SHARED LIVING SPACE FOR STUDENTS: THE ROLE OF BACKGROUND AND EXPERIENCE

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Abstract

Individual student satisfaction rates with shared space in student housing vary. Assuming that sharing spaces is a trend towards a more sustainable way of life, there is need to have an understanding of the ways it can be more acceptable for those involved. This survey is focused on the role of the background and experience of students in the acceptability of using shared space. Analysis indicates that many parameters like economic situation, duration of living in student housing, educational field, family size and even the size of the home city can influence an individual's perception of and adaptation to shared space. On the other hand, it seems that shared spaces, where there are more similarities in individual student backgrounds are more successful. The survey results also show students with prior experience of living in dorms and those coming from larger/poorer families and small home cities are usually more satisfied with shared spaces than those who have never lived in a dorm before or come from small/richer families and larger home cities. The results of this survey can be helpful for both designers of future shared spaces and dorm managers who want to organise more effective use of shared spaces.

Keywords: *Shared space; dormitory; background; sustainability.*

1. Introduction

Sharing space is more sustainable because of more efficient uses of resources (Vale and Vale, 2009; 2013) but there are always potential problems. A survey of such a student dormitory in Iran with highly populated rooms and common spaces indicates that the feeling, usage, behaviour and reactions of residents are different, depending on a student's background and previous experience. Additionally, the particular combination of residents in a shared space also plays an important role in its effective use. This investigation suggests shared spaces can be improved if the combination of residents is selected wisely and/or the shared space is purposely designed to suit the characteristics of the residents.

2. Background

Student housing has been researched because of the special nature of the facilities and associated behaviours (Mullins and Allen (1971); Riker and Lopez (1961)). This research can be broadly categorised to four types. The first group has focused on the influences of different aspects of the facilities on student satisfaction. Foubert, Tepper and Marrison (1998) found predictors of student satisfaction in university residence halls, through focussing on facilities, room-mates, noise, safety and security. Roche, Flanigan and Copeland (2010) did similar research on trends, needs and preferences of users of student housing in Italy. Najib, Yusof and Osman (2011) did similar research in Malaysian universities, while Amole (2008) in Nigeria found differences in student satisfaction for bedrooms, floor and common hall. The second group has focussed on emotional points of view, such as student housing as home. Thomsen (2007) investigated examples of Norwegian student housing and found these mostly had an institutional character.

Student housing is also a good place to observe social happenings like interaction and privacy. Amole (2005) found students could not fulfil all their privacy needs in their highly populated rooms. On the other hand, Rutledge (2012) found the enforced sharing in student housing could improve social interactions and build strong social relationships. The forth research type looks at the role of individual differences in the process of adaptation and satisfaction (Altman, 1975), and is the area of investigation of this paper.

Of particular interest for this research is how the students' background affect their adaptation in different situations. Research shows the economic status of students has a linear relationship with their satisfaction with facilities (Amole, 2009), supporting previous findings by Amole and Mills-Tettey (1998); Gifford (1997, 2001); and Kellekc and Berkoz (2006). Najib, Yusof and Sani (2012) researched students' socio-physical backgrounds and satisfaction with their student housing facilities in three Malaysian universities. Within these 91.3% of students were living in shared rooms and they found students with a better economic situation were more satisfied, concluding that this might be related to their ability to choose their facilities. However, Thomsen and Eikemo (2010) in Norway found the rate of satisfaction was not significantly related to a student's economic situation. Other studies have looked at the role of resident age and Christie et al. (2002) found older students had better skills in accessing satisfactory accommodation. Amole (2009) further found a linear relationship between length of stay in student housing and satisfaction with facilities. Najib, Yusof

and Sani (2012) found the rate of satisfaction with living in shared spaces had a relationship with a student's experience of living in a shared space in their parental home. Kaya and Erkip (2001) also researched satisfaction with dormitory buildings and found expectation of students for privacy differs with their family size. On the other hand, they found no relationship between perception of room size and a student's family size (Kaya, Erkip, 2001). Gender difference affects adaptation in student housing as Doygun and Gulec (2012) found female students prefer dormitories more than male students. Additionally, Amole (2005) found that males and females choose "highly different" territorial strategies in a high populated dorm room.

3. A brief review of the case study and its residents

Boy's dorm number one of Yazd University in Iran is a five storey building, including a basement level, with a central corridor in each of the residential floors and a total built area of 5200 m^2 (Khajehzadeh, 2006). The linear plan is oriented east to west so half the student rooms face north and the other half south, which is hardly ideal in a hot/cold winter desert climate (Khajehzadeh, 2006). The main spaces including the student rooms, communal kitchens, toilets and baths are located in ground floor to third floor (four levels), all with the same plan, and the underground level consists of a common room for praying and watching TV (a praying room in all public spaces is mandatory in Iran), storage and the boiler room (Khajehzadeh, 2006). Access to the upper storeys is via centrally placed two staircases, with residents using the ground floor corridors to access upper levels (Khajehzadeh, 2006).

The area of each shared student room is 20 m^2, this being a square space with two 2×1 rectangles added to each side for two fixed bunk beds (Khajehzadeh, 2006). There is a common 3.5 m^2 balcony between each pair of rooms. The rooms were designed for 4 students but because of a lack of available dorms, when the study was done most rooms were being used by 5 students. There are 16 residential rooms, 7 toilets, 4 bathrooms and a kitchen on the ground floor shared by 80 residents. Every other level has 25 student rooms, 8 toilets, 10 bathrooms and a kitchen shared by 125 residents (Khajehzadeh, 2006). Each room has 5 wooden lockers, four fixed beds, one additional bed (or foldable mat), two book cases, one study desk with chair and one shoe holder. Every five rooms share a fridge located in the corridor somewhere between them (Khajehzadeh, 2006).

The population of Iran comprises several tribes; Fars (65%), Turk (18%), Lor (6%), Arab (2%), Baluch (2%) and Kurd (7%), with different languages

and habits (Statistics centre of Iran, 2013), although there are many common behavioural habits. Yazd University is located in the centre of Iran with a population of 100% Fars. According to government regulation, universities are usually filled by students living in the neighbouring provinces (also 100% Fars) so most students in the case study are from the Fars tribe.

Yazd University delivers different majors at different levels from Bachelors to PhD. In Iran, engineering and science majors are more popular than humanities, and families in large cities prefer their children to study the former. Conversely, most humanities students come from small cities and rural areas. In this survey, cities of more than 1,000,000 are "Big", those between 100,000 and 1,000,000 persons are "Medium" and those with less than 100,000 persons are "small" cities. Consequently, in this survey 62.3% of engineering students are from "Big", 17.0% from "Medium" and 20.7% from "Small" cities, and 25.0% of science students are from "Big", 37.5% from "Medium" and 37.5% from "Small" cities. Additionally, 21.6% of humanities students are from "Big", 32.4% from "Medium" and 45.9% from "Small" cities.

In this dorm, rooms are normally filled by bachelor students from different majors in the same year but students can swap although this has to be arranged between the students and the dorm manager (Khajehzadeh, 2006). This rarely happens, because finding someone in a favoured room who will to move with the acceptance of all residents of both rooms is not easy. According to the dorm manager who was interviewed as part of this study, the aim is to accommodate students of the same tribe in the same room (Khajehzadeh, 2006).

4. Methodology

Observation and a paper based questionnaire were used for collecting data. Observation was possible as the first author lived in this dorm for a year and was familiar with its problems, but to complete the information, days were spent in different parts of the dorm talking and living with students and collecting data using voice recording, taking photographs, writing notes and drawing plans. Private rooms, public common spaces such as kitchens, toilets, baths, corridors, and praying and TV room were all observed in this way. The dorm manager and a number of students were also interviewed.

To support and control observations, a questionnaire of 24 questions was administered to a cross-section of students. Questions were a mixture of rating options, choice selections, short answers and drawing. The questionnaire was completed by 100 students. Students were selected from

different storeys and rooms in each storey facing different directions and having different distances from public spaces. This helped to ensure a mixture of different quality rooms in the sample. In addition, students were selected from different degree majors, family backgrounds and also from different cities of Iran. This helped to ensure different social/family backgrounds in the student sample.

Those completing the questionnaire were from Engineering (54.5%), Humanities (37.4%) and Science (8.1%) majors with no-one from Arts. All participants were aged 19-32 years with 81% of students aged 20-22 years. Analysis showed that 23.0% of the participants belonged to families with low (less than 2,000,000 IRR per month), 70% middle incomes (between 2,000,000 to 10,000,000 IRR per month), and only 2.1% from high income families (more than 10,000,000 IRR per month). According to the Central Bank of Iran a monthly income of less than 730,000 IRR per person (at the time the survey was done), is below the poverty line.

Participants also came from different sized families: 33.3% from families with 3-5 members, 54.0% from families of 6-8 and 12.6% from families of 9-13. Income was divided by the number of family members. The poverty line was a monthly income of 730,000 IRR/person in 2006 (Najm, 2008)) and this or below was assumed a "poor" participant, those with a monthly income twice this (1,460,000 IRR/month) had an "acceptable income" and those with a monthly income over twice the poverty line (1,460,000 IRR/month) were "rich", producing 79.5% of students from poor families, 16.9% from families with an acceptable income, and only 3.6% from rich families. According to the analysis, 10% of the students had lived in the dorm for 2, 51% for 4, 32% for 6, and 4% for 8 semesters. It should be noted that this survey was done at the end of the second semester (May/June) so even new students had the experience of two semesters of living in the dorm.

5. Data Analysis

5.1. DURATION OF LIVING IN THE DORM

It seems if shared spaces are used longer the rate of satisfaction also increases, as residents adapt to sharing. This trend can be seen in all common facilities (kitchens, toilets and baths) although not for the praying and TV room. Satisfaction with private rooms seems not to change much with the duration of living in the dorm (see Table 1). As mentioned before, the praying and TV room is located in the basement floor and because of the absence of elevators, access to this space is difficult for most students and this could be the reason behind the low satisfaction rate with this space.

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Students were asked if their initial emotional reaction to their crowded shared space changed over time. Most students stated their reaction reduced (48.4%) or did not change (26.8%) with 24.7% of students thinking it had increased. On the other hand, a comparison between the results and the duration of living shows that while there is no steady linear pattern students who have lived in the dorm for 4 or more semesters think that their reactions to crowded spaces have reduced more than the new comers (Table 1). Additionally, Table 1 indicates that in most public spaces students who have lived in the dorm for a longer time have greater senses of ownership of its public spaces. Comparing students of each different term of residence independently shows this trend can be seen for the bath, kitchen and toilet but not for private rooms, praying and TV room and corridors. However, comparing satisfaction rates between two groups of students who have the experience of living in the dorm for 4 semesters and more and new comers (2 semesters), then the sense of ownership increased for those who had lived there longer for all spaces except the praying and TV room (Table 1). These findings support the findings of Amole (2009). It should be noted that the number of participants who lived in the dorm for 8 semesters is low (4 persons) and so the figures in the last column are not reliable.

Table 1 Residents' reactions to crowded shared spaces and percentage of students with sense of ownership of different spaces in the dorm with different lengths of residence

		Duration of living in the dorm (semesters)				
		2	4	6	8	4 & 4+
Change in emotional reaction to crowded shared space	increased	40.0%	19.6%	28.1%	25.0%	23.0%
	decreased	40.0%	52.9%	43.7%	50.0%	49.4%
	unchanged	20.0%	27.4%	28.1%	25.0%	27.6%
Sense of ownership of different spaces in the dorm	Private room	80.0%	87.5%	87.5%	75.0%	86.9%
	Bath	30.0%	43.5%	40.0%	75.0%	43.7%
	Praying/TV room	22.2%	x8.3%	00.0%	00.0%	x4.9%
	Kitchen	00.0%	x8.7%	x9.7%	25.0%	x9.9%
	Toilet	11.1%	29.2%	30.0%	50.0%	30.5%
	corridors	00.0%	x8.5%	x3.2%	00.0%	x6.1%

5.2. FAMILY-SIZE

It seems students from large families can tolerate a crowded shared space better than those from smaller families. Analysis shows a slight difference in sense of room size for the latter students who see the room as small (see Table 2). Assuming students from large families are more likely to have lived in shared spaces in their parental houses, these findings here do not support those of Kaya and Erkip (2001). On the other hand, Table 2 indicates students from smaller families are more satisfied with shared spaces like the kitchen and bathroom but the rate of satisfaction with the toilet does not change much with family size. This trend is reversed for the praying and TV room. Additionally, it seems students from very big families are more satisfied with their private room compared to others (see Table 2). Again, assuming students from large families are more likely to have living in shared spaces at home then the findings for spaces like praying and TV room and your room support the findings of Najib, Yusof and Sani (2012) but those for kitchen and bathroom do not.

Table 2 Relationship between resident's sense of room size, rate satisfaction with different spaces of the dorm, ideal room population, and quality of residential rooms for privacy and family size

		Family size of the resident		
		3-5	6-8	9-13
Resident's sense of his room size	Big or Well sized	20.7%	26.1%	27.3%
	Small or Very small	79.3%	73.9%	72.7%
Satisfaction with different spaces	Your room	70.4%	66.0%	72.7%
	Kitchen	25.0%	23.9%	9.1%
	Bath	44.8%	40.0%	27.3%
	Toilet	17.3%	17.0%	18.2%
	Praying and TV room	24.1%	28.9%	50.0%
Ideal room population	1	3.4%	00.0%	00.0%
	2	17.2%	12.8%	18.2%
	3	41.4%	48.9%	27.3%
	4	34.5%	34.0%	45.4%
	5	x3.4%	x2.1%	00.0%
	More than 5	00.0%	x2.1%	x9.1%
Your room provides a good quality for your privacy		60.7%	66.7%	63.6%

Table 2 also indicates most students from very big families (9-13 persons) prefer rooms with 4 persons while others prefer rooms with 3 persons, suggesting people who used to big families prefer sharing spaces with more people. Students in this dorm did not experience the same sense

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of privacy in their rooms. Some students could not tolerate the situation and used territorial strategies or even left the room to achieve their desired level of privacy. Table 2 shows the relationship between family size and sense of privacy in private rooms, showing students from small families have the least satisfaction with the acquired privacy level in their rooms, although there is no linear relationship apparent (see Table 2). These findings support those of Kaya and Erkip (2001) who found that student expectation of privacy differs with family size.

5.3. ECONOMIC BACKGROUND

As shown above, the number of participants from rich families is low (3 persons) and so the relevant analysis is probably not reliable but the results for participants from poor and moderate families indicate a meaningful relationship between a resident's economic status and rate of satisfaction with some shared spaces. According to Table 3, residents from poorer families are more satisfied with the shared kitchen, bath, toilet and praying and TV room facilities. On the other hand this relationship is not seen in the private rooms. These findings do not match previous research by Amole (2009), Amole & Mills-Tettey (1998), Gifford (1997, 2001), Kellekc & Berkoz (2006), and Najib, Yusof and Sani (2012). Students were also asked whether their shared room felt big or small but analysis indicated no meaningful relationship between sense of size of the shared room and economic situation.

Table 3 Relationship between resident's economic status and duration of using a shared space and his satisfaction with shared spaces

Percentage of students satisfied	Economic status of the resident			Duration of living in the dorm (semesters)	
	poor	moderate	rich	2	4 and 4+
with their room	67.7%	69.2%	66.7%	66.7%	65.1%
With the kitchen	23.1%	23.1%	00.0%	11.1%	23.5%
With the bath	44.6%	38.5%	00.0%	40.0%	41.2%
With the toilet	21.2%	7.1%	00.0%	10.0%	17.2%
With the praying and TV room	30.2%	28.6%	33.3%	70.0%	27.4%

5.4. SIZE OF HOME CITY

Students in this survey came from different cities, with 43.0% from "Big", 24.0% from "Medium" and 31.0% from "Small" cities. Analysis further indicates percentage of students from "Large" cities who think their room is

good or excellent for privacy is less than those from "Small" and "Medium" cities (see Table 4), suggesting sense of privacy could be related to the size of a student's home city. Satisfaction with the shared spaces of the dorm also differs according to home city size. According to Table 4, students from small cities are more satisfied with the shared facilities in comparison to others. This trend can be seen for all common facilities including the praying and TV room but not for private rooms.

Table 4 Perception of privacy in student rooms, satisfaction with different shared spaces of the dorm and ideal room population for students from different sized cities

		Size of home cities		
		Big	Medium	Small
How is your room quality for your privacy	Bad/moderate	46.3%	21.7%	26.7%
	Good/excellent	53.6%	78.2%	63.3%
Satisfaction with different shared spaces of the dorm	Your room	66.7%	73.9%	61.3%
	Kitchen	25.0%	12.5%	25.8%
	Bath	37.2%	34.8%	48.4%
	Toilet	14.0%	16.7%	19.3%
	Praying/TV room	27.9%	30.4%	36.7%
Ideal room population	1	00.0%	00.0%	x3.2%
	2	x9.3%	12.5%	32.2%
	3	44.2%	45.8%	35.5%
	4	39.5%	37.5%	29.0%
	5	x2.3%	x4.2%	00.0%
	More than 5	x4.6%	00.0%	00.0%

Additionally there is no difference between the ideal room populations of students from different cities as most prefer 3 persons in a room, with a slight trend for those from small cities to prefer fewer and those from bigger cities more occupants (see Table 4). The reason behind this might be that families in large Iranian cities usually have to live in small houses because of high land and house prices while people in small cities can live in bigger houses.

5.5. EDUCATIONAL BACKGROUND
In iran there is a difference between the family background of students who study engineering or science and those who study humanities. additionally, the nature of these disciplines differs (humanities students might be expected to spend more time in their room reading books and writing, while science and engineering students spend time in the lab and computer rooms).

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In iran laptop computers were not popular at the time this survey was done (may and jun 2006). this perhaps explains why the survey found differences between students of different disciples and their preferred places for studying.

Observations indicate that humanities students study and work in their private rooms more than others. They also prefer not to go out of the dorm to fulfil their study needs, and humanities students prefer to study in the praying and TV room more than others. This, along with the outdoor spaces of the dorm and friends' houses are their first choices for studying if they cannot study in their rooms, while they use the library much less than the average use by all students. On the other hand, engineering students use the library more and the praying and TV room, outdoor spaces and a friend's room much less than the average. Additionally, science students select outdoor spaces and a friend's room more and do not use spaces like the library and friends' houses at all for their alternative study place (see Table 5), although the number of science students in the survey was small.

Table 5 Preferred alternative place of study related to study discipline

	Places students select for studying if they cannot study in their room					
Field of study	Study saloon	Praying/TV room	Library	Outdoor spaces of the dorm	Friend's room	Friend's house
Humanities	40.0%	34.3%	5.7%	11.4%	8.8%	9.1%
Engineering	64.7%	14.0%	16.0%	3.9%	4.0%	2.0%
Science	62.5%	12.5%	0.0%	14.3%	12.5%	0%
Average percentage	55.0%	21.3%	10.7%	7.5%	6.5%	4.4%

Students were asked for their ideal number of students to a room. Analysis indicates humanities students prefer less populated rooms (2-3 persons) compared to science and engineering students (3-4 persons), which might be related to the fact humanities students use their room more for studying.

Students were also asked whether they were satisfied with the different spaces of the dorm. Analysis indicates the rate of satisfaction with common spaces like toilets, baths and kitchen did not differ much according to the student major, except for the big differences for the two spaces of "your room" and "praying and TV room". The reason behind this might be linked to the activity of "studying" which happens in both places and the differences could be related to the fact that students of some majors can study in the shared spaces while others cannot. It seems that both places are

the worst for science students. On the other hand, engineering students are much more satisfied with their rooms, which might be related to the fact most of them do not study there but only use it for social interaction and sleeping. The reason might relate to the previous experiences of students and the fact that engineering students are more likely to come from "Big" cities (62.3% of engineering students). This finding tends to support Altman's (1975) statement that people who have lived in large cities for years are better at regulating their interaction level in a shared space (Table 6). Students of different majors have different perceptions of their room size. According to Table 6 all science students think their room is small or very small. The rates for engineering and humanities students are respectively 81.8% and 70.3%. It seems that students of more analytical and intellectual majors (science and engineering students) feel they need bigger rooms compared to humanities students (Table 6). This might be related to their experiences in their parental houses, although this was not investigated in this survey.

Table 6 Rate of satisfaction with dorm spaces and sense of room size for students of different majors

		Engineering	Science	Humanities
Satisfaction with rooms	Your room	78.8%	37.5%	54.1%
	Kitchen	19.2%	12.5%	27.8%
	Bath	44.2%	37.5%	35.1%
	Toilet	16.7%	25.0%	13.5%
	Praying and TV room	25.0%	12.5%	44.4%
Resident's sense of his room	Big or Well sized	18.9%	00.0%	29.7%
	Small or Very small	81.1%	100.0%	70.3%

6. Discussion and Conclusion

Sharing spaces is a practical way of moving towards sustainability. Although, this has been a tradition in many societies in the past it is less familiar in modern lives except in situations of crisis (like lack of financial resources or man-made or natural disasters). However, accepting a situation in which humanity is not permitted to use the natural resources of the next generation (Brundtland, 1987). It seems humanity is already living in a crisis situation as in 2010 the ecological footprint of humanity exceeded the biological productive capacity of the planet by approximately 50% (Ewing et al., 2010). This is, therefore, a critical to learn how to live more sustainably and save resources, including learning more about how shared spaces work and how to make them work better.

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A shared space consists of two parts: the physical part (shared facilities and floor areas) and a behavioural part (human), with the ideal situation being one in which both parts operate effectively. Most research has been undertaken on the first part with little focused on the role of user characteristics in the success of a shared space. Designers need to be aware of the latter, meaning they should not design shared spaces if they are not familiar with the characteristics of the users, since a shared space can work some users but not for others. Results of another study on the physical aspects of the same building show that a better architectural arrangement of spaces within the same overall structure can lead to a potentially more satisfactory student living environment (Khajehzadeh and Vale, 2014).

The results of this research indicate that users with different backgrounds and characteristics may share spaces successfully because their perceptions and experiences of living in this way are different. In other words, a good and successful shared space is one designed for the characteristics of the residents. In this research, the financial situations, family size, duration of living in a shared space, the city or country they come from and even the major they are studying are among the parameters that impact on the success rate of shared space in a student dorm.

The results indicate that students with a better economic situation prefer more private rooms. The same is true for students from small families or those who have not had the experience of sharing space in their parental home. On the other hand, students with a worse economic situation can cope with crowded shared spaces more than others. Additionally, students who belong to large families and have had the experience of sharing space at home tend to be more satisfied with shared spaces. It seems having shared spaces designed for different numbers of occupants and having some private rooms in a dorm building would better meet the different student background characteristics.

Students from the same country, ethnicity and city also seem to form more successful groups in shared spaces. The findings of this survey indicate differences in expectation of privacy and satisfaction with shared facilities for students who have grown up in large and small cities. Interviews with students and the dorm manager also showed that both students and officials prefer rooms for students from the same city and tribe.

The duration of living in shared spaces has an influence on the user perception of these. This research indicates that students who stay longer in the dorm, are more satisfied with and have more sense of ownership of

shared spaces. Additionally they are more likely to enjoy the crowded situation of a shared space.

Students of different majors have different needs because of the nature of their courses. A room with a defined area, population and facilities may be very efficient for a group of science students but much less so for a group from engineering. It seems shared rooms should be designed more carefully according to the kind of behaviour likely to happen there.

Finally, the results of this survey could be useful for designers by making them aware of the very important role of users and their characteristics in shared spaces. It is also useful for managers of existing dormitories and similar buildings when it comes to allocating rooms. A good result is where each room has students from similar backgrounds, including financial, educational, ethnicity and prior experiences of living in shared spaces. A great part of student requests in the dorm surveyed was for swapping rooms to create groups of students from the same city or undertaking the same major, a trend the dorm manager has tried to accommodate, suggesting that both students and the manager have found this approach to be most effective and sustainable one.

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