classrooms also may exacerbate drop-out rates (Fitzpatrick and Yoels, 1992; McNeal, 1997). Such deficiencies may be due in part to a lack of incentive for students to attend such classes. It can be noted that a building structure that promotes privacy gives those living (residential), patrons (commercial), and workers (commercial) a sense of control, which promotes a positive mental health. Privacy decreases the need for seclusion and promotes a better disposition when dealing with others who share the structure. Architects building commercial and residential buildings must consider a structure that gives the illusion of ample space, to avoid the illusion of crowding linked to aggression, increased of criminal activity and poor social interaction with others.

Sustainability is often spoken of in terms of the three Es, economics, ecology, and (social) equity. It involves a vision of human welfare that takes into consideration both inter as well as intergenerational equity. It neither borrows from future generations nor lives at the expense of current generations" (Felardo, 2008). Global resources depletion is a major problem in the world, particularly in developed countries. Urban development counts for a large portion of global supplies depleting the environment, which directly alters human balance and wellbeing. As earth depletes the entire ecosystem follows along, including the human species.

Decent facilities make additional contributions to teachers work. According to Siegel {1999} there is a direct relationship between architecture and the collaboration of teachers. 'The arrangement of space has immediate and far reaching consequences for teacher's ability to effectively and efficiently accomplish daily activities, the formation of social and professional relationships, and the sharing of information and knowledge' (Siegel 1999).

Consideration of the spaces where teachers meet and collaborate is just as important as the design of the classroom (McGregor 2004). But it doesn't all have to be left to the architects. One study concluded that teachers who are more likely to modify their classrooms to produce what they believe is a more effective working environment are also more likely to collaborate with colleagues in the staffroom (Bissell 2004). Some of the office spaces for the lecturers at MSU is pathetic not conducive to an academic environment to say the least. Some do not even have office space and often times; they lack necessary equipment to make the learning process effective.

It was also postulated by Felardo 2008 that students perform better when faculties reflect the race and ethnicity of students. Students may be more likely to attend school under such conditions. Their social relations can have a bearing on their academic performance. Students tend to perform better if they are comfortable and feel welcome in the environment as compared to when they feel they are not welcome. In an environment that is similar to the home and cultural situations the students are likely to perform better than in an environment that is totally different from the home environment.

Essential infrastructure that is conducive for learning includes well-constructed buildings (classrooms, toilets, recreational facilities] such infrastructure would attract more students to any academic institution and offer a favorable environment for learning and students perform better. The infrastructure should be user-friendly e.g. for some students living with disabilities; their academic performance will either be positively or negatively affected by the availability/unavailability of facilities/resources catering for their needs. In terms of gender inclusiveness, the social environment should be accommodative of all genders and not being gender biased for example having sporting activities/facilities for male/female students only or locating the swimming pool at a place inaccessible to the other groups. No one gender should dominate in an academic institution if it enrolls male and female students. Availability of health care facilities is fundamental; students should have ready access to health care to cater for their chronic conditions or some occasional ailments as well as accidents that might occur during their course of stay at the institution. The health care personnel must be qualified, offer quality and confidential services that is create safe spaces for students to discuss their chronic conditions or any health care challenges in privacy without fearing and experiencing stigma, discrimination or judgmental attitudes from medical personnel. The health care facility should be a safe space where the students and educators receive adequate and current information on sexual and reproductive health that is discuss HIV and AIDS; sexually transmitted infections; contraceptives, condom availability, unplanned/unwanted pregnancies. If it is conducive then they will be physically fit and focus on their studies and if the conditions for their health is not okay then their grades in class will be affected and they will not perform well.

In conclusion, physical infrastructure plays an integral role in terms of influencing students' academic experiences because the availability or unavailability of facilities catering for their needs impacts heavily on their academic performance. Good environments promote both social and academic excellence and bad environments results in poor grades in their school work and also bad social interactions and behaviors.

REFERENCES

- Earthman, G.I. (2004). *Prioritization of 31 Criteria for School Building Adequacy*. American Civil Liberties Union Foundation of Maryland, Baltimore, MD. Retrieved from http://www.schoolfunding.info/policy/facilities/ACLUfacilities_report1-04.pdf
- Greenwald, Rob, Larry V. Hedges, and Richard D. Laine (1996) "The Effect of School Resources on Student Achievement." *Review of Education Research* 66:361–96.
- Weisher, Gregory R. (2000). "Minority Student Achievement: Passive Representation and Social Context in Schools." *Journal of Politics* 62:886–95.
- Rudd, P., Reed, F., & Smith, P. (2008). *The Effects of the School Environment on Young People's Attitudes Toward Education and Learning*. National Foundation for Educational Research, Slough, Berkshire, England. Retrieved from <http://www.nfer.ac.uk/nfer/publications/BSY01/BSY01.pdf.7>
- Fitzpatrick, Kevin, and William Yoels. (1992) "Policy, School Structure, and Socio- demographic Effects on Statewide High School Drop(out Rates)." *Sociology of Education* 65:76–93.
- Wilson, A. (2008). Fix or Flatten? *American School Board Journal*, October 2008, 24-25. Siegel, J 1999, *Architecture California*, vol. 20, no. 1, in McGregor, J 2004, 'Editorial', *Forum*, vol 46. no. 1, p.2
- Fisher, K.(2000). 'Building better outcomes: the impact of school infrastructure on student outcomes and behaviour', *Schooling Issues Digest*, Canberra: Department of Education, Training and Youth Affairs
- Bissell, J (2004), 'Teachers' Construction of Space and Place: the method in the madness', *Forum*, vol. 46, no. 1, pp. 28–32.

Bunting, A (2004), '*Secondary schools designed for a purpose: but which one?*', *Teacher*, no.154 pp.10–13.

Baker, L., & Bernstein, H. (2012). *The Impact of School Buildings on Student Health and Performance: A Call for Research*. McGraw-Hill Research Foundation, New York, NY.

Filardo, M. (2008). *Good Buildings, Better Schools: An Economic Stimulus Opportunity with Long-Term Benefits*. Economic Policy Institute Briefing Paper #216. Retrieved from <http://www.21csf.org/csf-home/publications/GoodBuildingsBetterSchools-EPI-Paper.pdf>.

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