

SUSTAINABLE DEVELOPMENT OF BASIC SCHOOL BUILDINGS (SDBSB) IN SULTANATE OF OMAN: CHALLENGES AND THE WAY-OUT

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ABSTRACT

This study aimed at investigating the performance of basic school staff members' in order to ensure sustainable development of basic school building SDBSB in the Sultanate of Oman. A descriptive research design was adopted to collect data from a random sample of 623 basic school staff members using questionnaire which included 47-items covering six SDBSB domains: facilities and services, security and health, classes and equipments, building maintenance, administrative offices, and school building location. Among others, the results indicated that the school facilities and services domain had the highest mean as compared to other domains. Consequently, the study recommended amidst others the conduct of workshops for school staff members on how to direct school building, facilities and equipments effectively and efficiently.

Keywords: School buildings, sustainable, basic school principal and head-teacher, school facilities.

INTRODUCTION

There is a strong movement in the Sultanate of Oman towards sustaining the school building as part of the educational reform national plan. Managing basic school buildings is considered as one of the current challenges facing the regional educational directorates, the school administration, and the educational supervision. This is because of more demand for education which needs to increase the capacity of school building besides insuring high quality of education to meet future needs (Ministry of Education, 2009). Within this context, De la Garza Reyna (2003) indicated that architects and educators in many countries set out to design the school of the future. There is a belief that the quality of delivery of education and training in today's knowledge society depends to some extent on the appropriate design of educational buildings which is not enough to respond to the challenges of sustainable development needs.

In a review of international research on environment and learning, Fuller (1990) concluded that physical facilities such as buildings, separate classrooms, students' desks, etc., are important in developing countries which do influence learner achievement. Students who attend well-maintained schools which have a good appearance have higher achievement rates than do those who attend poorly maintained building (Beynon, 1997; Picus, et al. 2005). Bloech (2003) looks at the quality of school furniture and the effect of materials used in school environment factor in

order to sustain school building. He clarifies that when schools seek to make sustainable purchasing decision; they usually think first about criteria that broadly affect the environment. Some factors that schools can include in sustainable purchasing practices include recondition, reused and recycle the furniture or resold, and furniture ingredient and emission. All these will lead to establish an indoor-air-quality performance in school building.

In order to ensure adaptability in school environment, Van Slyke & Goode (2003) indicated that an educational building is more than metal, glass and stone. So the flexibility is often a result of forces placed upon a building's proposal design, beside the result of people's desires. With regards to this, Young (2003) stressed that school safety and security are among the issues that school administrators should look at seriously. This step begins from front door, safe halls and stairs, secured classroom and school assembly hall. To sustain distinguished school building attributes, administrators, professors, department heads, physical-plant representatives, lawmakers, and design professionals should participate and involve in the process. Ideas and needs of everyone must be considered.

In the mean time, Wright (2004) argues that there is a need not only to ensure school buildings to be beautiful and inspirational, but their function should be effectively linked to the quality of management and organization of learning spaces. In addition, Hussanain (2006), who investigated the consideration for fire safety in the design phase of public school facilities in Saudi Arabia, indicated that the design office at the Ministry of Education is active in providing the essential fire safety requirements. He developed a fire list assessment survey tool which consists of sixty one items to assess fire protection equipment in public schools.

Beynon (1997) is of the view that ensuring safety building is the responsibility of planners and school administrators. It is their duty to prudently draw up a comprehensive maintenance program that would bring a certain number of buildings up to safety standards. This an internal way of managing risk that can be avoided. He added that it is more challenging and difficult to make buildings secure against disasters including fire, earthquakes, strong winds and floods. But, twentieth-century building technology is sufficiently advanced to survive in the most voilent natural disaster. This study aimed at exploring the training needs of the basic school administrators (principals, assistant principals and head-teacher), performance. In order to achieve this, the following questions were raised.

1. What are the administrative training skills needed in managing school building from the basic school administrators and head-teachers' perspectives in Oman?
2. Are there any statistical significant differences among basic school administrators and head-teachers' perspectives according to gender, positions, and type of the school variables?

MANAGING AND SUSTAINING SCHOOL BUILDINGS IN SULTANATE OF OMAN

With regard to the reality of school buildings situation in the Sultanate of Oman, the Ministry of Education has specific criteria used in determining the

specifications of the school building design and facilities. Those criteria vary from one school level to another. The basic school area of the cycle one (G1-4) in one school with 30-classroom should reach up to 4280 square meters, while the school size cycle two (5-10) with 40-classroom should reach up to 6490 square meters. The additional two laboratories to the cycle two school increase the total school area to about 6615 square meters as a minimum size. Also, the provision of science laboratories, computer rooms, and professional guidance rooms is not required in cycle one schools, while it is necessary to provide those facilities in the cycle two schools.

The process of creating a sustainable learning environment in terms of spatial distribution and the efficient functioning of the school building are considered as one of the priorities of the Educational Development Plan in the Sultanate of Oman (Ministry of Education, 2006). In constructing new school buildings, the school should not be limited to classroom and storage areas. Deep thinking about the future innovation is required to sustain the development of the educational and learning process. This should be put on the table of those designers to increase the school building's capacity and quality. To extend school efficiency in serving community, there is a need for more room to run such developing programs for those surrounding residential and neighborhood (Al-Zanfaly, 2008).

There are common general services of school building facilities in the Sultanate. These services start from the principal and assistant principal offices, staff meeting room, teacher gathering room, first aid room, professional guidance room, computer laboratory server rooms, warehouses, water cycle rooms, electric power room, school guard room, and cafeteria. The size and the number of each of these facilities depend on the type of education and the size of the school associated with the total number of students (Ministry of Education, 2009). The typical provision for basic education schools is as follows:

(a) In cycle one schools:

- A number of 30 classrooms, each room measuring 49 square meters.
- A learning recourse centre that measure 126 square meters and is equipped with fifteen computers and a range of audio visual aids and print materials.
- A multi-purpose hall that measures 126 square meters and is used for school meetings and activities.

a. In cycle two schools:

- A number of 40 classrooms, each room measuring 49 square meters.
- A computer laboratory that measure 98 square meters and is equipped with 20 computers, TV and video. These schools also have a library containing a variety of books and magazines.
- Six fully furnished and equipped science laboratories.
- Two halls, one for extra-curricular activities and one for life skills.

b. In both cycles one and two schools:

- Four rooms for administrative staff.

Two teachers' staff rooms (Ministry of Education, 2006).

All schools are also equipped with bathrooms (with access for special needs of students), a store, a canteen and a room for visiting nurse. Due to the very hot climate, all rooms are supplied with air-condition. In terms of the quality of facilities required for the schools in the Seventh Five-Year Plan in the Sultanate, there is a plan towards the expansion of school facilities. The administrator room number will be increased up to four rooms in the schools of cycle two (5-10). The number of teachers' rooms will be expanded to reach between three to four rooms in the schools of 15-20 classrooms. There is also a trend toward increasing the number of activity rooms to become three rooms in the schools of more than 20 classrooms, and two of learning sources rooms in the schools in which there are more than 25 classrooms. The number of stores and multi-purpose rooms and computer laboratory rooms, laboratories, health care and nursing rooms have received much attention in the future expansion plan, all of those depend on the type of education and school level (Ministry of Education, 2009).

METHODOLOGY

In order to achieve the study's aims, quantitative data were collected by generating questionnaire consisting of 47 items which represented the major training needs in school building management skills by school administrators (principals and assistant principals) and head-teachers in basic school. A sample of 623 school staff members were randomly selected for the study out of the total population of 2821 (1437 school principal and assistant principal, 1384 head-teacher). The data were collected in the 2008/2009 academic year (Ministry of Education Report, 2008/2009). The A five point likert scale (strongly agree, average agree, below average agree, disagree and strongly disagree) corresponding with 5, 4, 3, 2, and 1 were used to measure the responses of the respondents.. A pilot-test was conducted to further assure the suitability of the items as well as their validity and reliability. A few expert judgments of specialists, administrators and senior school principals were sought to assure the overall faced validity of the study instrument. The reliability co-efficiency was measured by applying Cronbach Alpha and it was found to be (0.96) for all instrument items. Means and standard deviation, t-test and One-Way Analysis of Variance (ANOVA) were used to analyze data.

RESULTS AND DISCUSSION

Table 1: The demographic data of the study sample.

Variables	Level	Frequency	%	Responses
Gender:	Male	258	41.4	-
	Female	365	58.6	-
Position:	Principal and Assistant	207	36	48
	Head-teacher	368	54	
	Sch level:	Cycle 1 (1-4)	125	22.4
	Cycle 2 (5-10)	317	56.9	
	Cycle 1 and 2	(1-10)	115	20.6

Source: Fieldwork 2009

Table 2: Various types of educational services available in the study area

School services	%
Learning resources center	96.6
Social consultant room	93.6
Nursing room	86.2
Science laboratory	81.2
Play court (ground)	58.8
Individual Teacher office room	8.1

Source: Fieldwork 2009

The above list of services indicated that the Ministry of Education is highly concerned with equipping schools with learning materials and cared about students' health. However, less care was showed to the recreation services where students can practice various activities as individuals or in groups during break or free time. Students' needs spaces in the school other than formal classrooms to participate in some extra-curricular activities. As Van Slyke & Goode (2003) indicated, students are less comfortable with the monolithic teaching techniques of past schools. Modern students are receptive to a bombardment of multimedia, social spaces, swim meets and gymnasium of fitness area where they can find themselves among other school peers-building friendship far from usual classroom formal lectures.

It is clearly seen from the above data that there is a challenge facing school building management through out offering individual office room for each teacher, since there is only 8.1% of teachers who have individual office room. Therefore, seeking the privacy of teachers office tasks is another issue facing the management of school building in Oman. Concerning the first question, which measured the administrative skills needs in managing school building from the basic school administrators' and head-teachers' perspectives, the means and standard deviations were used to obtain the results. Since the questionnaire Likert scale comprises of five-response rate, a theoretical mean of 3.00 (mid point of the scale) was determined as criterion to judge the means. It was accordingly apparent that all items were located above the predetermined theoretical means value.

Table 3: shows means and standard deviations (SD) of the responses to each domain of the study instrument.

Domains	Means	SD
School facilities and services	4.13	0.77
School security and health	4.11	0.72
School classes and equipments	4.10	0.75
School physical building maintenance	4.05	0.75
School administrative offices	3.94	0.79
School building location	3.76	0.75
Total	4.03	0.64

Source: Fieldwork 2009

The results on table 2 show that there is a high training needs represented by responses regarding the school facilities and services with means of (4.13) which is the highest means in the distribution. The lowest means recorded to school building location (3.75). The school security and health management still show high means (4.11) which indicated that school staff members (school principals, assistant principals and head-teachers) are in need of professional development skills regarding the student safety, security and health. This result corresponds with Al-Deweek et al. (2001) who indicated that school safety and security were having significant effects on student achievement in a positive way. According to the second question of this study that aimed to investigate the statistical significant differences among school staff members towards their professional training needs to insure the management of sustainable basic school building, many variables were tested using t-test and One Way Analysis of Variance (ANOVA). Those variables are gender, position, and school level.

The findings on table 4 show that there are no significant differences between male and female responses toward all study domains. This result indicates that all respondents agreed that their professional practices need some training courses in order to develop their professional skills in managing basic school buildings for sustainable development. As shown on table 5, there is only one statistical significant difference between responses' means of school building location domain in favor of head-teacher compared to principal and assistant principal. One could therefore say that head teachers need more professional training workshops than principals and assistant principals in order to develop their skills and ability to manage sustainable school building. According to the school type variable, One-Way ANOVA was conducted as shown on table 6.

The result revealed that there are significant differences among respondents in favor of basic school cycle one (1-4 level) with means of 3.86 compared to basic school both cycles (1-10 level) with means of 3.58. From data on tables 4, 5 and 6, it was concluded that there is a major challenge facing the management of sustainable school building, and this result is supported by Wright (2004) who stressed the importance of the linkage between the school building quality and the management and organization of learning spaces. This was also supported by Green & Turrell (2005) and Uline, & Tschannen-Moran (2008) who indicated that although direct benefits are difficult to measure accurately from school building investment but school will perceive a benefit of investment from students' school attendance, achievements and behaviors. In addition, the quality of school facilities will have a significant effect on improving teachers' and school administrators' morale and motivation (MacKenzie, 1989).

CONCLUSION AND RECOMMENDATIONS

No functional school system exists in isolation of basic school facilities. For efficient and effective utilization of these facilities, major stakeholders (Administrators) in the school system must be actively involved. Based on the above, it is concluded that school facilities planning and management are an ongoing

sustaining process which does not end with the completion of the physical plan. This will allow for adaptation and modification of the facility which will meet emerging needs of the community of learners.

To achieve the above, it is believed that the following propositions: conducting workshop for school staff member on how to direct school building, facilities and equipments effectively as one of high priority for the Ministry of Education; offering school administrators more opportunities to make collaboration with health, municipal and social agencies as the matter related to sustain school building and the area around; developing a future plan on how to invest unused areas and spaces in school for future expansion; expanding green areas around school to ensure healthy school environment; and developing a strategic plan in supplying school building to meet special need of students will be of help.

Table 4: shows responses means and standard deviations, result of t-test according to the gender variable.

Domains	Gender	Means	SD	t- test	2-tail sign.
School facilities and services	M	4.14	0.76	0.12	0.906
	F	4.12	0.79		
School security and health	M	4.12	0.72	0.43	0.664
	F	4.10	0.73		
School classes and equipments	M	4.11	0.75	0.52	0.607
	F	4.08	0.76		
School building maintenance	M	4.03	0.73	0.55	0.584
	F	4.06	0.77		
School administrative offices	M	3.97	0.74	0.79	0.427
	F	3.93	0.73		
School building location	M	3.78	0.74	0.65	0.519
	F	3.73	0.71		

Source: Fieldwork 2009

Table 5: shows responses means and standard deviations, results of t-test according to the position variables.

Domains	Position	Means	SD	t- test	2-tail sign.
School facilities and services	Principal and Assistant	4.11	0.72	0.54	0.592
	Head-teacher	4.15	0.80		
School security and health	Principal and Assistan	4.10	0.67	0.41	0.680
	Head-teacher	4.13	0.76		
School classes and equipments	Principal and Assistan	4.06	0.70	0.96	0.488
	Head-teacher	4.11	0.79		
School building maintenance	Principal and Assistan	4.03	0.72	0.51	0.608
	Head-teacher	4.06	0.77		
School administrative offices	Principal and Assistan	3.88	0.70	1.60	0.110
	Head-teacher	3.98	0.76		
School building location	Principal and Assistan	3.76	0.74	*2.29	0.022
	Head-teacher	3.81	0.72		

Source: Fieldwork 2009. * Significant at $\alpha=0.05$

Table 6: Shows the result of ANOVA test of school type variables.

Domains	Levels	SS	d.f	MS	Fvalue	2 tail sign.
School facilities and services	Between	0.472	2	0.236	0.388	0.678
	Within	336.788	554	0.608		
School security and health	Between	0.578	2	0.289	0.553	0.575
	Within	289.336	554	0.522		
School classes and equipments	Between	0.803	2	0.402	0.729	0.483
	Within	305.397	554	0.551		
School building maintenance	Between	2.615	2	1.307	2.317	0.099
	Within	312.529	554	0.564		
School administrative offices	Between	1.621	2	0.811	1.500	0.224
	Within	299.447	554	0.541		
School building location	Between	4.962	2	2.481	4.775	0.009
	Within	287.806	554	0.520		

Source: Fieldwork 2009. Significant at $\alpha=0.05$; N/B: Sum of Square, MS = Mean square

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