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Assessing Roles of Environmental Quality on the Students' Mental Health

(Case Study: Students Of Arak Sama High School, Islamic Azad University)

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ABSTRACT: Investigating the effectiveness and relationship between environmental factors and the quality of the educational environment in the students' mental health is the main Statement of the problem in current research. Intending to recognize environmental quality components and their role in predicting the students' mental health in the educational environments, the present study has proposed the following hypotheses: There seems to be a direct and significant relationship between the environmental quality and the students' mental health. and It seems that the functional component of the environmental quality has the greatest influence on mental health prediction. The research method is descriptive of correlation type using structural equation model. The statistical population of the study was selected from the coeducational Highschool students of Sama schools related to the Islamic Azad University of Arak, and 270 individuals were selected using the convenience sampling technique. To collect the data, texts, and documents, as well as two questionnaires of Goldberg's mental health and environmental quality, were used. Also, for the data analysis, factor analysis, and SPSS software were employed along with descriptive (mean and standard deviation) and inferential (Pearson's correlation coefficient and multiple regression) statistical methods. The results indicate that there is a significant relationship between environmental quality and the students' mental health. It was also found that 51% of mental health changes are predictable based on the mental health in the educational environment. Moreover, it was concluded that the functional component of environmental quality has the greatest impact on predicting the students' mental health.

Keywords: *Environmental quality, mental health, students, education. Sama Schools.*

INTRODUCTION

A significant portion of each individual's life-related challenges occurs in the academic course. One of the most important periods of an individual's life is his/her academic period in which each person with unique characteristics faces problems and issues in the field of education and how to properly cope with them will lead to the adaptation and promotion of academic performance and eventu the educational system success (Hooman et al., 2013). The World Health Organization (WHO) defines mental health as including an individual's potential capacity, ability to cope with the stresses of everyday life, productive work, and helping the community. Mental health heavily depends on the emotional states such as sentiments, reactions or stress, motivation, and spirit. These states form the way a person thinks, feels, and behaves and they often support the adaptive function (Helen & Andero, 2019). (Gross et al., 2019) Mental health is defined as the ability of individuals to be flexible and successful in dealing with academic barriers and challenges)Martin, 2014). It refers to a positive, constructive, and adaptive response to various types of challenges and obstacles which are experienced in the field of continuous and current education (Putwain et al, 2012). Since birth, the human being has an innate desire to learn and be motivated, which is supported by the environment. The need for people to be effective and confident in their activities (especially learning), the need for satisfactory and supportive social relationships, interest and belonging to others, can be satisfied

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in interaction with the environment (Johnston & Finney, 2010). Hence, the environment can be one of the predictive variables concerning mental health. The environmental components of the educational space, along with other factors, may have significant impacts on the students' academic performance (Shaterian, 2008, 56). The learning environment is one of the predictions of students' mental health. Many researchers believe that the learning environment is an important component affecting the successful performance of a program (Bassaw et al, 2009). The educational and learning environment includes all physical conditions and characteristics, cultural, social, mental, and psychological factors that might affect the growth of the learner (Days, 2009). Given the importance of the subject of quality in the context of the environment, the present article first investigates the qualitative components in educational environments and then determines the role as well as predictability of these components in the students' mental health in Sama High schools of the Islamic Azad University of Arak. Mental health is one of the components of mental well-being in many research systems. In general, the inner sense of the psyche's health is a significant indicator of mental health (Solberg et al., 2012). The educational and learning environment includes all physical conditions and characteristics, cultural, social, mental, and psychological factors that affect the learner's growth. Paying attention to the health and quality of the educational environments as a psychological variable, taking the physical, social, cultural, etc. aspects of the spaces into consideration, specifies the complexity and intertwine of the affective variables in learning and academic behavior. It can be concluded that one-sided actions such as the educational conditions improving and quality upgrading of the academic environments, regardless of their environmental conditions or vice versa, will not be fruitful enough. Thus, considering the interaction between the environment and academic behavior, investigating the relationship between environmental quality and recognizing the factors and components of the fresh environment and its role and impact on students' mental health further highlights the need to conduct this research (Ashouri et al., 2019).

The feeling of vitality is a special type of psychological experience in which people sense the passion of life and spirit (Faraji & Khademyan, 2013). The inner sense of vitality is generally a significant indicator of mental health and a reflection of psychological and physical health. Mental health reflects academic resilience within the framework of positive psychology (Duijn et al., 2011). It refers to a positive, constructive, and adaptive response to various types of challenges and obstacles the students are facing in the field of continuous and current education (Solberg et al., 2012). In a study in 2016, Victoriano found that there is a significant relationship between psyche health and education, and mental health can predict positive academic performance (Victoriano, 2016). The mental health program by Martin and Marsh in 2006 points out the role of psychological factors, learning environment, and participation as well as the family and peers in mental health (Martin & Marsh, 2006). At the macro level, mental health can be considered as an environmental characteristic that provides the possibility of a better life with a set of physical and non-physical qualities. In other words, mental health is equivalent to the definition of "environmental design quality" (NowruzianMaleki, 2014).

Khasto and Rezvani examined the vitality on a macro scale and divided it into several parts, including survival, safety, adaptability, health, and biological stability. The biological and ecological criteria are mainly considered along with factors such as social and cultural issues (Khastoo & SaeediRezvani, 2010).

In another study, Landry investigated the concept of mental health in a different manner. He separately defined mental health and viability and addressed the issue with four main approaches of economic, social, environmental, and cultural mental health in a thematic manner. Landry also lists nine effective criteria for identifying a lively and viable environment, including the useful population density, diversity, accessibility, safety and security, identity and distinction, creativity and collaboration, organizational capacity, and competition (Landry, 2000). Studying the criteria for achieving sustainable mental health in public spaces, Jaydari and Jafarikhah investigated the relationship between the urban spaces landscape and special physical and perceptual features with mental health in one hand and examined the interactive relationship between the people's insight, culture, and perception and urban spaces landscape with the mental health on the other hand (Jayderi & Jafarikhah, 2013).

In short, mental health is directly related to the attendance at the environment and factors such as participation, social involvement, quality of services, infrastructure, and natural and built environments (Kokabi et al., 2012). Dadpour has considered the general definition of mental health as the ability of a place to provide a variety of activities for the users (with different economic, social, and cultural backgrounds) to diversify the social experiences and interactions in such a way to provide security, equality, and comfort for them all (Dadpour, 2010). Bentley introduced ten factors such as permeability, diversity, readability, flexibility, visual proportions, sensory richness, and color of belonging as qualities of a dynamic environment (Bentley, 2011, 57). Lefebvre defined the space containing collective memory, a symbol of a certain historical period and confrontation place of the flow of public and specific social relations as the environmental quality (Lefebvre, 1991, 95). In another study, Daneshgar Moghaddam et al. pointed out the role of perception of nature and natural elements in the man-made environment on the sociability of physical environments and evaluated the desire to work in these spaces (Daneshgarmoghaddam et al., 2011). Mitchell and Norman referred to the fair distribution of urban services and green space

under the heading of environmental justice and equal access to the green space and other natural endowments in cities (Mitchell & Norman, 2012). The adjustment of environmental conditions (shading, temperature, and humidity), relative pollution control (noise pollution), light, and air are also from the factors which have been mentioned while studying the environmental qualities (Rafieian et al., 2012). Therefore, according to the extensive literature on this subject, first, the environmental quality indicators were extracted from background studies and quotations of the experts in this field, and after overlapping cases, were classified into four components of physical, functional, semantic, and environmental and presented in Table 1 as well.

MATERIALS AND METHODS

The present research is practical in terms of the purpose and quantitative-qualitative in terms of nature. In this research, two approaches have been employed: surveying research method in which information has been collected based on a combination of quantitative and qualitative methods. Using meta-analysis and data collection in the documentary-library form, the experts' opinions were first collected on the issue of environmental quality. Then, the indicators were integrated into four components of physical, functional, semantic, and environmental and their impacts were examined on the realization of mental health in educational spaces via codifying and distributing a questionnaire based on the random

Table 1: Environmental quality components

Concept	Component	Criterion	Source
Environmental quality	**Functional**	Variety	Dadpour, 2010 Mitchell & Norman, 2012 Muzaffar, et al., 2009 Pakzad & Souri, 2011
		Safety and security	Bentley, 2011 Muzaffar, et al., 2009
		Justice	Dadpour, 2010 Mitchell & Norman, 2012 Pakzad & Souri, 2011 Gehl, 2004
	Physical	Greenspace	Kokabi et al., 2012
		Furniture and accessories	Mortazavi, 1998
		Visual proportions	Carmona, 2012
		Readability	Bentley, 2011
		Appearance and landscape	Carmona, 2012
		Variety	Landry, 2000
		Access	Khastoo & Saeedi Rezvani, 2010 Gehl, 2004
		Permeability	Bentley, 2011
	Semantic	Identity	Jamieson et al., 2000
		Memory	Lefebvre, 1991 Jamieson et all., 2000
	Environmental	Greenspace	Daneshga Moghaddam et al., 2011 Rafieian et al, 2012 Jacobs, 1961 Mardomi & Delshad, 2010
		Climate	

sampling technique using Cochran's formula and random statistical population of the first-grade students with diverse gender spectrum from Sama High schools of the Islamic Azad University of Arak as the research's sample size. Correlational research method: in this research, correlational techniques have been used to correlate the internal relationships between the variables within the framework of the path analysis.

The present data analysis method is a quantitative-based one where 60 environmental quality indicators are extracted through the experts' opinions, summarized based on their common traits using factor analysis method into 4 factors (physical, functional, semantic, and environmental), and presented as a combination of significant ones. Then, the effectiveness of each factor has been assessed in explaining the mental health in the form of questionnaire questions distributed among the students.

The reliability and validity of the questionnaire were checked through a pilot study on several students, transferring data to the software and reviewing the results. For this purpose, two statistical methods of Kaiser-Meyer-Olkin (KMO) and Bartlett's tests have been used after data rotation. According to the value obtained for the corresponding data, it was found that the sample size is sufficient. Hence, the tests indicated the adequacy of the sample size. As can be seen in Table 2, the significance level of Bartlett's test is less than 0.05, indicating that the correlation amount can be estimated.

The environmental quality questionnaire in schools was classified into five groups (excellent, very good, good, average, and poor) and school status was determined from the perspective of having environmental quality indicators (physical, functional, semantic, and environmental).

The reliability of the environmental quality questionnaire has been obtained using Cronbach's alpha method as 0.75, which indicates the internal consistency and good reliability for this tool. Using the internal correlation methods between the questions, the discriminative coefficients corresponding to each question have been studied. As a result, 9 out of 45 questions have been identified as inappropriate. After the tentative implementation and determining the validity and reliability of the questionnaire, several 187 questionnaires were distributed among the students. The factor analysis for the 37-item questionnaire was performed on a Likert scale. After analyzing the factors, those listed in Table 3 have been identified for the questionnaire.

Mental Health Questionnaire: Goldberg's mental health questionnaire consists of 28 questions with 4 scales of physical signs and symptoms, signs and symptoms of anxiety, social dysfunction, and depression, each of which includes 7 questions.

Questions 1-7, 8-14, 15-21, and 22-28 are related to the physical symptoms, anxiety and insomnia, social dysfunction, and depression subtests, respectively.

Among the mental health tools, this questionnaire is one of the ones being widely used in the field of psychometric quality assessment and meet an acceptable validity as well as reliability in the scientific communities. Regarding the validity of this questionnaire, one can refer to the study conducted by Taghavi, the results of which indicated that the 28-item form of the general health questionnaire is recognized as eligible for application in the psychological researches and clinical activities (Taghavi, 2002). In the present study, by conducting a pilot study on 50 students, the reliability of the mentioned questionnaire was evaluated and the corresponding Cronbach's

Table 2: The significance level test for the sample size adequacy

KMO index	0.798
Croit Bartlett	78.666
df	77
Sig	0.023

Table 3: The impact coefficients of the environmental quality components

Environmental Quality	Factor Loading	T-Value Critical Level	Error
Physical Component	0.99	4.92	0.00
Functional Component	1.41	7.42	0.00
Semantic Component	0.57	4.47	0.00
Environmental Component	0.68	6.06	0.00

alpha was obtained as 0.83.

RESULTS AND DISCUSSION

Multiple regression was used to predict the students' mental health based on the environmental quality components. As can be seen in Table 4, the mean and standard deviation of the environmental quality are 97.62 and 12.60, respectively while those of mental health are estimated as 27.44 and 6.45, respectively.

As would be observed from Table 5, there are significant relationships between the environmental quality of the physical environment component with mental health ($r = 0.59$, $p<0.01$), functional environment component with mental health ($r = 0.83$, $p<0.01$), semantic environment component with mental health ($r=0.42$, $p<0.01$) and environmental component with mental health ($r=0.49$, $p<0.01$).

As can be observed from Table 6, approximately 51% of the mental health variance is predictable based on the environmental quality. The F ratio also indicates that the regression associated with the mental health variable is significantly based on the environmental quality. Besides, the environmental quality with a β of 0.36 has a significant positive capability of mental health prediction.

As shown in Table 7, approximately 46% of the mental health variance has been predicted based on the environmental quality aspects. The F ratio indicates that the regression of the mental health variable is significantly based on the environmental quality components. It has been found that the physical environment, functional environment, environmental and semantic environment components with β values of 0.26 ($t=2.51$, $p<0.05$), 0.33 ($t=2.5$, $p<0.05$), 0.19 ($t=2.7$, $p<0.05$) and 0.06 ($t=2.0$, $p<0.05$), have a positively significant capability to predict mental health, respectively. Also, the obtained β values illustrate that the functional component of the environment meets the highest predictive capability (Fig 1).

This study aimed to predict mental health based on the environmental quality among the students of Sama schools of Arak Branch, Islamic Azad University. The results of data analysis illustrated that there is a significant positive relationship between environmental quality and its aspects. As a result, the first hypothesis of the research was confirmed. This research finding can be explained by the fact that the physical environment of educational space has an undeniable

Table 4: Descriptive statistics of the research variables

Variable	Mean	Standard Deviation
Environmental Quality	96.32	11.30
Physical	62.78	9.73
Functional	56.34	7.45
Semantic	35.55	4.16
Environmental	21.45	3.88
Mental Health	25.21	6.41

Table 5: Pearson's correlation coefficients of the environmental quality and its aspects with mental health

Variables	1	2	3	4	5	6
1.Environmental Quality	1					
2.Physical Environment	0.66**	1				
3.Functional Environment	0.72**	0.41	1			
4.Environmental	0.54**	0.44**	0.32**	1		
5.Semantic Environment	0.43**	0.29**	0.65**	0.57**	1	
6.Mental Health	0.64**	0.59**	0.83**	0.49**	0.42**	1

effect on the students' academic and learning performances. Diversity in the architecture of the academic environment leads to the mental health and vitality of the students. Hence, students with high vitality and mental health show more enthusiasm and interest in education. Accordingly, those who have better experiences in more vibrant environments will be more successful and lively in education and learning compared to those who have not been in such environments. The results of regression analysis to predict mental health based on different aspects indicated that the functional aspect has higher predictive power among the environmental quality components. As a result, the second hypothesis of the research was confirmed as well. Therefore, the diversity and opportunity to create social interactions among students and the quality of their relationships are among the most influential factors in the learning environment. Explaining this finding, it can be said that the existence of environments for the collective presence, increased participation of students and participatory activities

Table 6: The results of regression analysis to predict mental health based on the environmental quality

Model	R	R2	Modified R		F	Sig
1	0.51	0.49	0.23		9.38	P<0.01
β coefficients and significance test						
Criterion variable	Predictive variable	B	StE	*β*	T	Sig
Mental health	Environmental quality	0.25	0.11	0.36	2.38	P<0.05

Table 7: The results of regression analysis to predict mental health based on the environmental quality components

Model	R	R2	Modified R		F	Sig
1	0.46	0.42	0.31		10.42	P<0.01
β coefficients and significance test						
Criterion variable	Predictive variables	B	StE	β	T	Sig
Mental Health	Constant value	24.10	5.20	--	4.64	P<0.01
	Physical environment	0.32	0.15	0.26	2.51	P<0.05
	Functional environment	0.22	0.09	0.33	2.55	P<0.05
	Biological environment	0.25	0.12	0.19	2.7	P<0.05
	Semantic environment	0.16	0.09	0.06	2.0	P<0.05

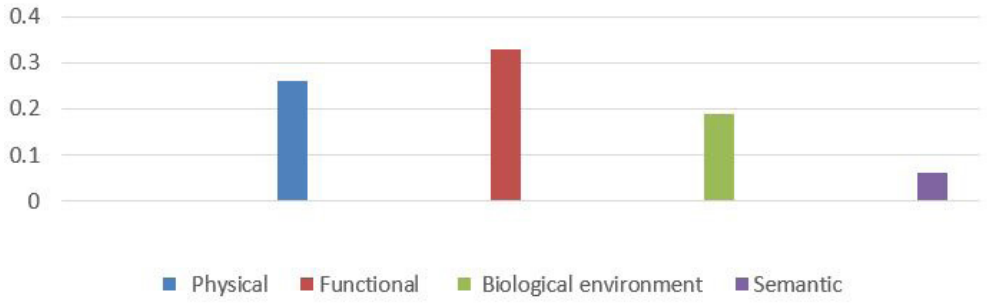

Fig. 1: The effects of environmental components on the mental health

also increases the probability of academic success.

CONCLUSION

Based on the present achievements, the environmental quality can well predict the mental health of students and there is a correlation between the quality of the educational environment and students' mental health. It was also shown that paying attention to the environmental quality criteria and emphasizing the functional characteristics of the environment can lead to the quality and mental health of the students. Mental health is an environment is a concept through which the students can achieve optimal learning and performance. In a sociable environment that provides more social interactions for its users, the quality and performance of their education will be improved as well. In such a structure, a mutual relationship is formed between the student and the environment, in such a way that the student creates his/her environment on the one hand and the environment shapes the learning world on the other hand. Such a learning environment, which is always being designed by its users, can respond to the experientiality of the student's world and variability between teaching and learning at all times. According to the results of this study, students need more spaces for the collective presence and interactions in the high school environment. Therefore, it is suggested that educational managers pay more attention to the functional components in the educational environment.

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