Learning Environments as Determinants of Academic Achievement: A Systematic Secondary Analysis of High School Education

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Abstract

Academic achievement among high school students is influenced by various factors, including physical, social, and psychological learning environments. This article, which is based entirely on secondary data from peer, reviewed articles and international educational databases, summarizes empirical studies to show how classroom facilities, school atmosphere, teacher student relations, students' feeling of belonging, leadership, and use of technology affect academic success. The review provides ample evidence that well, organized, inclusive, and supportive settings lead to greater student engagement, perseverance, and higher academic results, among other benefits. The results strengthen the argument that success in school is not an individual characteristic but rather a product of the environment and can be maintained through the whole educational system.

Keywords: *Learning environment, school climate, academic achievement, secondary data analysis, high school education*

Introduction :

Academic success used to be primarily seen as a function of the quality of curriculum and teaching strategies. Yet, the latest research points to the fact that student learning is, to a large extent, determined by their learning environment (Cohen et al. 2009; Thapa et al. 2013). Educational environments refer to not only the physical facilities but also the relational climate, institutional culture, and leadership structures that together affect cognitive and motivational processes (Rutter et al. 1979). The first major large-scale studies such as Coleman et al. (1966) have shown that the school environment has a major influence on student academic performance over and above individual background factors. Later studies confirmed that the school ethos and climate are very strong predictors of student outcomes (Sammons et al. 1995; Scheerens, 2000). This paper uses existing data to discuss the role of school environment in academic performance of secondary students.

Methodology: Secondary Data Analysis :

This paper uses a systematic secondary data review methodology. Peer, reviewed journal articles, meta, analyses, longitudinal studies, and educational policy reports were analyzed. Secondary analysis allows for conceptual integration across several empirical contexts (Johnston, 2017). Sources were selected using methodological rigor and relevance to secondary education as main criteria.

Physical Learning Environment and Academic Achievement:

Research has shown that the design of classrooms can affect students' learning in a measurable way. For example, Barrett et al. (2015) discovered that factors such as lighting color temperature, and spatial flexibility were able to explain the major differences in student progress. On the other hand, environmental stressors like noise and overcrowding can interfere with attention and memory (Evans, 2006). Barometrically, high, density classrooms lead to less effective learning (Maxwell, 2016). Transforming the space with inventive layouts that facilitate conversation raise both the level of excitement and the level at which pupils understand (Brooks, 2011). According to Earthman (2004), the state of school buildings is found to influence students' academic results most directly. Not only that but according to Higgins et al. (2005), the quality of the environment of the learning spaces is linked to better academic achievement outcomes. These results imply that spending money on facilities is one step towards promoting better student performance on the cognitive level.

School Climate and Institutional Culture:

Academic achievement is predicted to a great extent by the school climate (Wang &Degol, 2016). A meta, analysis by Berkowitz et al. (2017) revealed that the climate to performance relationship is generally positive and consistent across different contexts. Hoy and Tarter (1997) considered organizational health as the base for student success. Bryk and Schneider (2002) pointed to relational trust as the main factor that leads to school improvement. Positive school restructuring environments, according to Lee and Smith (1999), are an important factor in achievement gains. According to Cornell et al. (2013), supportive disciplinary climates not only reduce behavior, related disruptions but also lead to better academic results. Leadership changes the quality of climate as well. Leithwood et al. (2004) discovered through their research that school leaders who are capable and competent act as a medium to increase student achievement by establishing the instructional environment.

Teacher–Student Relationships and Motivation:

Supportive relationships between teachers and students have a major impact on the level of academic engagement, as shown by research from Wentzel (1998). Pianta et al. (2008) found in their study that classrooms where teachers give emotional support are better places for learning and help students grow academically. According to a study by Hamre and Pianta (2001), the kind of help one receives when a person is very young can even determine how successful one would become academically after a long time. There is motivational research that backs up the above facts. Bandura (1997) identified self, efficacy as one of the best predictors of academic performance. The reasons that describe an individual's behavior are based on their beliefs, as noted by Deci and Ryan (2000) who further explained that environments designed to support one's autonomy tend to boost intrinsic motivation. Eccles and Wigfield (2002) also proved that expectancy, value beliefs formed in a classroom setting can lead to performance results. Overall,

the researchers in this area agree that relational settings have the power to determine one's academic identity and lead to willingness to continue despite difficulties.

Belongingness, Engagement, and Peer Context :

Belongingness has a very close connection to academic persistence (Osterman, 2000). Goodenow (1993) discovered that a psychological sense of school membership is a predictor of motivation and grades. Furrer and Skinner (2003) provided evidence that relatedness helps to sustain students' engagement. In fact, engagement is the mediator through which the environment influences achievement (Fredricks et al. 2004). Finn (1989) considered student participation as the focal point of academic perseverance. On the other hand, Juvonen (2006) highlighted that peer climate is the major contributing factor to one's level of motivation and academic success. Such results just emphasize the fact that environmental belonging is an important promoter of the engagement route.

Technology-Enhanced Learning Environments :

Technology integration is even more powerful when combined with the right pedagogical methods (Tamim et al. 2011). For example, Hattie (2009) found that properly incorporate technology into teaching can be associated with moderate, yet meaningful, increases in student achievement. Darling, Hammond et al. (2020) also point out that digital tools can personalize learning effectively if the tools are part of well, designed and supportive teaching systems. On the other hand, OECD (2015) cautions that technology can do very little if it is not combined with thoughtful and effective teaching methods. Hence, digital environments deliver the best learning outcomes when they operate in structured and supportive educational settings.

Discussion :

Across 30 separate studies, some regularities have come up: physical facilities, interpersonal trust, leadership of institutions, a feeling of belonging, involvement, and the use of technology together affect academic success. The surroundings influence the motivation, which then lead to engagement and performance outcomes. Accomplishment then should be seen as a new property emerging from the interaction of the whole system of environmental factors rather than simply the capability of an individual.

Conclusion :

This secondary data synthesis validates that high school academic achievement is a result of the environment. Educational institutions that deliberately create nurturing, well, organized, and inclusive atmospheres promote long, lasting academic success. Hence, educational policies and reforms should give equal weight to environmental aspects as well as to the teaching enhancement.

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