The Study of Buildings Design Elements and Users Satisfactions: Students Satisfaction on Educational Buildings Design Elements in Comparison to their Academic Productivity

Ammar S. Dahlan

*Department of Architecture, College of Environmental Design, King
Abdulaziz University, P. O. Box 6220, Jeddah 21442, Saudi Arabia*

adahlan@kaau.edu.sa

(Received: 3/2/2007, Accepted: 12/10/2008)

Abstract. In general, there is a positive relationship between user satisfaction and productivity, as user satisfaction increases productivity increases. This phenomenon has been illustrated by various studies as stated in literature review. In this respect, the main concern to fulfill building aspects include, best use of provided infrastructure, reduction in cost of space improvement, efficiency in infrastructure maintenance, user safety and provision of satisfactory and productive environment. This study has been conducted in the educational environment of King Abdulaziz University-Jeddah-Saudi Arabia, and directed towards investigating the levels of students satisfaction levels of the facilities allocated for them in their educational and non educational spaces in faculty buildings, in relation to their Academic Achievements (GPA), to formulate a guideline to decision makers in overall developing process of King Abdulaziz University. It will also, illustrate literature review, study execution, analysis methodology, results of study questionnaires and finally data analysis and discussion of results in relation to students "GPA". Questionnaires will be distributed to students (male& female), and will be analysed by advanced "ANOVA "statistical methods including correlations, regression and step-regression. It's found that, the higher the average cumulative rate of scientific productivity"GPA" the decreased the level of satisfaction..

Keywords: Students Satisfaction, Productivity, Educational Buildings, Educational spaces.

1. Introduction

King Abdulaziz University is striving hard to transforming itself into a University of Electronic Systems thru the implementation & development of all related sectors for the benefit of its students and faculty members including its administrators which in turn will be reflected positively to the levels of graduates and therefore to society.

It is the concern of all participants in educational process to promote students academic achievements. One of the important influential parameters of educational process is building environment where educational process takes place.

Building Environment, can affect students academic achievements positively or negatively as per its configuration in terms of space utilization and students needs.

The most important criteria for measuring the efficiency of the overall performance of the University are the level of the students' academic achievement.

The internal environment of buildings forms an integral part of various specialized studies that investigate and examine the impact on the standards of user satisfaction.

However, those studies focused on private and public office buildings, and its users, where educational buildings have not been studied extensively in this respect.

In lieu of this the decision makers and specialists in developmental issues of the educational sector, are required to take up the issue of "Raising the performance of the students' academic productivity" and promote all concerned sectors to achieve this goal.

Therefore, this study will focus in investigating the impact of design elements of college building internal environment with levels of students' satisfaction and academic productivity "G.P.A".

King Abdulaziz University, Jeddah, Saudi Arabia was chosen due to its fast developments in constructing new faculties building to meet high increase of students' enrolments, and the challenge is to secure the best possible design input to deliver well designed spaces that will meet students current and future needs and expectations and offer a smart environment that supports learning and teaching.

2. Study Hypothesis

The orientation of this study is to highlight the “High level of Students’ satisfaction on their faculty buildings will have a positive impact on their academic productivity”.

Educational buildings play a vital role in influencing the performance of students' academic productivity which may be either negative or positive depending upon the model of the infrastructure, since it is reserved exclusively directly or indirectly for educational activities such as classrooms, labs, library, sitting areas, lounges and recreational spaces for the overall development.

3. Study Objectives

The study aims at identifying levels of student’s satisfaction (male and female) in their respective faculty buildings and its impact on their Academic productivity (G.P.A.).

The results will draw recommendations to the university's decision-makers to take the necessary measures to upgrade and modernize educational buildings and consequently improve the academic productivity of the students.

4. Literature Review

The internal environment of buildings is one of the most important aspects that may affect user’s performance and productivity thru levels of their satisfaction; many specialized studies have focused on the investigation of this relation.

Generally in Western or Asian Countries, most of the studies are focused on the office buildings, as per available resources, no such studies are available in educational buildings in Middle East in general and Saudi Arabia in particular.

Organizational profitability in the private sector is considered the mile stone for the development of internal environment of buildings, furthermore, staff productivity and performance are the general aim which stimulate profitability thru the raising of public satisfaction level, degree of job effectiveness and performance, career affiliation and customer satisfaction, as well as reduction of employees absenteeism.

Changing the way people work and their work environment can significantly affect staff morale and productivity ^[1].

The productivity could be improved, 4 to 10% by improving the office environmental conditions ^[2].

Offices are equipped to enable employees to perform in support of presumed organizational goals. Employers must ensure that these offices are custom designed and conducive to employee comfort and satisfaction in order to maximize performance in pursuit of achieving the fore set goals ^[3].

It must be kept in mind that buildings and furnishings consume a small part of the cost of running an organization. The capital and operating costs account for a mere 8% and the human resources costs (remunerations and perks) account for a whopping 82%. In relative terms office design choices are inexpensive and the costs of sound investments in design can be recouped quickly in the form of enhanced occupant satisfaction and performance ^[3].

The results of the draft research of (COPE) (Cost-effective Open-Plan Environments), a high profile Institute for Research in Construction which is affiliated to the National Research Council of Canada, proves that in office buildings there is a dual positive direct relationship between satisfaction with lighting, ventilation, privacy and acoustics, and these three factors positively affect the overall environmental satisfaction which directly affects the job satisfaction positively and indirectly affects the organization commitment, Customer satisfaction and Business unit performance ^[3].

Organization commitment indirectly has a positive effect on employee's intent to leave, organizational turnover, business unit performance and Customer Satisfaction, as per Fig. 1.

Absenteeism itself costs the United Kingdom's economy a whopping £12bn every year, and a U.S. study of white-collar and blue-collar employees found that people who were satisfied with their physical work environments reported higher job satisfaction, greater organizational commitment, and lower intent to leave the organization in comparison to those who were not satisfied ^[4].

Furthermore," A study of 8,000 business units in 36 U.S. organizations found that those units with greater job satisfaction had lower employee turnover, higher customer satisfaction and better unit profitability ^[5].

Fig. 1. Satisfaction with the surrounding environment contributes to organizational success. The solid lines represent findings from the COPE project; the dotted lines represent findings from other research ^[3].

National Research Council of Canada, Institute for Research in Construction, "IRC's conducted a field study on the effects of the physical conditions in open-plan offices in comparison to occupant satisfaction. The study was unique in its combination of detailed physical measurements and simultaneous occupant satisfaction data. The questionnaire results showed that there are predictable, positive relationship between satisfaction with the physical work environment, and job. People who are more satisfied with the physical set-up of their workstations have higher job satisfaction. Findings were the same for both public- and private-sector employees, in U.S. and Canadian organizations ^[6].

It is a relatively more expensive to employ people in comparison to maintain and operate a building; hence spending money on improving the work environment is the most cost effective way of improving productivity because a small percentage increase in productivity of 0.1% to 2% can have dramatic effects on the profitability of the company ^[7].

Clements-Croome and Li have conducted Surveys in several office buildings which concluded that crowded work spaces, job dissatisfaction and the physical environment are the main factors affecting productivity ^[8].

North Americans spend almost (50%) of their lives at work, and more than (70%) of these employees are in open-plan offices. However,

occupant satisfaction with an office environment also plays a role in its cost-effectiveness. If office conditions are poor, employees feel uncomfortable and dissatisfied, which can have adverse effects on the expected savings. This phenomenon can be reserved by appropriate office technologies and design strategies which inculcate satisfaction with acoustics, lighting, indoor air quality, thermal comfort, and workstation design^[9].

It is also found that air pollution, poor ventilation and high temperatures inside the buildings play spoilsport in highlighting the state of dissatisfaction with the internal architectural environment of the buildings^[9].

Hodgett (1993) estimated that the annual building cost including capital investment in UK is about (£200 m⁻²) of which energy and plant costs are about (£10 m⁻²). Annual staff costs are about (£15,000 m⁻²). Increasing productivity by only (1%) creates added value on the staff costs. The USA have taken this issue seriously and examples are given in Clements-Croome (2000) and CIBSE (1999) research. The results show that staff costs are (100) to (200) times the cost of energy and these costs can be off-set by a (0.5) to (1%) rise in productivity^[10].

Absenteeism already costs the United Kingdom's economy a whopping £12bn annually, and a significant proportion of this figure is perhaps due to poor environmental conditions in buildings which give rise to building sickness symptoms^[11].

Staff costs are (20) to (44) times the HVAC running costs which indicate that an increase in productivity is required to off-set these costs by (2%) to (5%). The costs are almost (30) times the HVAC installation costs and any change in these costs is justified if the changes produce an increase in productivity of some (3½ %). Productivity gains of just fewer than (10%) should off-set the full running and installation cost^[3].

5. Study Work Method

5.1 Measurement of User Satisfaction

The study is oriented towards the measurement of levels of user satisfaction, for both male and female students, at King Abdulaziz University.

A Pilot study was conducted, and questionnaires were distributed amongst the students in various faculties. Table 1 illustrates the distribution of students' numbers in different faculties.

Table 1. The actual distribution of students at faculties.

Faculty	Male Students		Female Students		Total
	No.	%	No.	%	
Arts & Humanities	2792	37.40	4623	62.60	7385
Faculty of Meteorology, Environment and Arid Land Agriculture	505	100	-	-	505
Economics & Administration	2663	48.81	2793	51.19	5456
Science	2049	42.54	2768	57.46	4817
Engineering	2039	100	-	-	2039
Environmental Design	479	100			479
Earth Science	415	100			415
Marine Science	389	100			389
Home Economics	-	-	1085	100	1085
Total	55113	50.31	11269	49.69	22570

Ref: Study Results.

Total number of male and female students equal to (22570), the targeted study sample represents (7%) of total students' numbers equal to (1579), 9 students of the total strength, (1600) questionnaires were distributed and the response is as shown in Table 2.

Table 2. Targeted number of study sample.

Faculty	Students		Total
	Female	Male	
Arts & Humanities	320	192	512
Economics & Administration	200	192	392
Science	200	144	344
Engineering	-	152	152
Environmental Design	-	120	120
Home Economics	80	-	80
Total	800	800	1600

Ref: Study Results

5.2 Study Sample

The study team was able to retrieve (1160) attempted questionnaires from the total of (1600) distributed, which represents actual study sample, of which (288) female students who constitute to (25%) and (862) male students who represent (75%) of the actual study sample, as per Table 3.

However, the collected questionnaires are considered significant. The following table represents the final collected study sample distribution:

Table 3. Distribution of actual number of collected study sample.

Faculty	Female Students	Male Students	Total
	No.	No.	
Arts & Humanities	173	185	358
Economics & Administration	1	89	90
Science	5	115	120
Engineering	-	144	144
Environmental Design	-	200	200
Home Economics	48	-	48
Other Faculties'	47	153	200
Total	274	886	1160

Ref: Study Results.

5.3 Evaluation of Faculties' Buildings Qualities

To evaluate faculty buildings, (33) Design Elements were identified and on a scale of (1) to (5) the general quality of faculty buildings scored an average of (2.93), slightly less than the average benchmark of (3). It has not been accounted for any presence of a statistically significant difference between male and female students.

The design elements include: Clear building - entrance, building - entry number adequacy, lobby size suitability, elevator location suitability, number of elevators, stairs location, width of corridors, length of corridors, way finding, class room locations, wash room cleanliness, wash location, quality of natural lighting, quality of artificial lighting, interior finishes, prayer area location, size of the prayer area, building external elevation, internal beauty, overall building cleanliness, availability of storage spaces, parking distance, parking adequacy, equipments safety, air conditioning, noise, ventilation, paint color, internal plants, availability of internet, availability of computers, emergency stairs, sign boards, study and reading areas, overall building construction quality.

As illustrated in Fig. 2, building internal environment is fully utilized in the Faculty of Environmental Design building where natural light is penetrating from the roof top, and natural plants are falling within the main atrium of the building.

Fig. 2. Building internal environment.

Ref: Faculty of Environmental Design building, Dahlan, Ammar (2008).

As per Fig. 3, pray area in the middle of Environmental Design building, with natural light from the northern facade gives integration between inner and outer environment.

Fig. 3. Pray area in the middle of educational spaces.

Ref: Faculty of Environmental Design building, Dahlan, Ammar (2008).

Furthermore, Fig. 4, demonstrates some of the entertainment facility which is needed in the break time where students can interact a form informal communication that might benefit their educational cycle.

Other supportive facilities are used to facilitate educational process one of which is the data show instrument as shown in Fig. 5.

Fig. 4. Entertainment facilities.

Ref: Faculty of Environmental Design building, Dahlan, Ammar (2008).

Fig. 5. Visual facilities.

Ref: Faculty of Environmental Design building, Dahlan, Ammar (2008).

Moreover, classrooms with its adequate seating and controlled artificial lighting can play an important role in fulfillment of students and teachers needs, Fig. 6.

Fig. 6. Classroom facilities.

Ref: Faculty of Environmental Design building, Dahlan, Ammar (2008)

Corridor width, length and cleanness can be an enhancement to students' satisfaction as per Fig. 7-9.

As per Table 4, it is concluded that out of the (33) design elements female students gave (9) positive and (24) negative replies, while male students gave (20) positive and (13) negative replies.

Fig. 7. Corridor and natural lighting.

Ref: Faculty of Environmental Design building, Dahlan, Ammar (2008).

Fig. 8. Students' satisfaction levels on faculties' buildings design elements.

Ref: Study Results.

Table 4. Students level of satisfaction of faculties' buildings design elements.

Buildings Design Elements	Male	No.	Std. Deviation	Female	No.	Std. Deviation	Total	No.	Std. Deviation
	Mean			Mean			Mean		
Students' GPA	3.2323	367	.67644	3.8546	137	.67574	3.4015	504	.73021
Hours per week	15.64	637	12.049	13.49	204	7.931	15.12	841	11.223
Building - entrance clearness	3.51	853	1.268	3.35	268	1.232	3.48	1121	1.261
Building - entry number adequacy	3.41	849	1.225	3.29	265	1.226	3.38	1114	1.226
Building - lobby size suitability	3.43	845	1.176	2.91	258	1.302	3.31	1103	1.226
Building - elevator location suitability	3.64	766	1.062	3.31	163	1.264	3.58	929	1.106
Building - elevator number	3.37	768	1.211	2.88	162	1.297	3.28	930	1.239
Building - stair location	3.62	819	1.087	3.43	254	1.136	3.58	1073	1.101
Building - corridor width	3.45	838	1.167	2.98	255	1.310	3.34	1093	1.217
Building - corridor length	3.43	836	1.094	3.19	255	1.209	3.37	1091	1.126
Building - way finding	3.49	841	1.193	2.82	270	1.411	3.33	1111	1.281
Toilets location	3.46	843	1.148	3.11	260	1.325	3.38	1103	1.201
cleanliness of Toilets	3.16	849	1.233	2.49	261	1.352	3.00	1110	1.294
Building natural lighting	3.33	842	1.162	3.04	261	1.264	3.26	1103	1.193
Building artificial lighting	3.48	841	1.186	3.27	264	1.272	3.43	1105	1.210
Building finishes	3.24	848	1.172	2.92	267	1.381	3.16	1115	1.232
Pray space location	3.37	821	1.279	2.38	182	1.298	3.19	1003	1.337
Pray size	3.09	816	1.272	2.44	180	1.308	2.97	996	1.302
Building external beauty	2.94	835	1.280	2.75	259	1.426	2.89	1094	1.318
Building internal beauty	2.98	828	1.246	2.81	260	1.384	2.94	1088	1.282
Building cleaning	3.28	835	1.122	3.07	267	1.274	3.23	1102	1.163
Building storage spaces	2.44	681	1.217	2.60	216	1.235	2.48	897	1.223
Near parking	2.38	746	1.316	2.56	191	1.296	2.42	937	1.313
Parking adequacy	2.34	772	1.331	2.60	189	1.215	2.39	961	1.313
Building safety equipments	2.84	813	1.205	2.74	229	1.217	2.82	1042	1.208
Building air conditioning	3.10	836	1.291	2.57	264	1.388	2.97	1100	1.333
Noise in building	2.96	843	1.148	2.33	266	1.388	2.81	1109	1.239

Building ventilation	3.18	838	1.151	2.59	257	1.404	3.04	1095	1.240
Building paint	3.07	841	1.152	2.96	256	1.404	3.05	1097	1.216
Building plants	2.86	773	1.229	2.78	194	1.333	2.84	967	1.250
Building internet	2.76	665	1.378	2.74	188	1.357	2.75	853	1.373
Building computers	2.89	699	1.369	2.59	199	1.303	2.83	898	1.360
Escape stairs	2.82	770	1.244	2.47	200	1.299	2.74	970	1.263
Building signs	2.85	791	1.225	2.94	238	1.338	2.87	1029	1.252
Building study and reading areas	2.68	746	1.243	2.50	197	1.331	2.64	943	1.264
Building overall quality	2.96	831	1.179	2.81	256	1.385	2.92	1087	1.232

Ref: Study Results.

Fig. 9. Average students' satisfaction on faculties' buildings design elements.

Ref: Study Results.

5.4 Study Results in Respect to Students (G.P.A.)

As per the entire study sample, in respect to building Design elements, it is found that there is a weak relation between students (G.P.A.) average (13%), and six of building design elements which include: Cleanliness of Toilets, Parking Adequacy, Building - lobby size suitability, Toilets location, Building - way finding, Building signs.

In respect to students satisfaction it is found that there is a reverse relationship between, cleanliness of toilets, building - lobby size suitability and building - way finding, which might mean that outstanding students are less satisfied for these three design elements, or due to un considered parameters in the study, such as social or sociological statues or it could be that the outstanding students are more concerned with college buildings upgrade level and therefore less satisfied.

For male students there is a weak relationship between their (G.P.A.), and five of building design elements which include, Cleanliness of toilets, toilets location, building - way finding, parking adequacy and building internal beauty.

The relation was found reverse in respect to, cleanliness of toilets, building - way finding, and building internal beauty. For Female students there was no relationship between their G.P.A., and building design elements.

6. Conclusion

Study hypothesis has been made according to the results of previous studies which indicated a positive relationship between high level of satisfaction on building's internal environment and employee's productivity in office buildings. However, the results of this study did not demonstrate the strength of this relationship.

It's found that, the higher the average cumulative rate of scientific productivity the decreased the level of satisfaction. This might indicate that the outstanding students spend less time in faculty buildings.

Therefore, it could be concluded that the Academic productivity of male and female students might rely on external elements, such as the degree of intelligence and ability of students to understand and recalling the standard of living and other factors that may be influential in the superiority of the student through the various stages of the study. The result may be reversing the logical consequence of other indicator that is difficult to satisfy outstanding students.

It has been noted that outstanding students spend most their times in revising and completion of assignments outside university buildings. The inverse relationship described by the study result could prove shortage in many building Design Elements which are required by the users, particularly those who excelled them.

Number of elements found unsatisfactory to students such as, lack of Internet services, computer sets, applicable spaces for reading and relaxing, storage places for personal belongings, ornamental and decorative plants, inadequate car parking areas and remoteness from the building.

It is found that some design elements increase students level of satisfaction, which includes, building internal beauty, availability of study and reading areas, way finding, corridors length and availability of sign boards.

The inverse relationship between student's scientific productivity and design elements does not mean abandonment to develop and improve faculties' buildings as per the users' requirements.

It requires an immediate action from the decision makers to improve faculty buildings in context to the student's satisfactory level, to motivate the students to spend more time in faculty buildings; which automatically increases the interaction between students and their scientific performance.

Academic productivity (G.P.A.) can be a result of student satisfaction, and affected by different predictors, including, building satisfaction, cultural satisfaction, economical satisfaction, health satisfaction, social satisfaction, academic satisfaction and environmental satisfaction.

Fig. 10. Satisfaction & Academic Productivity.

Ref: Dahlan, Ammar (2008).

7. Recommendations

To increase the degree of student's level of satisfaction, it is necessary to consider upgrading the following (18) design elements in faculty's buildings as follows:

First: common design elements for male and female students which include:

- 1- Car parking adequacy.
- 2- Storage spaces availability.
- 3- Noise reduction.
- 4- Increase of Internal plants.
- 5- Availability of computers.
- 6- Availability of internet.
- 7- Equipments safety.
- 8- Emergency stairs.
- 9- Availability of signs.
- 10- Study and reading areas.
- 11- Building external and internal beauty.

Second: Design elements in female Faculties buildings which include:

- 1- Increase of lobby size suitability.
- 2- Increase of elevators number.
- 3- Noise reduction.
- 4- Increase of corridors width.
- 5- Improvement of wash room cleanness.
- 6- Improvement of paint color.
- 7- Increase of pray space size.
- 8- Upgrade of air conditioning systems.

Furthermore, it should be noted that further investigation in respect to quality and quantity of design elements as per building codes and standards and student's needs, should be arrived out.

Designers and decision makers are urged to establish a communication link with students and teachers since they are the end users of the facilities they provide.

Academic productivity (G.P.A.) can be further studied in relation to student satisfaction, of different predictors such as building satisfaction, cultural satisfaction, economical satisfaction, health satisfaction, social satisfaction, academic satisfaction and environmental satisfaction.

References

- [1] **Richard Watts Dip Arch RIBA FBIFM**, Measuring Workplace Satisfaction & Performance, *Hosp Health Service Adm.* **41**(2): 160-75 (1996).
- [2] **Clements-Croome, D.J.** and **Li B.**, *Impact of Indoor Environment on Productivity*, Workplace Comfort Forum, Royal Institute of British Architects, London (1995).
- [3] **Veitch, J.A., Charles, K.E.** and **Newsham, G.R.**, *October 2004, Workstation Design for the Open-Plan Office*, Construction Technology Update No.61, National Research Council of Canada, Institute for Research in Construction.
- [4] **Carlopio, J.R.**, Construct validity of a physical work environment satisfaction questionnaire, *Journal of Occupational Health Psychology*, **1**(3): 330-344 (1996).
- [5] **Harter, J.K., Schmidt, F.L.** and **Hayes, T.L.**, Business-unit-level relationship between employee satisfaction, employee engagement, and business outcomes: A meta-analysis, *Journal of Applied Psychology*, **87**(2): 268-279 (2002).
- [6] **Institute for Research in Construction**. *COPE Project Research Reports* Ottawa, Daylight and View, National Research Council of Canada (2003).
- [7] **Clements-Croom, D.**, March 20, *Environmental Quality and the Productive Workplace*, The University of Reading, The School of Construction Management and Engineering, Reading, United Kingdom (2003).
- [8] **Clements-Croome, D.J.**, *Specifying Indoor Climate in book Naturally Ventilated Buildings*, (Spon) (1997).
- [9] **COPE Project Research Reports**, *Cost-effectiveness through Environmental Satisfaction*, National Research Council of Canada, Institute for Research in Construction, Ottawa (2003).
- [10] **Clements-Croome, D.J.** and **Li B.**, *Proceedings of Healthy Buildings, Vol 1*, Productivity and Indoor Environment (2000).
- [11] **Judge, E.**, Flextime Work, *The Times*, January 6, **E2 P**, 7 (2003).

دراسة عناصر تصميم المباني وعلاقتها مع رضا المستخدمين: رضا طلبة الجامعة عن المباني التعليمية وعلاقته مع إنتاجيتهم الأكاديمية

عمار بن صادق دحلان

قسم العمارة، كلية تصاميم البيئة، جامعة الملك عبدالعزيز، ص ب 6220،
جدة - المملكة العربية السعودية

(قدم للنشر في 2007/2/3، قبل للنشر في 2008/10/12)

المستخلص. تم إعداد هذه الدراسة في بيئة المباني التعليمية لاستخلاص توصيات لمحددات تصميمية لمتخذي القرار والمطورين بجامعة الملك عبدالعزيز بجدة، المملكة العربية السعودية، وناقشت الدراسة مدى رضا الطلاب والطالبات عن الخدمات المخصصة لهم من قبل الجامعة للفراغات التعليمية وغير التعليمية في المباني التعليمية التابعة لكليات الجامعة، وعلاقته مع الإنتاجية الأكاديمية لهم من خلال المعدل التراكمي. ويستعرض البحث أدبيات الدراسة وطريقة العمل وطرق التحليل الإحصائي المستخدمة، وأخيرا نتائج تحليل الاستبانات ثم المناقشة العلمية لنتائج الدراسة ومقارنتها مع معدل الطلاب التراكمي (GPA). واعتمدت الدراسة على منهج الاستبيان الذي تم توزيعه على الطلبة والطالبات ومن ثم تحليله بواسطة برنامج إحصائي متقدم، وأظهرت النتائج وجود علاقة عكسية ما بين إنتاجية الطلاب والطالبات الأكاديمية ودرجة رضاهم عن عناصر تصميم المباني، وأن مستوى رضا الطلاب أعلى من مستوى رضا الطالبات، وأن عنصر جماليات التصميم الداخلي وعنصر توفر أماكن للاستذكار وعنصر سهولة الوصول وعنصر طول الممرات وعنصر توفير العلامات الإرشادية هي من أكثر العوامل تأثيرا على درجة الرضا عن المبنى بشكل عام.