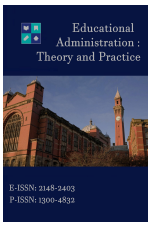
Kuram ve Uygulamada Eğitim Yönetimi
Educational Administration: Theory and Practice
2023, Cilt 29, Sayı 4, ss: 50-70
2023, Volume 29, Issue 4, pp: 50-70
www.kuey.net



Educational Leadership, Sustainable Housing Education and Construction Education: the Role of Traditional Dwellings and Construction Innovation

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Article History

Article Submission
11 October 2022
Revised Submission
08 November 2022
Article Accepted
10 January 2023

Abstract

Education enables one to distinguish between positive and bad experiences and identify what is proper and wrong behavior. Education is a process of simplifying the individual learning process and helping individuals maintain and improve our level of intelligence and understanding. As a result, it is essential to determine the factors that have an impact on the construction education that students receive. The aim of this study is to investigate the relationship between sustainable housing education, educational leadership, and construction education with the moderating role of educational construction innovation and traditional dwellings. To achieve the objective of the study data were collected from 370 students in China with the help of a questionnaire. Data were analyzed by using Smart-PLS and SPSS. The findings of the study showed that a significant relationship exists between all the above variables. The current study used only sustainable housing education and educational leadership as a cause of construction education among students. Future studies can also use other variables which has a significant effect on education. This study also has several practical and theoretical implications.

Keywords: Leadership in Education; Education Construction; Education Innovation; Sustainable Housing Education; Tradition in Education

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Introduction

It is generally agreed upon that education is a necessary ingredient in the development of a nation. Since the current systems of higher education are a key contributor to the economic prosperity of the countries, it follows that these systems ought to be preserved. The core components that comprise higher education have steadily accrued a greater level of significance throughout its history. The variety of organizations and individuals that have something to gain from the prosperity of higher education is expanding. Higher education is important to many different kinds of people and organizations, such as government agencies, members of the faculty, and students who are currently enrolled (Abbass et al., 2022).

These education systems have several concerns regarding the quality of higher education, and these concerns have been documented in the research literature by many different studies. Concerns about the quality of higher education are held directly and materially by students (both current and potential), parents, and government agencies that oversee higher education. The quality of education in general, and the quality of higher education in particular, is a topic that is at the forefront of the research agenda for this industry at the moment. Higher education in business studies has evolved to become an essential structural component of higher education (Vogt, Hauser, Stebler, Rechsteiner, & Urech, 2020). Investigation into the problems surrounding the provision of high-quality business education is becoming increasingly pressing, particularly in nations still in the process of economic development. Comparing the quality, problems, and indicators of the quality of higher education in China to those in Germany led the researchers to the conclusion that China's educational system desperately needs to improve its overall standard of excellence. It has been asserted that China is having difficulty enhancing the quality of its higher education in business, even though the country's business schools boast of the high professional competencies of their graduates (Qaiser Danish et al., 2019). The research field of educational leadership, management, and administration has grown in size, scope, and impact over the past half-century, becoming more diverse as a result of this expansion. This growth has occurred concurrently with an increase in the number of different subfields within the field. At the same time, there has been a rise in interest in mapping and etymologizing its knowledge base, in addition to its methodological and conceptual approaches, and there has been an increase in the number of locations where knowledge is produced (Fakultas Tarbiyah dan Ilmu Keguruan et al., 2022). The increase in the number of systematic and bibliometric reviews can be attributed to the fact that researchers are working toward the goal of codifying knowledge production in the field. In these reviews, various methods are utilized to evaluate citation and co-citation practices, in addition to volume, growth trajectory, geographic distribution, and geographic distribution.

It is generally acknowledged that feeding students while they are enrolled in school is an essential strategy for achieving goals in a variety of different aspects of society, including education, health, social protection, and agriculture, to name a few of these societal facets' respective goals. Although they are widely acknowledged as the most important social protection network in any part of the world, this is the case (Hidayat et al., 2022). Houses or dwellings are connected with features of protection and control, as well as providing a space for social relationships, a sanctuary from the outside world, and a symbol of personal status (Razali & Talib, 2013). Dwellings are traditionally characterized as places that respect diverse human, social, and environmental characteristics, therefore presenting a reflection of human traditions, customs, and culture at the time and place of their formation (Victoria, 2020). A home is a social expression of how households accommodate human everyday activities over time, whereas an architectural pattern or spatial arrangement elucidates how spaces become related to each other based on how activities are organized and segregated. The researchers Razali & Talib, (2013) investigated the effect that traditional village layouts have on the surrounding wind environment and how traditional Lingnan village layouts have been adapted to the local climate. They discovered that the residential space in the middle of a traditional building layout maintained a good thermal comfort environment.

The urgency of the need for educational reform has reached a new level. "It is a widely held belief that the social and economic well-being of nations will depend, to an ever greater extent, on the quality of education provided to their citizens. The emergence of the so-called 'knowledge

society,' the transformation of information and the media, and increasing specialization on the part of organizations all call for high-skill profiles and high levels of knowledge (Fidalgo-Blanco et al., 2018). Today's education systems are required to be both effective and efficient, or in other words, to reach the goals set for them while making the best use of available resources". (Piwowar-Sulej, 2021).therefore the aim of the study is to investigate the effect of educational leadership and sustainable housing education on construction education. The study further explored the moderating role of traditional dwelling and construction innovation. This study is the first that investigated the moderating role of traditional dwellings and construction innovation on the relationship of educational leadership, sustainable housing education and construction education.

Research Hypotheses

H1: There is a significant relationship between educational leadership and construction education

H2: There is a significant relationship between sustainable housing education and construction education

H3: Educational Construction Innovation moderated the relationship between sustainable housing education and construction education.

H4: Educational Construction Innovation moderated the relationship between educational leadership and construction education.

H5: Traditional dwellings moderated the relationship between sustainable housing education and construction education

H6: Traditional dwellings moderated the relationship between educational leadership and construction education

Literature Review

Constructional education

The implementation of educational strategies can have a significant impact on the outcomes for students, particularly when the strategies are of high quality. Implementation is generally understood to refer to a predetermined collection of planned and purposeful activities that are designed to incorporate evidence-based practices into settings that are representative of the real world (Monyei, Okeke, & Nwosu, 2021)

This implementation agenda is also gaining attention in the field of education, where opportunities to develop teaching into an evidence-based or evidence-informed profession are increasingly discussed and promoted (Kamal, Rabbani, Samdani, Shujaat, & Ahmad, 2020) where an increasing number of publications, therefore, focus on the topic of implementation, and where developers of school-based interventions are more concerned with the proper implementation of their evidence-based programs. As in other service areas, this emphasis on implementation is motivated by an interest in examining the relationship between effective teaching-using evidence-based educational practices that are embedded in sound implementation strategies-and student outcomes, such as increased academic achievement, acquisition of transferable skills, improved behavioral health, and social-emotional well-being, increased income (Richardson & Swan, 2003)

The application of implementation science in education is slowly emerging. It offers many different concepts to use in education. This article explores several publications that open the discipline of implementation to educators. This includes a recent synthesis of the literature on Implementation in Education (Hero, Pitkäjärvi, & Matinheikki-Kokko, 2021), the Implementation Framework Getting to Outcomes (GTO), and the Impact Evaluation Cycle.

The term "educational outcome" refers to the strategies, instruments, and programs that cultivate and sustain environmentally-related attitudes, values, awareness, and skills in order to prepare individuals to take informed action in the name of the environment (Ardoin, Bowers, & Gaillard, 2020). It focuses on outcomes at multiple scales, such as the individual level (such as an individual's environmental attitudes or behaviors), the societal level (such as the capacity-building of communities), and the ecosystem level (e.g., the number of endangered species). Environmental

education no longer suggests a linear progression from environmental attitudes to environmental knowledge to environmental action. Instead of prior ideas derived from an information-deficit perspective, environmental education now emphasizes a dynamic, complex ecosystem of interdependent relationships that influence behavior. This change is supported by a growing body of research that highlights the significance of behavioral complexity (Haberman, 1991).

The potential of these brief and cost-effective interventions to address important societal issues has generated a great deal of interest and enthusiasm, and over the past two decades, numerous theoretically grounded interventions have been developed to improve educational outcomes in higher education. These preventative measures have been refined for the past two decades. (Bigger, 2006).

Educational leadership

The majority of the empirical evidence regarding the effects that leaders have on the learning of students has come from studies conducted on school-level leaders, particularly principals. Up until relatively recently, it was thought that the effects of district leadership on students were too indirect and complicated to sort out, and research on teacher leadership rarely inquired about the effects of leadership on students. Three distinct types of research evidence support the claims that effective school leadership has a significant impact on the educational outcomes of students (Fix, Rikkerink, Ritzen, Pieters, & Kuiper, 2021). Evidence that is primarily qualitative can be categorized as one type. Generally speaking, studies that provide this kind of evidence is carried out in specialized educational environments (Sarango-Lapo, Mena, & Ramírez-Montoya, 2021).

These are the environments that are thought to be contributing to student learning significantly above or below normal expectations, such as research on effective schools that are based on "outlier" designs. For instance (comparisons between exceptionally high- and exceptionally low-performing schools). Studies that are similar to this one typically report very large leadership effects not only on the academic performance of students but also on a variety of aspects of the educational environment. The lack of generalizability or external validity in this evidence is however something that cannot be ignored (Jacob Kola & Sunday, 2015). We do not know whether the leadership practices that appear to be successful in one environment will also be successful in other environments.

The educational landscape of a few years ago is completely different from the educational landscape of today. At that time, traditional education was not regarded as sufficient, whereas today, modern education is not regarded as having sufficient value. As a result of the evolving requirements of the population, the educational system must also transform. Additionally, the people ought to be open to this new development. In the past, parents taught their children how to provide for themselves by meeting their basic requirements. This was the fundamental purpose of receiving an education. The end goal has not changed at this point. The only thing that has evolved is people's desires and requirements. Things that were once considered a luxury but are now considered necessities include things like internet access and cable television. Education had to expand to meet the ever-increasing demands. If education did not progress over time, it would be difficult to satisfy the requirements of modern society.

Because of the prevalence of confusion and misunderstanding surrounding the ideas of leadership and management in higher education institutions (HEIs), the academic community engages in robust discussion and debate regarding these topics.(Taylor & De Lourdes Machado, 2006) Even though intellectual rhetoric has the potential to spark conversations that are both thought-provoking and meaningful, and to contribute in meaningful ways to academic dialogue and literature, it does not always serve to promote and enhance the functioning of institutions. When it comes to higher education, there is a significant gap between empirical inquiry and the practical applications of many different fields of study. When it comes to leadership and management in HEIs, the transition from theory to practice can be seen as a dichotomous continuum in many respects. Because of this disconnect, our ability to formulate useful strategies for understanding these concepts in terms of how they can be made to be more effective is hindered. (Fakultas Tarbiyah dan Ilmu Keguruan et al., 2022).

H1: There is a significant relationship between educational leadership and construction education

Sustainable housing education

Several of the articles that can be found in the empirical literature on sustainability focus on the decisions that students make regarding their options in order to attend school. These articles highlight the various policies that are in place to encourage sustainable commuting. These articles provide a summary of the studies according to the methodology that they used, carrying out a descriptive analysis of the econometric methods that were used in their empirical strategy. Li et al., 2012) evaluated the effect of a program that eliminated the cost of housing on mode choices by comparing users' decisions before and after the implementation of the program. According to the study (Salvioni, Franzoni, & Cassano, 2017), some possible reasons are introducing new regulations related to driver's licenses that raised the time and requirements needed to obtain a driving permit. Moreover, the reduction of the public transit fare for students in 2002 may also have affected students' modal choice options, favoring the use of public transportation among this age group. It is essential to incorporate the pillars of sustainability in order to increase the productive potential and ensure that everyone has equal access to opportunities without putting the environment in danger. This can be accomplished without putting any strain on natural resources. Researchers have spent a significant amount of time concentrating on the three primary pillars of sustainability, which our society, the economy, and the environment. However, in more recent times, the cultural and health pillars have also been linked to the concept of sustainability. The result of education should be a conservation strategy that creates synergistic spaces like these, which will make it easier for scientists, decision-makers, community members, and other stakeholders to get together and discuss issues. Environmental education frequently takes place in settings that are based on specific locations, with a strong emphasis placed on the utilization of local knowledge, experience, values, and practices. In this manner, environmental education encourages a wide variety of groups, including those that may be marginalized, to interact fruitfully with research. (Blanden et al., 2022).

H2: There is a significant relationship between sustainable housing education and construction education

Educational construction innovation

One form of student evaluation, which also has effects on schools, makes it harder to use innovative teaching methods and teach students new skills. This report is mostly about how high-stakes summative assessments affect innovation. It makes the case that high-stakes assessments and exams can be made to work together by using new ways to test. Even though high-stakes tests are a necessary part of the assessment, they often encourage teachers to "teach to the test" or study for those tests. As a result, it might prevent people like teachers, students, and parents from taking unnecessary risks. If the results of these examinations and tests are used as part of a system of accountability and incentives to evaluate teachers and schools, the problem may become even more severe. (He & Dong, 2021).

How can we make sure that the methods used to evaluate educational institutions don't discourage the kind of creative risk-taking that is essential to innovation? Is there something that can be done in schools to encourage the kind of daring that is necessary for breakthroughs in innovation? This investigation suggests three major strategies to merge innovation with assessment: reevaluating standards alignment with assessment; gauging the effect of assessments on classroom instruction. 1) Creating a plethora of student and school performance indicators. (2) Reevaluating how well standards and evaluation are coordinated. Assessing the effectiveness of tests in the classroom.

Modifying high-stakes testing could be one approach to influencing classroom instruction and student achievement. Both teaching and learning will be centered on the acquisition of the appropriate skills as systems evolve to accommodate this reality. Instead of focusing on the subject matter being taught, standards might be developed around transferable cognitive abilities like problem-solving, communication, and reasoning, and then applied to disciplines like math, science, and literature. This would make it unnecessary to administer tests on the material being covered in class (George et al., 2014).

A similar thought can be applied to the underuse of cutting-edge evaluation strategies based on ICT. These approaches don't have to break the bank but have the ability to include things like

simulation and interactivity. If the assessment was geared more toward the cognitive processes that students engage in rather than the content itself, there would be more room for educators to implement creative approaches to teaching and learning. This, however, presupposes that educators maintain a high level of professionalism and that there is an effective system in place for ongoing education and the management of acquired knowledge (Sriviboon, 2022). Since it is impossible to assess a student's progress in all areas with only one method, adding more measures of mastery could be a useful substitute. This would relieve the stress placed on students and educators to perform well on a single, high-stakes test. At the same time, this potentially wider set of measurements may provide the necessary input for systems that rely on responsibility, treatment, and assessment of the efficacy of innovative practice. Last but not least, while it is normal practice to assess the effectiveness of tests and examinations on teaching and learning and the significance of the aspects in which their outcomes are used, this assessment of the formal definition of tests and examinations is an integral part of their development. Since assessment is a vital component of the educational process, it is crucial to review not only traditional forms of assessment like tests and exams but also alternative methods of gauging student understanding and progress in the classroom.

Higher education is useless without secondary education reform; higher education has a long history of being sluggish in absorbing advances for a variety of reasons, and this has been the case for a very long time. There is no point in pursuing higher education without secondary education reform. In addition, improving the effectiveness of higher education is a task that is not only difficult because it is convoluted (as a result of the coherence and continuity of science), but it also requires a significant amount of manual labor (Razali & Talib, 2013). On the other hand, upper secondary schools are noticeably more restrictive compared to colleges because they place a higher priority on the student's physical well-being and emotional security than they do on the students' preparation for real-world employment and responsibilities. This is because upper secondary schools place a higher priority on the student's physical well-being and emotional security. Analogously, the realization that the evaluation of students in upper secondary schools and higher education systems are relatively distinct from one another gave rise to the emergence of a significant problem in the educational landscape. This is because the evaluation of students in upper secondary schools and higher education systems are relatively different from one another. For instance, students in secondary education are cut off from the rest of the world, and The achievement of learners in secondary school, as judged by the student who has subsequently graduated upper secondary school, significantly lags behind the achievement of learners on college entrance examinations. Another example is that students in primary education have access to the rest of the world. (Hilmi, Ramayah, Mustapha, & Pawanchik, 2010).

H3: Educational Construction Innovation moderated the relationship between sustainable housing education and construction education.

H4: Educational Construction Innovation moderated the relationship between educational leadership and construction education.

Educational tradition dwelling

Education that is practiced in a manner that is regarded to be customary or usual can also be described as education that is believed to be traditional. Traditional education's major goal is to instill in succeeding generations the values, manners, and social behaviors that will assure the culture's continuing existence. The student receives instruction on the norms and practices of the society in which he lives as part of the traditional educational model. Students receive the majority of their instruction for this form of education through the medium of oral recitation (Dos Santos, Maynard, Zandonadi, Raposo, & Botelho, 2022).

There is a very small amount of work that is either written or practical. The sole requirements for the students are to congregate in one location, take a seat, and attach importance as the lesson is read out by either their professor or another individual. The conventional technique does not include any written examinations; however, it does include certain verbal exams, which are most of the time unofficial (Hung & Yen, 2020). Ardoin et al., (2020) The traditional educational system is not at all focused on the application of science and technology. The traditional educational system does not teach students the education necessary to study the sciences at the level of depth that is common today. The traditional educational system primarily focused on

imparting information regarding various religions, rituals, and traditions. This is the reason why it is referred to as "traditional education.".

The traditional education that was offered in classrooms was not designed with each and every child in mind. There was a great deal of prejudice and bigotry among the kids. It was commonly believed that only members of high society should pursue higher education. (Hodgkinson, 1991). It was forbidden for students to attend public schools if their families were considered to be of a lower social class. The traditional educational system was not designed to accommodate everyone. Everyone can get a hold of contemporary education. Anyone is eligible to be accepted into a school and receive a contemporary education. We are in a position to argue that the reason why children of all ages have access to modern education is to do with modern education. As more people gained access to modern education, the idea of equality became more widely taught.

H5: Traditional dwellings moderated the relationship between sustainable housing education and construction education

H6: Traditional dwellings moderated the relationship between educational leadership and construction education

Based upon the above discussion and hypothesis, the study proposed the conceptual framework which is shown in Figure 1.

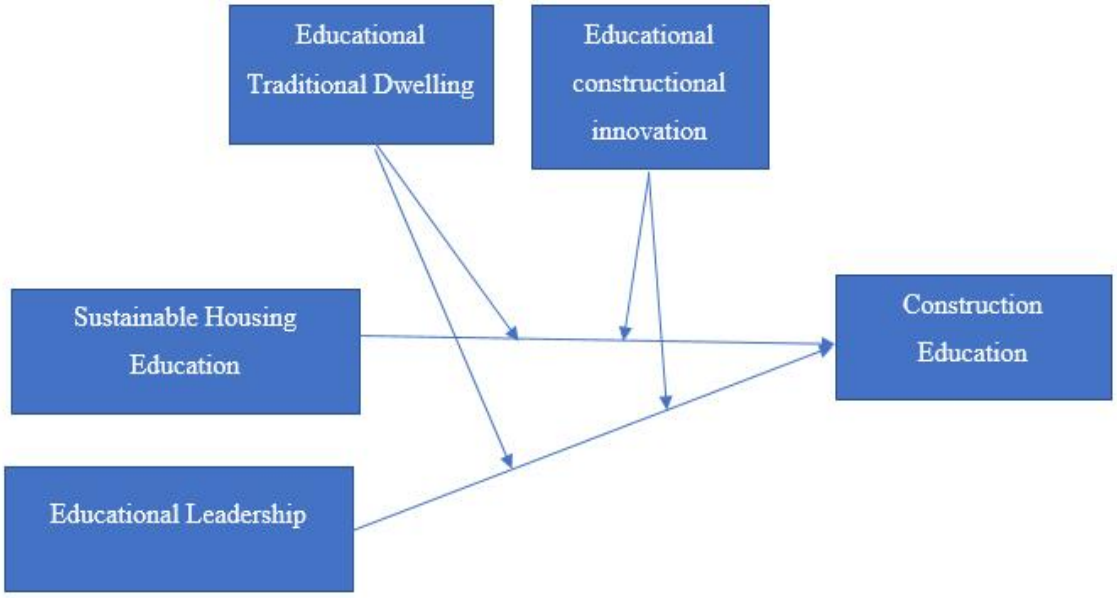

Figure 1. Conceptual framework

Methodology

In order to accomplish the goals of the study, data was collected from students who were enrolled in higher education institutions in the country of China. For this reason, a questionnaire was used that the responders may self-administer in their own time. For the purpose of gathering information from 400 different students, a sampling technique that prioritized convenience was utilized. For the purpose of the statistical analysis, 370 out of the total 400 surveys were used. This is a result of the fact that the remaining questionnaires were not filled out completely by their respective respondents. SPSS was used in order to conduct an analysis of the demographic data; however, Smart-PLS was used in order to assess the reliability, validity, and relationship between the variables.

Measures

In order to obtain data for the current study, a questionnaire that participants would administer to themselves was modified. The questionnaire did not include any open-ended

questions. Participants are required to select the answer option that, in their opinion, most accurately portrays their reaction. The data collecting tool consisted of two sections; the first component was designed to collect demographic information about individuals, while the second part was aimed to collect other types of information (e.g., gender, age, year of education, and type of university). In the second section, the primary focus was on analyzing the constructs that were applied throughout the research. The questionnaire comprised 38 items. A Likert scale with five points and the following answer categories was presented to each participant in the survey: 1 denotes complete disagreement, and 5 shows entire agreement. Using the scale, the respondents were required to indicate the degree to which they agreed or disagreed with each issue.

Construction Education

The construct of construction education is measured through a 6-item scale adapted from Al-Issa & Al-Bulushi, (2012). The value of alpha is 0.800.

Traditional Dwelling

A scale consisting of 7 questions, which was adapted from (Razali & Talib, 2013) was used to evaluate the traditional dwelling. The value of the alpha coefficient is 0.923.

Sustainable Housing Education

A scale consisting of 3 questions, which was adapted from (Moore, 2005) used to evaluate sustainable housing education. The value of the alpha coefficient is 0843.

Educational Leadership

A scale consisting of 7 questions, which was adapted from (Connolly, James, & Fertig, 2017) was used to evaluate educational leadership. The value of the alpha coefficient is 0.931.

Education Construction Innovation

A scale consisting of 11 questions, which was adapted from (Zhuang & Liu, 2022) was used to evaluate education construction innovation. The value of the alpha coefficient is 0.922.

Demographics information

The demographic data pertaining to the survey respondents are shown in Table 1. A total of 370 respondents, including 230 women and 140 males, took part in the poll. Of the respondents, 68 were between the ages of 19 and 21; 58 were between the ages of 22 and 24; 115 were between the ages of 25 and 27, and the remaining 129 were older than 27. 82 kids were enrolled in their first year of school. The second year of education was for 69 students, the third year of education for 116 students, and the fourth year of education for 103 students. 195 of the respondents were from Public sector universities, while the remaining 175 were from private sector universities. The findings of the demographic investigation are presented in Table 1.

Table 1. Demographic profile of the respondents

Demographic item		**Frequency**
Gender	Male	140
	Female	230
Age	19-21 years	68
	22-24 years	58
	25-27 years	115
	More than 27 years	129
Year of education	1st	82
	2nd	69
	3rd	116
	4th	103
University	Public	195
	Private	175

Results

In this study, data were analyzed using Structural Equation Modeling (SEM), and Partial

Least Squares Structural Equation Modeling (PLS-SEM) was used instead of covariance-based approaches like AMOS (Hair et al., 2017). The PLS-SEM was selected as the procedure for gathering data because, depending on the objectives of the investigation, it may either be employed for confirmatory or exploratory research (Jr. JF. Hair, Hult, Ringle, & Sarstedt, 2016). Approaches such as Covariance-Based Structural Equation Modeling (CB-SEM) and Partial Least Squares Structural Equation Modeling (PLS-SEM) are what make up structural equation modeling. (Jr Joe Hair, Sarstedt, Hopkins, & G. Kuppelwieser, 2014). Both methods offer significant advantages, such as the covariance-based method's ability to validate or invalidate ideas. PLS-SEM, on the other hand, offers both theoretical framework extensions and improvements (Jr. JF. Hair et al., 2016). The software Smart PLS 3.3 was applied in order to do the measurements on the data. The measurement, as well as the structural path, were both utilized in the measuring process for the data. The Smart PLS approach is helpful when performing analyses on data that is either exceptionally difficult or extremely restricted in its scope.

Both the model's dependability and its validity are components of measurement models. In this particular investigation, both convergent and discriminant forms of validity were utilized to examine the model's credibility. In addition, the Cronbach alpha, composite reliability, and average variance extract were applied to look into how reliable the model was (Jr. JF. Hair et al., 2016). Figure 2 and Table 2 illustrate all of the variables' reliabilities that are modeled in this study. To meet the requirements of the Cronbach alpha, the value must be greater than 0.70 to begin with (J. F. Hair et al., 2019). Overall, Cronbach's alpha values for model variables in this study are greater than 0.70. The second stage of the analysis involves looking into the Composite Reliability (CR) and Average Variance Extract (AVE) of the model variables. The acceptable values for the variables are larger than 0.7, and the average variance extract, as well as the acceptable values for the variables, are both greater than 0.5. The composite reliability also has acceptable values that are greater than 0.5.

In addition to this, the outer loadings of each variable were investigated, and the findings are presented in Table 2 below. When it comes to establishing the acceptable outside loadings for various objects, a value that is more than 0.6 is considered appropriate (Figure 2). Every single one of the components that make up the variable has a value that is greater than 0.6.

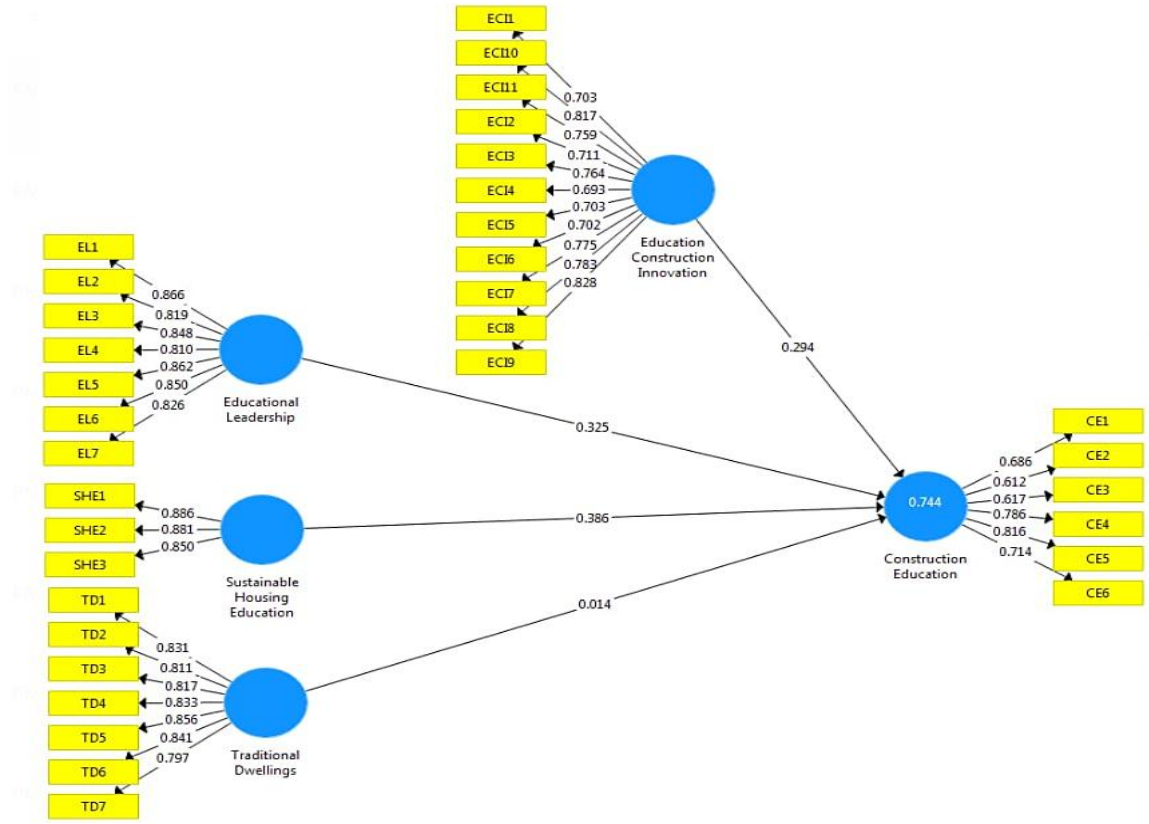

Figure 2. Measurement Model

Furthermore, the collinearity issue was investigated with the use of the variance inflation factor over the course of this work. According to the suggestions made by the researchers, VIF values lower than 0.5 are considered to be satisfactory (Jr. JF. Hair et al., 2016). The key elements of the study model have VIF values that, according to Table 2, vary from (1.673) to (4.049). It demonstrates that all of the items' VIF values are within the threshold. As a result, there was no proof that the research model used for this study had a col-linearity issue.

Table 2. Construct reliability and validity

	Items	**Outer Loading**	**VIF**	**Cronbach's Alpha**	**CR**	**AVE**
Construction Education	CE1	0.686	1.766	0.800	0.857	0.503
	CE2	0.612	1.571			
	CE3	0.617	1.427			
	CE4	0.786	2.008			
	CE5	0.816	1.997			
	CE6	0.714	1.515			
Education Construction Innovation	ECI1	0.703	1.919	0.922	0.934	0.563
	ECI2	0.711	2.290			
	ECI3	0.764	2.543			
	ECI4	0.693	2.448			
	ECI5	0.703	2.069			
	ECI6	0.702	1.926			
	ECI7	0.775	3.186			
	ECI8	0.783	2.367			
	ECI9	0.828	3.121			
	ECI10	0.817	2.841			
	ECI11	0.759	2.532			
Educational Leadership	EL1	0.866	2.891	0.931	0.944	0.706
	EL2	0.819	2.315			
	EL3	0.848	2.799			
	EL4	0.810	2.223			
	EL5	0.862	2.961			
	EL6	0.850	2.997			
	EL7	0.826	2.713			
Sustainable Housing Education	SHE1	0.886	2.157	0.843	0.905	0.761
	SHE2	0.881	2.018			
	SHE3	0.850	1.903			
Traditional Dwellings	TD1	0.831	2.429	0.923	0.938	0.683

	TD2	0.811	2.485			
	TD3	0.817	2.346			
	TD4	0.833	2.779			
	TD5	0.856	2.752			
	TD6	0.841	2.816			
	TD7	0.797	2.341			

In addition, when discussing the discriminant validity of the instruments, it is important to note that discriminant validity refers to the uniqueness of the instrument when it is used for measurement. The fundamental idea behind discriminant validity is that there is no connection between two different concepts that need not be linked together in any way. It indicates that if two instruments measure two different concepts and are theoretically distinct from one another, then those instruments should not be coupled with one another. Additionally, it means that each of the instruments should measure a distinct notion (Ab Hamid et al., 2017). The Heterotrait-Monotrait ratio (HTMT) has been used to assure discriminant validity. In accordance with Franke and Sarstedt (2019), the HTMT ratio should be smaller than 0.9 in order to assess the presence of discriminant validity. In the meantime, the HTMT ratio of all constructs is lower than 0.9; as a result, discriminant validity can be established as shown in Table 3.

Table 3. Discriminant Validity (HTMT)

	CE	**ECI**	**EL**	**SHE**	**TD**
Construction Education					
Education Construction Innovation	0.838				
Educational Leadership	0.798	0.605			
Sustainable Housing Education	0.887	0.746	0.553		
Traditional Dwellings	0.798	0.814	0.546	0.894	

The strength of the model in the initial data is deemed to be strong when the R2 score is more than 0.5. According to the findings of this research, the value of R2 for student learning outcomes is (0.619). The high R2 score indicated a high degree of model robustness (J. J. Hair et al., 2016). Table 4 demonstrated the value of R2.

Table 4. R-Square values for the variable

	R Square	**R Square Adjusted**
Construction Education	0.744	0.74

Direct relationship

Through the use of the PLS-SEM bootstrapping technique, the structural model route coefficients that indicate the hypothesized correlations were found to be statistically significant. According to Table 5, which illustrates the path relationships and testing decisions for hypotheses, the PLS-SEM assessment for educational leadership, empirically proved that it is a significant predictor of construction education. Table 4 also depicts the path relationships and testing decisions for hypotheses. According to the findings, there is a statistically significant connection between educational leadership and construction education ($t = 6.554$, $p = 0.000$). Therefore, Hypothesis 1 is permitted. According to the findings of the PLS-SEM analysis, there is a significant association between sustainable housing education and construction education ($t = 6.185$, $p = 0.000$). As a result, the second hypothesis of the study was statistically proven to be correct. The conclusions reached by the researchers were presented in Table 5.

Table 5. Direct effects

Hypotheses	Relationship	Beta	T value	P Values	Decision
H1	EL -> CE	0.327	6.554	0.0001	Supported
H2	SHE -> CE	0.345	6.185	0.0001	Supported

Moderation effects

Moreover, H3 and H4 predicted the moderation effect of education construction innovation between educational leadership, sustainable housing education, and construction education. According to the t and p values of H3 and H4, education construction innovation has positively moderated the relationship between educational leadership, sustainable housing education, and construction education. Thus, H3 and H4 are accepted. Similarly, H5 and H6 predicted the moderation effect of traditional dwelling between educational leadership, sustainable housing education, and construction education. Thus, H5 and H6 are accepted. Figures 4,5,6,7 and Table 6 presented the result of the moderation analysis.

Table 6. Moderation effects

	Original Sample	T values	P Values
ECI x EL -> Construction Education	0.024	1.874	0.031
ECI x SHE -> Construction Education	0.022	1.673	0.047
TD x EL -> Construction Education	0.011	2.327	0.010
TD x SHE -> Construction Education	0.063	1.705	0.044

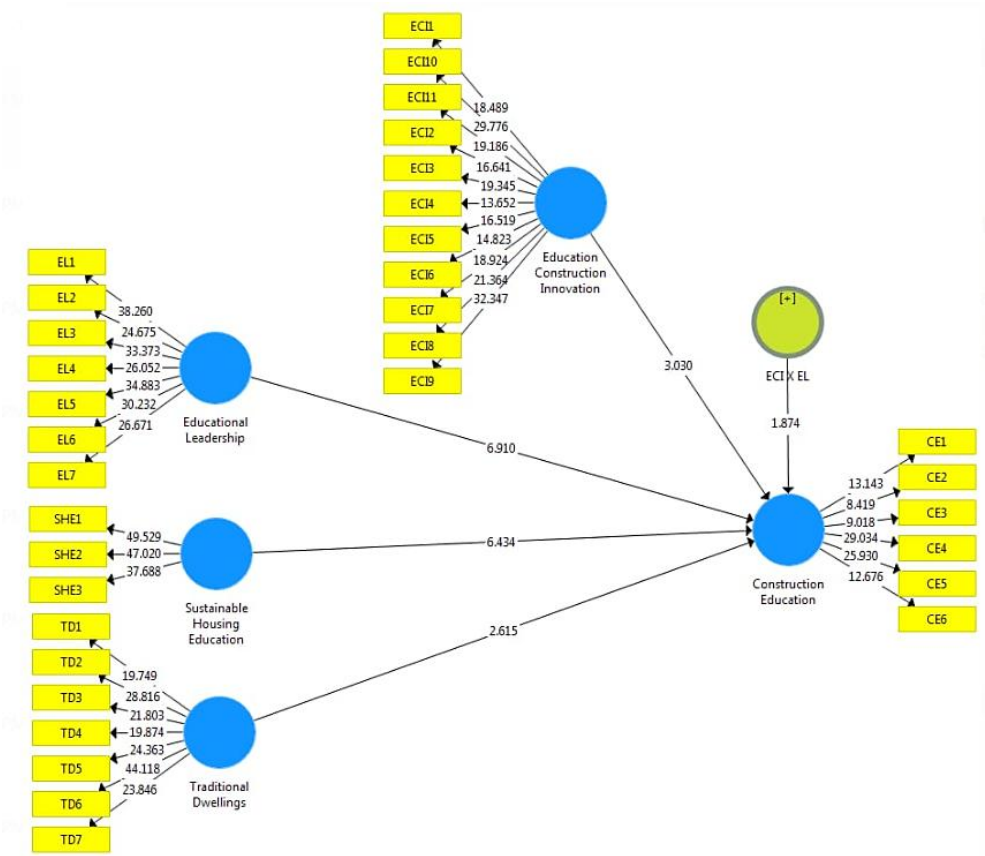

Figure 3. ECI as a moderator between EL and CE

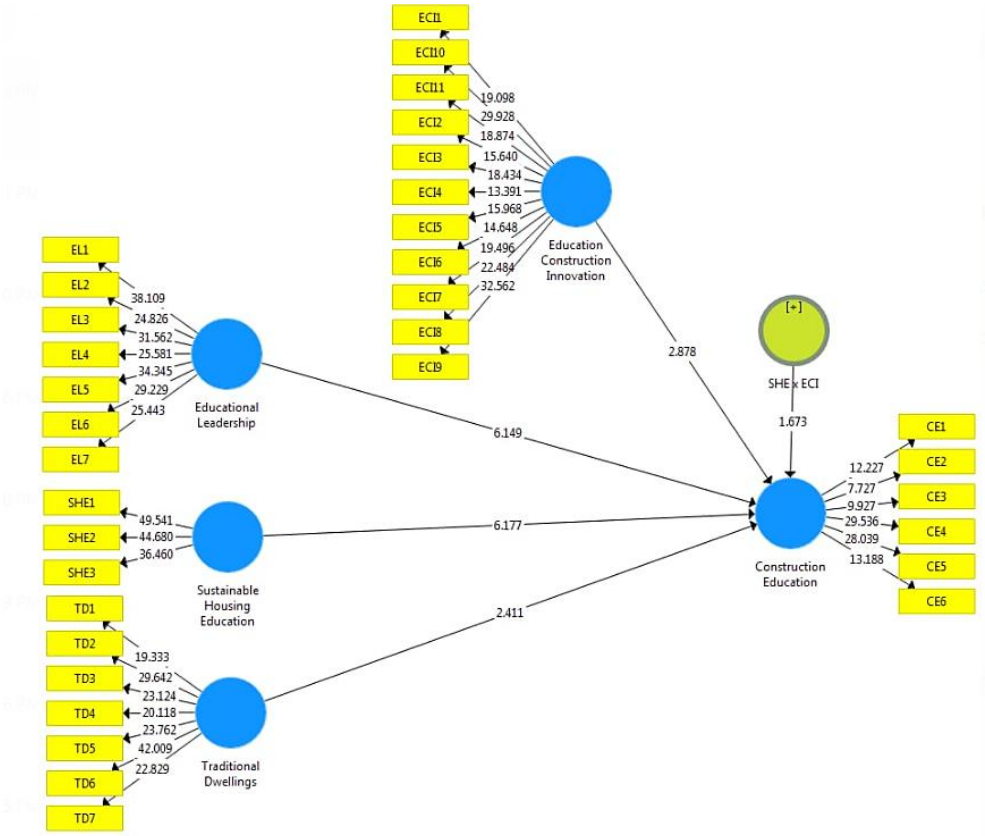

Figure 4. ECI as a moderator between SHE and CE

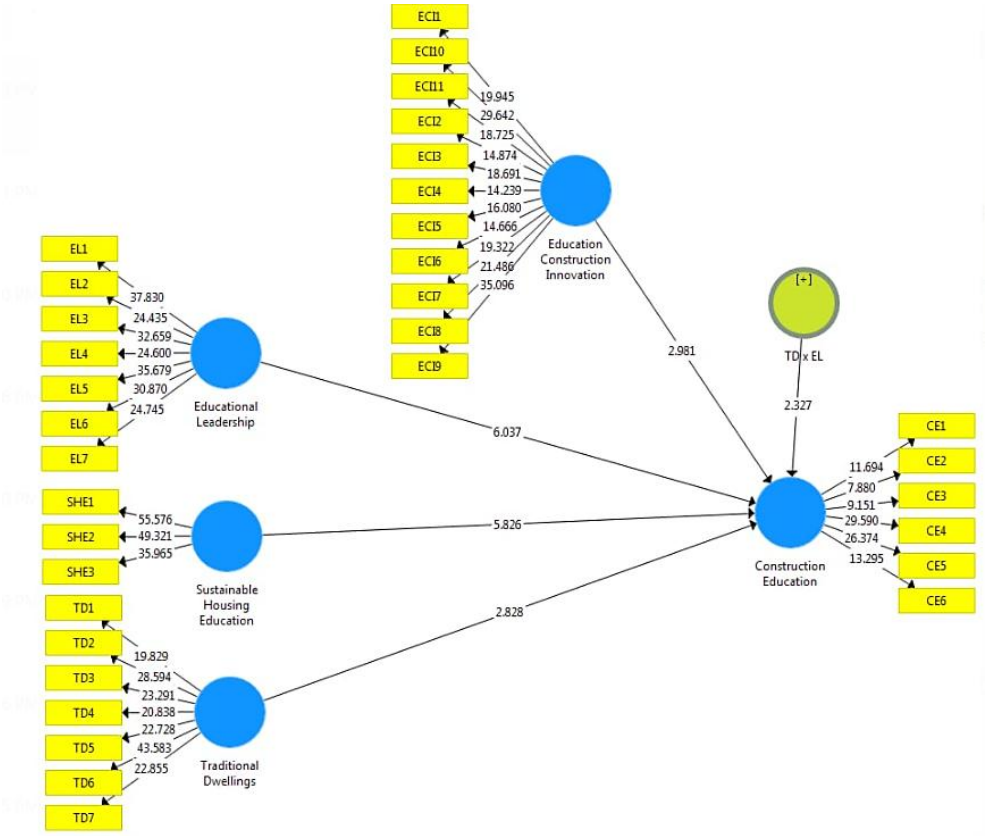

Figure 5. TD as a moderator between EL and CE

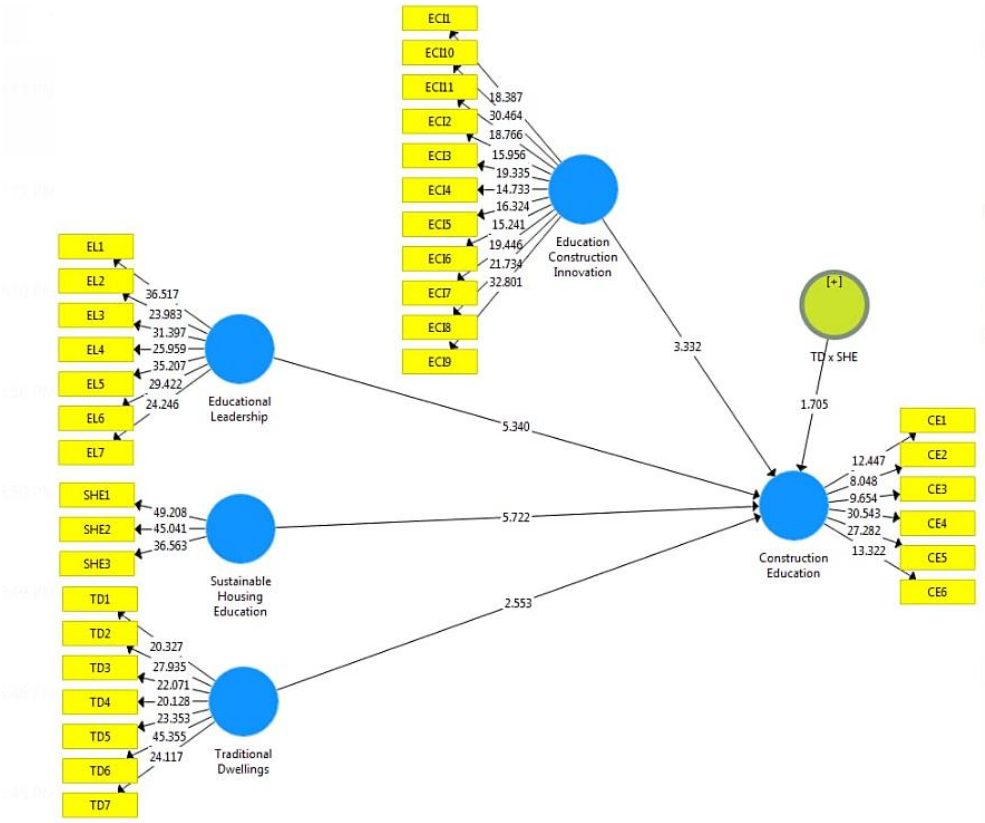

Figure 6. TD as a moderator between EL and CE

Discussion

The major goal of education is to progress civilization within a community. As a result, education is regarded as being of no use if it is unable to accomplish this goal and also make a contribution to the general betterment and well-being of both the individual and society as a whole. It is generally agreed upon that one's level of education is the single most effective instrument at one's disposal for bringing about change inside themselves (Lal, 2021). Education, on the one hand, has the capability of acculturating a person, while, on the other hand, it has the capability of preserving, transmitting, and developing the culture of a society. It is feasible to argue that education and culture are mutually dependent on one another, as well as complementary and auxiliary to one another in all of their acts and qualities. This is a valid statement. As a consequence of this, the link that exists between education and culture is one that just cannot be separated (Yu & Richardson, 2015). This supports H1.

Education leadership is the process of exerting influence on people within educational environments to bring about desired outcomes, which in turn entails executing particular activities to bring about the intended results (Moynihan, Wright, & Pandey, 2012). It is ideal for individuals who hold positions of educational leadership to conduct responsibly; yet, in reality, doing so does not involve taking on the responsibility of maintaining the smooth operation of the system within which the actions of influencing and leading are carried out. When those who have been given responsibility for a system in which others participate act — which they virtually always do — they have the capacity to influence other people and, as a result, are considered to be leaders in that system (Manley, 2006). This lends support to H2.

Embracing innovation in education encourages analytical thinking, a spirit of exploration, and an openness to adapting to new circumstances, all of which will be beneficial to the children in our classes. It will equip them with the tools essential to confront the problems of their future workplace, as well as offer them the confidence and abilities necessary to continue adapting to changing circumstances (Wen, Chen, Pang, & Gu, 2020). Education is absolutely essential to our survival and success. It should not only be complete, long-lasting, and great, but it should also change over time to keep up with the challenges of a connected world that changes quickly and is

hard to predict. This change must be systemic, consistent, and scalable. Because of this, teachers, professors, supervisors, scholars, and policymakers must constantly innovate the theory and method of teaching and learning, in addition to all other parts of this ecosystem, to make sure that all students get a good education that will prepare them for life and work (Halász, 2021). This Support H3 and H5.

Students can better grasp the relationship between humans and their education through dwelling. Heidegger made the point that in order for residence to be realized and the fourfold to be protected, human beings must first take care of things that are continually increasing. The act of residing is likewise a continuous process (Victoria, 2020). Schools are continually being adorned and restored as a means of adapting to the shifting nature of their surroundings. The link between people and their surrounding environment can be strengthened by increased familiarity with that place. When the emotional connection between individuals and their surroundings is developed via consistent interaction and the thinking of human beings, the material house can be changed into a living place, and residence will be achieved at that moment Construction and maintenance are what transform a house into a habitable area for people to live in (Victoria, 2020).

Implications

According to the results of this research, educational leadership and the achievement of sustainable educational outcomes have a significant impact, not only on an individual's education but also on their perspective of the educational system as a whole. This study will assist educational institutions and teachers in providing students with the knowledge necessary for their education, including information regarding traditional education dwellings. This knowledge is necessary for the student's education. In addition, the significance of educational leadership and educational tradition will be better understood by the students as a result of this research. The research will directly lead to the realization of both of these advantages.

To meet the demands of the rising number of students, there is a critical shortage of educational administrators such as principals and superintendents (Abu, 2022). To handle the influx of applications from prospective students, there will be a need for additional admissions officers. There will be a need for registrars to direct student registration for classes and ensure that students meet all of the requirements necessary for graduation. Staff members dedicated to student affairs will be required to make housing assignments and organize activities for students. The current school administrators will step down from their posts shortly after they retire.

Limitations

Even though the findings of this study suggested that educational leadership and sustainable housing education have a significant impact on construction education, the findings of this study cannot be considered conclusive. Because of this, additional research needs to be carried out before the findings of this study can be extrapolated to a larger population. A major limitation of the study is generalizability. This study was conducted in China. In subsequent research, this study can be replicated in other countries to increase its generalizability. Another limitation of the study is that it used a survey method to measure construction education. The future researcher can use an experimental technique to collect the data. Moreover, this study used traditional dwelling and construction innovation as intervening variables. Other variables can be considered in future research which has a significant impact on construction education. Aside from that, the authors of this study recommend that researchers use a split-sample strategy and a mixed-method approach when conducting future investigations. This recommendation is made even though the problem of common-method bias did not arise in this particular study. This is because the problem of common-method bias did not arise in the research that was conducted.

Conclusion

This research has given a short summary of important ideas that are at the heart of what it

means to be an educational leader. It also gave a summary of evidence about the nature and effects of sustainable education practices on educational outcomes that help students learn more. This report talks about two things that are very important to the evidence that was reviewed in the last section. These are the characteristics and quality of the data contained in this study, as well as the hard problem of using research on leadership to change practice. How much evidence is used to back up this analysis varies a lot from one case to the next. The leadership of principals is supported by a much larger body of evidence than the leadership from either district staff or teachers. Even though there is a significant amount of information about principal leadership, it was not done in a systematic way, so it can be criticized. Because there haven't been many long-term, sustained, and well-coordinated research programs on educational leadership (all of which are covered in this review), it's hard to get a lot of evidence about the same ways to lead and get long-term results in education.

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Appendix
Questionnaire

Demographic Information (Please choose one option from Demographic information)

Gender

_____ Male

_____ Female

Age

_____ 16-18 years

_____ 19-21 years

_____ 22-24 years

Level of Education

_____ College

_____ University

Socio economic status

_____ Lower

_____ Middle

_____ Upper

1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree

Educational Leadership	1	2	3	4	5
Encourage teachers to use instructional materials freely					
Organize and deliver the instructional materials to teachers.					
Students have sufficient access to the instructional materials. .					
Teachers have sufficient access to instructional material. .					
Recommend resources in areas in which teachers need.					
Guide teachers in using instructional resources.					
Take feedback on availability of the instructional resources.					
Construction Education					
My teachers used educational technological aids to teach us					
My teachers used educational aids during their teaching					
My teachers used additional materials & texts to teach us					
My teachers used to give us challenging exercises and activities to make us think					
My teachers used to give us challenging homework to make us think					
My teachers used different and interesting techniques and methods to teach us					
Sustainable Housing Education					
Any sustainability course taken					
Influence of sustainability course					
Need for a sustainability course in the curriculum					
Traditional Dwellings					

Educational Leadership	1	2	3	4	5
Traditional ornaments					
Internal courtyards					
Arches, domes and vaults					
Thick bearing walls					
Natural building materials					
Narrow openings					
Traditional colors					
Educational Constructional Innovation					
Mandated introduction of new digital or other technical Services					
New laws or regulation that apply to your [school]					
New (policy) priorities driven by your [school]					
Meeting the needs or expectations of your [school]'s external community (parents/guardians, business, etc)					
A problem or crisis requiring an urgent response					
Restructuring within your [school]					
Need to improve your [school]'s brand, reputation or performance					
A change in your [school]'s budget					
An uncompensated increase in workload or responsibilities					
Need to improve student academic performance					
Need to improve the student experience					