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PRIORITISATION OF ON-CAMPUS UNIVERSITY STUDENT HOUSING FACILITY SPACES

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ABSTRACT

Studies from many parts of the world, including Ghana, show that users' requirements are not duly incorporated into the management process of university building facilities. This paper, therefore, determined the levels of importance and priorities students attach to the various spaces required in a Student Housing Facility (SHF). The importance and priority ratings were then put together to develop a prioritisation system that can guide the provision and management of SHF spaces. A phenomenological research strategy was used in this study. Data was qualitatively collected by means of focus group discussions (FGDs). Observations were also carried out during the site visit to supplement the FGDs. The data was analysed thematically. The study found that bathrooms, sleeping spaces, kitchens, study areas, libraries, sick bays, computer labs, bookshops, dry line areas and discussion rooms are 'extremely important' spaces that students expect in an ideal SHF. However, it also became evident that only 5 of these spaces (i.e. bathrooms, sleeping spaces, study areas, sick bays, and dry line areas) were perceived as 'basic' requirement. The prioritisation framework developed can be utilised throughout the life cycle of SHFs. The framework can be used as a guide by facility managers to effectively manage the spaces in university SHFs. Secondly, it can be a very useful framework for upgrading SHFs. Moreover, architects, developers and university management can use the framework as a guide for the design and construction of new SHFs.

Keywords: Ghana, Prioritisation, Spaces, Student housing facility, University.

1. INTRODUCTION

The broader environment including the physical facilities have the capacity to create a conducive environment that can stimulate and promote the learning, teaching, innovation and research carried out in a university (Lateef *et al.*, 2010; Abdullahi and Yusoff, 2018). Similarly, the facilities at universities influence the overall satisfaction of students (Weerasinghe and Fernando, 2018). Al-Enezi (2002) clarified that high-quality education is unlikely to be achievable in an unfavourable learning environment, such as poorly provided and managed facilities. This is because a university's learning environment is shaped by the interaction of the human factors, educators and the facilities (Zakaria and Wan Yusoff, 2011). A SHF is one of the facilities which, although does not receive paramount attention, plays a critical support role towards the provision of a quality higher education (Simpeh and Shakantu, 2018). In fact, a SHF is a physiological need required for students' survival; students can simply not survive without housing. Consequently, students who do not get bed space or rooms on campus make alternative arrangements, including prohibited means, like, squatting with friends to survive. Addai (2013) concurs that there is a gap in the provision of SHF's in Ghana. It is for this reason that effort is made both by government and university

authorities, including encouraging the private sector, in the provision of student housing in Ghana. It is therefore paramount to ensure that SHFs are developed and managed to meet the changing requirements of students. Notwithstanding, research shows that users' expectations and needs and are not duly incorporated into the management process of facilities including SHFs (Thomsen, 2007; Lee and Scott, 2008; and Simpeh, 2013). Consequently, developers and facility managers are not fully cognisant of the space's students require in a SHF as well as the levels of importance and priorities students attach to the different spaces required in a SHF. Thus, they are unable to appropriately prioritise the provision and management of the different spaces to meet students' needs and expectations. The aim of this paper is, therefore, to develop a system that can be used as a guide to prioritise the provision and management of the spaces required in on-campus university SHFs in the greater Accra region of Ghana.

2. LITERATURE REVIEW

2.1 Student housing facility spaces

Many definitions have been provided for student housing. The definitions differ probably because of the different contexts in which the term is used. For this paper, SHF is defined as an accommodation specifically constructed to create an environment that supports the *living and learning* experience of students while pursuing their education (Fields, 2011). While SHFs must provide a living environment for students, Orr *et al.* (2011) indicated that the setting of a SHF should also make students see studying as their main occupation. Thus, regardless of the form or configuration, ownership and/or location, SHFs are expected to provide students with both a *living* and *learning* environment (Simpeh and Shakantu, 2018). In consequence, it is paramount that SHFs are provided with all the necessary spaces and amenities needed for the well-being of students. This paper concentrates on 'on-campus' SHF and further narrows down to only the spaces required in SHFs.

The requirements of the general residential housing are often applied to student housing (Bella-Omunagbe, 2015); however, Najib *et al.* (2011a) contend that SHFs are different from residential housing in that they do not offer the same level of ownership and freedom as residential housing. In addition, SHFs are a major form of accommodation for tertiary education students; they have very peculiar characteristics; and the campus environment is regarded as the setting of SHFs rather than the urban setting (Amole, 2009). Furthermore, the learning experience students derive from their housing makes the SHF peculiar (Bondinuba *et al.*, 2013). Thus, the spaces required in SHF will vary somewhat from residential housing. Therefore, the general housing context should not be generalised to SHFs (Amole, 2009). With respect to the spaces required in SHFs, few studies highlight spaces that are required in SHFs. A typical example is a study conducted in South Africa by Simpeh and Akinlolu (2018) titled 'Importance level of on-campus student housing facility spaces: perception of postgraduate students. Other studies on SHF which highlight space requirements include; Torres-Antonini and Park (2008), Abrahamson (2009), Najib, *et al.* (2011a; and 2011b), Abubakar *et al.* (2015). In the Ghanaian context, the publications of Addai (2013), Bondinuba *et al.* (2013), Nimako and Bondinuba (2013) and Agyekum *et al.* (2016) are examples of studies that revealed spaces found in SHFs. The National Accreditation Board (NAB) (2014) of Ghana have also provided a comprehensive standard for the physical facilities of tertiary institutions which highlights some spaces required in a SHF. According to NAB (2014), for a SHF to meet the minimum national safety standards the following space provision must be made: cafeteria, kitchen and dining facilities, adequate laundry and storage facilities, adequate parking spaces, students' common room; the common rooms should have adequate recreational facilities for students. See Table 1 for the summary

of SHF spaces from the aforementioned authors. It should be noted that these spaces have varying levels of importance and priority.

In terms of the level of importance attached to the SHF spaces; the study of Olujimi and Bello (2009) revealed that students perceived that; kitchens, bathrooms, sleeping spaces and study lounges are the most important spaces required in a SHF. The study of Simpeh and Akinlolu (2018) also shows that spaces including; bathroom, laundry, kitchen, sleeping space, storage room, dry line area and study room are perceived to be more important than spaces such as; TV room, fitness area, salon, visitors lounge, balcony and summer hut. Apart from these individual spaces, students regard communal spaces such as; kitchens, study rooms, television rooms and laundry rooms as essential SHF spaces (Torres-Antonini and Park, 2008; Abrahamson, 2009). It is also quite revealing that in most SHF studies, the student's expressed dissatisfaction with spaces include; bathrooms, toilet facilities, study rooms and kitchens (Addai, 2013; and Simpeh and Shakantu, 2018). This suggests that students place high importance on these spaces (i.e. bathrooms, toilet facility, sleeping spaces, study rooms, laundry areas and kitchens), possibly because of the direct effect these spaces have on their living and learning experience. Consequently, students become disappointed (i.e. dissatisfied) if these spaces do not perform to their expectations. This also implies that students would be very dissatisfied with their SHFs if these spaces are not provided.

Table 1. Student housing facility spaces

Torres, *et al.* (2008)	Abrahamson (2009)	Najib, *et al.* (2011a: and 2011b)	Bondinuba *et al.* (2013)	Abubakar *et al.* (2015)	Simpeh and Akinlolu (2018)
• Laundry room • Kitchen • Sleeping room • Study room • Television room • Washroom • Parking space	• Parking space • Sleeping room • Washroom • Laundry room • Kitchen • Study room • Television room • Cafeteria	• Study-bedrooms • Washroom (Toilet & Bathroom) • Laundry rooms • Pantry • Study areas • Computer centres • Television lounges • Meeting rooms • Prayer room • Parking lots • Cafeteria • Minimart	• Bedroom • Bathroom • Toilet facility • Kitchen facility • Entertainment area • Reading room • Garage facility	• Study bedroom • Toilet • Bathroom • Study area • Mosque • Parking • Sports facility • Cafeteria • Minimart • Laundry facility • Pantry	• Sleeping space • Washroom • Kitchen • Dryline area • TV room • Laundry area • Storage room • Parking space • Conference room • Balcony • Salon • Dinning • Visitors lounge • Library • Cafeteria • Computer room • Study area • Summer hut • Fitness area • Prayer room

(Source: Author's construct)

2.2. KANO model of customer satisfaction

Satisfaction theories/models are usually applied when setting priorities. Examples of customer satisfaction models include; the dissonance theory, assimilation theory, contrast theory, adaptation theory, the expectancy-disconfirmation theory, and the equity theory. The Kano model of customer satisfaction was adopted and modified for this study.

The Kano model of customer satisfaction is a two-dimensional quality model that is based on the theory that a product or service is composed of diverse attributes and each yields different levels of satisfaction to consumers and that the relationship may be linear or nonlinear (Kano *et al.*, 1984; Meng and Dong, 2018). Madzík *et al.* (2019) clarified that the

Kano model is composed of six categories; namely, the 'one-dimensional' (performance), 'must-be' (basic), 'attractive' (excitement), 'reverse' 'indifference' and questionable. The basic attributes are the 'must be' or 'must-have' attributes (Souca, 2014; Madzík *et al*., 2019). Performance attributes are essential for being competitive whereas, in order to stand out from competitors, attractive attributes need to be fulfilled (Souca, 2014; Bella-Omunagbe, 2015). Thus, performance and attractive attributes contribute to increasing customer satisfaction. The indifferent attributes are those that customers do not care about their provision. Finally, the reverse attributes cause dissatisfaction if provided whilst the questionable attributes are those that customers probably do not understand (Madzík *et al*., 2019).

Generally, four categorisations (i.e. basic, performance, delight and indifferent) are used in determining overall customer satisfaction. The Kano questionnaire is sometimes used to aid the categorisation process. The explanation used in this study was based on the Kano questionnaire (i.e. functional and non-functional questions) and its interpretations (Kano *et al*., 1984; and Xu *et al*., 2008). Below is how each category was explained to respondents during the focus group discussions:

- Basic: I cannot survive in the SHF without it; so, it must be provided.
- Performance: I can survive without it but my living and learning experience would be affected without it.
- Delight: I can survive without it and it wouldn't affect my living and learning experience, but I would be delighted if provided.
- Indifferent: I can survive without it and it wouldn't affect my living and learning experience; I don't care if provided or not

Yang (2005) is of the view that the four main categories of the Kano model could be further classified into different levels of importance to allow for better categorisation. By combining the importance and priority ratings, the maximum result can be obtained (Meng and Dong, 2018). Therefore, based on the importance and priority levels provided, this study classified the spaces into six categories. Two more categories – 'critical-performance' and 'delight-performance' – are added to the four to allow for a more distinct categorisation. The 'critical-performance' category is created to cater to those spaces which students' can survive without but are so critical to the extent that the absence of such spaces makes staying in the SHF unbearable. Secondly, a 'delight-performance' category is included; these are the delight spaces which have the ability to influence performance and wellbeing. Table 6 provide details of the different categories used. The summary of the classification is produced from (Yang, 2006; Llinares and Page, 2011; Souca, 2014; and Bella-Omunagbe, 2015).

Table 2. Interpretation table for categorisation

Level	Classification	Interpretation
1	Basic	• These are the spaces required for the most basic activities of students. • Students can practically not survive in the SHF without these spaces. • Students expect these spaces to be provided and would, therefore, be very dissatisfied if not provided or if their performance is below expectation. • The minimum building requirements, as well as the health, safety, security-related requirement, are included here.
2	Critical Performance	• These are the spaces which complement the basic activities of students. • Students can survive without them but they are so critical that the lack makes life in the SHF unbearable. • Students expect these spaces to be provided and would, therefore, be very dissatisfied if not provided or if their performance is below expectation. • Students will make every possible attempt to carry out activities in alternative spaces if the spaces required for such activities are not available.
3	General Performance	• Students can survive without these spaces; the lack does not make life in the SHF unbearable. However, the lack affects the living and learning experience as well as the wellbeing of the students to a large extent. • Provision of these spaces would increase satisfaction. As such, students will somewhat be dissatisfied if not provided or if their performance is below their expectation.
4	Delight-performance	• These spaces delight students and also have the ability to somewhat influence performance and wellbeing. • Students can survive without them and the lack does not have so much effect on the living and learning experience as well as the wellbeing of the students. • Students will be quite dissatisfied if not provided or if their performance is below expectation however their provision would increase satisfaction.
5	Delight	• These are spaces which delight students and make life in the SHF convenient and fun. • Students can survive without them and the lack does not affect performance. • Students will not be too dissatisfied if not provided or if their performance is below expectation, but their provision would increase satisfaction.
6	Indifferent	• Students do not care about the provision of these spaces. • Students can survive without them; the lack does not affect performance. • Students do not expect these spaces to be provided and will not be dissatisfied if not provided.

(Source: Authors' construct)

3. RESEARCH METHODOLOGY

The research strategy employed for the study is phenomenology. This strategy allows respondents to express their experiences, understanding and perceptions about a phenomenon from their own perspectives (Leedy and Ormrod, 2015). A qualitative approach – focus group discussion (FGD) – was used to collect the data. To allow for generalisation, 9 groups from 4 universities were used (see Table 3 for group distribution). Leedy and Ormrod (2013) clarified that studying multiple perspectives of a phenomenon can help to generalise the findings of phenomenological studies. Furthermore, observations of the spaces were done during the site visit to augment the focus group discussions. On the one hand, Krueger (2002) opined that 5 to 10 participants would suffice for a FGD. On the other hand, Babbie (2013) suggests that in a typical FGD, 12 to 15 people are brought together to engage in a guided discussion of a topic. For this study, a minimum of 6 and a maximum of 11 participants were allowed for a group.

During the discussions, students were requested to rate the levels of importance and priority of the spaces generated. The importance levels were classified into four sections, i.e. 'extremely important', 'important', 'somewhat important' and 'not important'. Three formats generally used for measuring the importance of attributes are; the free-elicitation method,

direct-rating method and point-allocation method. For this study, the free-elicitation approach was used. This method requires individuals to rate the level of importance of attribute (spaces) using open-ended questions (Ittersum *et al*., 2007). Bella-Omunagbe, (2015) highlighted two techniques – customer satisfaction coefficient and direct classification – that can be used to fit attributes into categories. In the direct classification technique, the different categories must be explained to the respondents who are then requested to directly pick a class or category for the attributes. To ensure consistency and alignment with the importance rating of four categorisations (basic, performance, delight and indifferent) were used for the priority ratings.

A purposive sampling method was used to select the universities for the study; 1 public owned and 3 private universities. The purposive sampling was used to allow for the inclusion of both private and public as well as new and old universities. The oldest public and private universities, as well as two other (relatively new) private universities, were selected. All the universities were in the Greater Accra region of Ghana. Secondly, a purposive sampling technique was used to select the students (who are the subjects of the study). The purposive sampling method allowed the researcher to select participants who met specific requirements. Only students who had stayed in the SHFs for at least one academic year were considered for the FGD. The data were thematically analysed; different themes which emanated from the interviews were grouped and discussed separately.

Table 3. Focus group discussion groupings

University	Location	Type	Groups	Number of participants
A	Accra	Private	Group 1	8
			Group 2	8
B	Accra	Private	Group 3	10
			Group 4	9
D	Accra	Private	Group 6	9
E	Accra	Public	Group 7	6
			Group 8	7
			Group 9	8
			Group 10	6
Total				71

(Source: Authors' construct)

4. FINDINGS AND DISCUSSION

4.1 List of spaces required by students in a SHF

The lists of spaces provided in all the 9 groups are presented in Table 3 and 4. A total of 38 spaces can be identified from the combined groups. The Tables further reveal that washroom, sleeping space, study area and kitchen were mentioned in all 9 groups whilst laundry area, mini-mart, visitors lounge, outdoor field and cafeteria were mentioned in 8 groups. Spaces which were mentioned in 7 groups were library and salon. Sickbay and T.V room were mentioned by 6 groups whilst car park, gym area, computer room and swimming pool were mentioned by 5 groups. Recreation room, prayer room, conference room, storeroom and entertainment room were mentioned by 4 groups. The balcony was mentioned by 3 groups whilst spaces including – book shop, summer hut, drying area and ironing room– were mentioned in 2 groups. The remaining spaces (discussion room, information area, auditorium, game centre, corridor, party area, club, coffee shop, snack bar and workshop) were mentioned by only 1 group. It should be noted that some of the SHFs did not have spaces such as; study area, kitchens, laundry area, visitors lounge, which were mentioned by the majority of the groups.

4.2 Importance level of the listed spaces expected by students

The summary of the importance level of the different spaces provided by all the 9 groups is presented in Table 3. It is evident from the Table that the washroom (i.e. toilet and bath), sleeping space, kitchen, study area, library, sickbay, computer lab, bookshop, drying lines area and discussion room were perceived by students as 'extremely important' spaces. Other studies also revealed that students perceive kitchens, bathrooms, sleeping spaces and study lounges as more important spaces required in a SHF (Olujimi and Bello, 2009; Simpeh and Akinlolu, 2018). Conversely, swimming pool and club were rated 'unimportant'. Even though these spaces were listed by students, none of the SHFs had these spaces.

Table 3. Importance level of the listed spaces expected by students

SPACES	G 1	G2	G 3	G 4	G 5	G 6	G 7	G 8	G 9	Total	Ranking
Washroom	EI	EI	EI	EI	EI	EI	EI	EI	EI	9	EI
Sleeping space	EI	EI	EI	EI	EI	EI	EI	EI	EI	9	EI
Kitchen	EI	I	I	EI	EI	EI	EI	EI	EI	9	EI
Study area	I	EI	EI	EI	EI	EI	EI	EI	EI	9	EI
Laundry area	SI	I	I	I	EI	EI	I		I	8	I
Minimart	SI	EI	I	I	I	I	EI		I	8	I
Outdoor field		I	I	I	SI	I	I	I	I	8	I
Visitors lounge	I	I	I	I	I	SI	I		SI	8	I
Cafeteria	SI	I	EI		EI	I	EI	I	EI	8	I
Library	NI		EI	EI		EI	EI	EI	EI	7	EI
Salon	I	SI	I		SI	I		SI	I	7	SI
Sickbay	I	EI	EI		EI	EI	EI			6	EI
T.V room		EI	SI		I	SI	I		SI	6	I
Car park		NI			I	SI	I	SI		5	SI
Gym area				I	I		SI	NI	SI	5	SI
Swimming pool		NI			SI		NI	NI	NI	5	NI
Computer lab		EI				EI	EI	EI	EI	5	EI
Recreation area	I				I	SI			SI	4	I
Prayer room		SI	EI			EI			I	4	I
Conference room	I	I	I		SI					4	I
Storeroom		SI	I		EI				I	4	I
Entertainment space		SI		SI			SI	SI		4	SI
Balcony				I	I	I				3	I
Summer hut							SI	SI		2	SI
Bookshop					EI	EI				2	EI
Drying lines area							EI		EI	2	EI
Ironing room	SI						I			2	SI
Executive's office	SI									1	SI
Discussion room						EI				1	EI
Information area			I							1	I
Auditorium			I							1	I
Game centre		I								1	I
Corridor						I				1	I
Party area					SI					1	SI
Club					NI					1	NI
Coffee shop					SI					1	SI
Snack bar					I					1	I
Workshop								I		1	I

Legend: EI = Extremely important; I = Important; SI =Quite important; NI = Not important

4.3 Priority level of the listed spaces expected by students

Table 4 shows a summary of the priority ratings of the spaces provided by all the 9 groups. An important observation is that most of the spaces rated as 'extremely important' were rated as 'performance' with the exception of the washroom (i.e. toilet and bath), sleeping space, study area, sickbay and dry line area which were rated as 'basic'. This indicates that not all 'extremely important' spaces are 'basic' requirements. Furthermore, whereas only 2 spaces were rated as 'unimportant', quite a number of spaces (corridor, car park, executives' office, gym area, party area, entertainment space and coffee shop) were perceived as 'indifferent'. This implies that by combining the importance and priority ratings other categorisations could indeed be generated as Yang (2006) proposed.

Table 4. Priority level of the listed spaces expected by participants

SPACES	G 1	G2	G 3	G 4	G 5	G 6	G 7	G 8	G 9	Total	Ranking
Washroom	B	B	B	B	B	B	B	B	B	9	B
Sleeping space	B	B	B	B	B	B	B	B	B	9	B
Kitchen	B	P	P	P	P	B	B	B	P	9	P
Study area	D	B	B	P	B	P	B	B	B	9	B
Laundry area	D	D	D	D	B	P	P		D	8	D
Mini mart	D	P	P	D	P	D	P		P	8	P
Outdoor field		D	D	D	I	I	D	P	D	8	D
Visitors lounge	D	D	D	D	D	I	D		D	8	D
Cafeteria	I	P	P		P	D	P	P	D	8	P
Library	D		P	P		P	P	B	P	7	P
Salon	P	I	D		D	D		I	P	7	D
Sick bay	P	B	P		P	B	B			6	B
T.V room		P	I		I	D	D		D	6	D
Car park		I			D	I	I	D		5	I
Gym area				I	D		I	I	I	5	I
Swimming pool		I			I		I	I	I	5	I
Computer lab		P				P	P	B	P	5	P
Recreation area	D				P	D			D	4	D
Prayer room		D	P			B			P	4	P
Conference room	I	I	D		D					4	D
Store room		D	D		P				P	4	D
Entertainment space		D		I			I	D		4	I
Balcony				I	P	D				3	D
Summer hut							I	D		2	D
Bookshop					P	P				2	P
Drying lines area							P		B	2	B
Ironing room	D						D			2	D
Executive's office	I									1	I
Discussion room						P				1	P
Information area			D							1	D
Auditorium			D							1	D
Game centre		D								1	D
Corridor						I				1	I
Party area					I					1	I
Club					I					1	I
Coffee shop					I					1	I
Snack bar					P					1	P
Workshop								D		1	D

Legend: B = Basic; P = Performance; D = Delight; I = Indifferent

4.4 Discussions for the categorisation of spaces

The first consideration for the categorisation is the relationship between the importance and priority ratings. It is evident from Table 5 that the washroom, sleeping space, study area, sickbay and drying area were all rated as both 'extremely important' and 'basic'. On the other hand, swimming pool and club were rated as both 'unimportant' and 'indifferent' spaces. It may not be correct to classify space as 'basic' just because students rated it as both 'extremely important' and 'basic'. Similarly, it might be misleading to classify the spaces that students rated as both 'unimportant' and 'indifferent' as indifferent. This is because users (students) generally give high priority to factors that affect their comfort (Chong *et al.*, 2019). Thus, it becomes imperative to consider other factors to ensure the effectiveness of the prioritisation process. Typically, spaces which could have health, safety and security implications should be categorised as basic, because, they are the most essential spaces to consider when setting priorities (Shen and Spedding, 1998; Chong *et al.*, 2019). Moreover, the researcher's observation during the site visit, the comments of participants as well as literature and standards are considered to allow for effective categorisation of the spaces.

Table 5. Level of importance versus the level of priority

Importance \ Priority	Basic	Performance	Delight	Indifferent
Extremely important	1. Washroom 2. Sleeping space 3. Drying lines area 4. Study area 5. Sickbay	6. Kitchen 7. Library 8. Computer lab 9. Bookshop 10. Discussion room		
Important		11. Cafeteria 12. Prayer room 13. Snack bar 14. Mini mart	15. Laundry area 16. Outdoor space 17. Visitors lounge 18. Recreation area 19. Balcony 20. TV room 21. Conference room 22. Store room 23. Information area 24. Auditorium 25. Workshop 26. Game centre	30. Corridor
Somewhat important			27. Salon 28. Summer hut 29. Ironing room	31. Car park 32. Gym area 33. Entertainment space 34. Executives' office 35. Party area 36. Coffee shop
Not important				37. Swimming pool 38. Club

(Source: Authors' construct)

1. Basic (must be) spaces

Sleeping Space, Washroom (toilet and bath), Sick Bay and Car Park

Sleeping spaces and washrooms (toilet and bath) are essential requirements in SHFs. In fact, one student stated: *"you cannot mention a hostel without a bedroom"*. The same can be said about the washroom. For instance, NAB (2014) mentions sleeping space and washroom as basic spaces required in SHFs. With reference to this study, these spaces were mentioned by all the groups and were further rated as both 'extremely important' and 'basic' by all groups.

Although not all participants perceived sickbay as a basic requirement, health is a basic need. Thus, a sickbay should be regarded as 'basic' space. Shen and Spedding, (1998) actually indicated that health is one of the most essential considerations when setting priorities for building facilities. Thus, even if there is a school clinic, at minimum, a sickbay (small room with a bed) and a first aid box must be provided in the SHFs.

Averagely, the car park was rated as a 'somewhat important' and 'indifferent'. Students did not see it be important since it does not affect them directly. However, car park is a basic building requirement. NAB (2014) stated that provision for adequate parking space must be made in order for a SHF to meet the minimum requirement. Hence, car park is classified as a 'basic' space required in a SHF.

2. Critical Performance spaces

Laundry (dry line area), Kitchen (Cooking Space), Study Area and Cafeteria

It was observed that the majority of SHFs did not have at least one of these spaces. These spaces are critical, but students can, and from the discussions were, surviving to some extent without them, even though they expressed dissatisfaction with their absence and/or poor condition. It became evident from the discussions that, where there were no kitchens, students used alternative spaces such as balcony and sleeping space for their cooking. Similarly, some students did their laundry in the bathrooms and corridors. The NAB (2014) standard indicates laundry area, kitchen (cooking space) and cafeteria should be provided in a SHF. It was observed that all the SHF had dry line area but few had a dedicated laundry area. At a minimum, a portion of the dryline area could be provided with a shading shelter and resourced with basic laundry facilities such as washing basins and proper drainage and chairs or benches. However, the dryline area in the narrow sense should be regarded as a 'basic' space.

This comment from one participant highlights the essence of a dedicated study area particularly in a shared room: *'most at times you cannot really do much learning in your room; here is a shared room so the noise someone makes in the room can disturb you"*. (Orr *et al*., 2011) indicated that the setting of a SHF should make students see studying as their main occupation. Thus, a study area is a critical-performance space required in a SHF. Although 6 groups rated it as basic, the fact is that students can, do cope and were coping without dedicated study area. Hence, study area (i.e. a separate study area in the broader scope) should be perceived as "critical performance" requirement in a SHF. The fact that all the 9 groups mentioned kitchen and study area whilst 8 groups mentioned laundry area and cafeteria as required spaces support that these are critical spaces that should be provided in a SHF.

3. General performance spaces

Library, Computer room, Discussion room and Prayer room

These are categorized as 'performance' spaces. In fact, the library, computer room, and discussion room were all rated as 'extremely important' and 'performance' spaces. Two categories should be considered for the library and the computer room. The library and computer room should be categorized as 'general performance' in universities with huge SHFs and vast land area. They can, however, be classed as 'low performance' in universities which have a library and computer lab in close proximity to the SHFs (i.e. the private universities).

The fact that 5 groups mentioned prayer room as an expected space in a SHF shows that there is some level of expectation for its provision. The spiritual life of a person can affect his/her whole being/wellbeing and translate into performance. No wonder the average indicates an 'important-performance' rating. A provision should be made for Muslims as well.

Discussion room can influence performance. It was mentioned by only two groups. In fact, some of the study rooms can actually serve as a discussion room, hence; it is categorized as a 'low performance' space with a low satisfaction impact.

4. Delight-performance spaces

Minimart, storeroom, balcony/corridor, TV room, recreation facility

These spaces are categorised as 'delight-performance', because, as much as students are delighted to have these spaces in the SHF, the availability or lack mildly influence performance and satisfaction. Actually, the majority of these spaces were rated as 'important-delight'. NAB (2014) actually states that 'on-campus' SHF should be provided with common rooms with adequate recreational facilities for students. Storage is also mentioned by (NAB, 2014). Comments such as the following support the categorization of these spaces:

- *"The mini-mart in the hostel really help us a lot. You know, sometimes you are thirsty and you want to drink water you don't have to walk a long distance before you get water".*
- *"There is no recreational facility, so we are dull".*

It is important to point out that the categorisation of a balcony and corridor could range depending on the availability of other spaces. Where 'basic' and 'critical performance' spaces (e.g. kitchen, laundry and study area) were not provided, students used the balcony and/or corridor as alternatives in which case it becomes a very critical space, but in SHFs where all the essential spaces are provided, a balcony or corridor would just delight students. For this study, where it is acknowledged that majority but not all the 'critical-performance' spaces are provided in the SHFs, the balcony and corridor are rated as 'delight-performance spaces'.

5. Delight spaces

Visitors lounge, Salon, Outdoor space, Conference room (Auditorium), Snack bar, Bookshop, summer hut, Ironing room, Executives' office and Entertainment space

These spaces are categorised as a 'delight' because they do not have a performance effect but rather bring an element of delight or excitement and make life in the SHF easier and comfortable if provided. For example, visitors lounge was mentioned by 8 groups. Averagely, it was rated as an 'important-delight space'. It was observed that in most of the SHFs, there was no visitors lounge, however, all the SHFs had a porter's lodge. Thus, a porter's lodge in the narrow sense (plus a porter) is a 'critical performance' requirement. A place to meet and communicate with a visitor is certainly important as rated by participants. Students can do without a visitor's lounge and also its absence will not affect their performance, however, the absence can affect satisfaction. The same can be said about a salon, conference room, snack bar, summer hut, entertainment space and ironing room.

Similarly, outdoor space was mentioned by 8 groups as a required space. This implies that there is some level of expectation for its provision. A well-kept outdoor space (whether within or around the SHF) would certainly delight students but not so critical. Moreover, students would be able to use university sports fields if necessary.

The bookshop was mentioned by 2 groups and rated as 'extremely important-performance'. This rating is more applicable if the bookshop is perceived in the broader university context. Bookshop, as it relates to SHF, is not so critical because students do not always require stationery; therefore, they can always buy from the university bookshops.

Executives' office was mentioned as a required space by only 1 group. It was rated as a 'quite important-indifferent' space; which implies that participants don't really care if it is provided or not. However, the idea of having an office in the SHF for the student committee members is laudable and should be encouraged. It is worth mentioning that one focus group discussion was held in an executives' office provided for the house committee.

6. Indifferent (not relevant) spaces

Gym Area, Coffee Shop, Swimming Pool, and Club

The fact that 5 groups mentioned gym and swimming pool as required spaces suggest that students are aware of such spaces. However, they were all rated as 'indifferent' spaces. In the case of the coffee shop and club, only one group mentioned them as required spaces. They

were further rated as 'indifferent' by the group. The implication is that participants don't really care if these spaces are provided or not. In fact, there was no gym area, swimming pool and/or clubs in any of the SHFs.

4.5 Prioritisation framework

The prioritisation framework is illustrated in Figure 1. It should be noted that the indifferent spaces are not included in the framework since they are perceived as irrelevant spaces by participants. The framework demonstrated is a case of a SHF which is big enough to accommodate the identified spaces, yet located on campus, in a manageable walking distance to university shared facilities such as the library, the computer lab, gym, cafeteria, sports fields etc. The levels are shown in the middle. The left side shows the provision requirements whilst the right side shows the level of priority required for managing the spaces. For example, the level 'basic', is a must-have; i.e., all SHFs must have or be provided with these spaces. In terms of managing these spaces, the hostel managers are expected to put a high priority on them.

5. CONCLUSIONS AND RECOMMENDATION

One of the challenges of developers and facility managers is to provide and manage a facility to meet the requirements of customers. SHFs are one of the most important facilities for students. Thus, it becomes important that the spaces required in this facility are appropriately provided and prioritised to meet students' expectations without compromising value. Although substantial research has been conducted on SHFs, studies on the prioritisation of the spaces peculiar to university SHFs is lacking. This study has contributed to addressing the gap in the area of the prioritisation of the spaces unique to SHFs of universities. The study developed a prioritisation framework that reflects students' real space needs in SHFs; the prioritisation system developed in this study could be applied to both the provision and management of SHF spaces. Furthermore, the research has increased the understanding of the application of an integrated approach that links perceptions, importance and priorities of attributes in developing a prioritisation system. It is evident that although students have a long list of spaces they wish to have in a SHF, very few of these spaces are of great importance and priority to them. At a minimum all SHFs should provide all the spaces – sleeping space, washroom (toilet and bath), laundry (dry line), cafeteria, study area, kitchen, porters lodge and car park – that are deemed to be basic and critical for students. Furthermore, for the SHF to be conducive and support students, a balance of the delight, delight-performance and general performance should be provided in addition to the basic and critical-performance spaces.

The following recommendations are made.

- At a minimum, the basic and critical-performance spaces must be provided in all on-campus SHFs.
- All SHFs should also provide a balance of the delight, delight-performance and general performance spaces plus the basic and critical-performance spaces.
- SHFs which do not meet students expected general standard (kitchen and study room) should be upgraded to meet such standard.

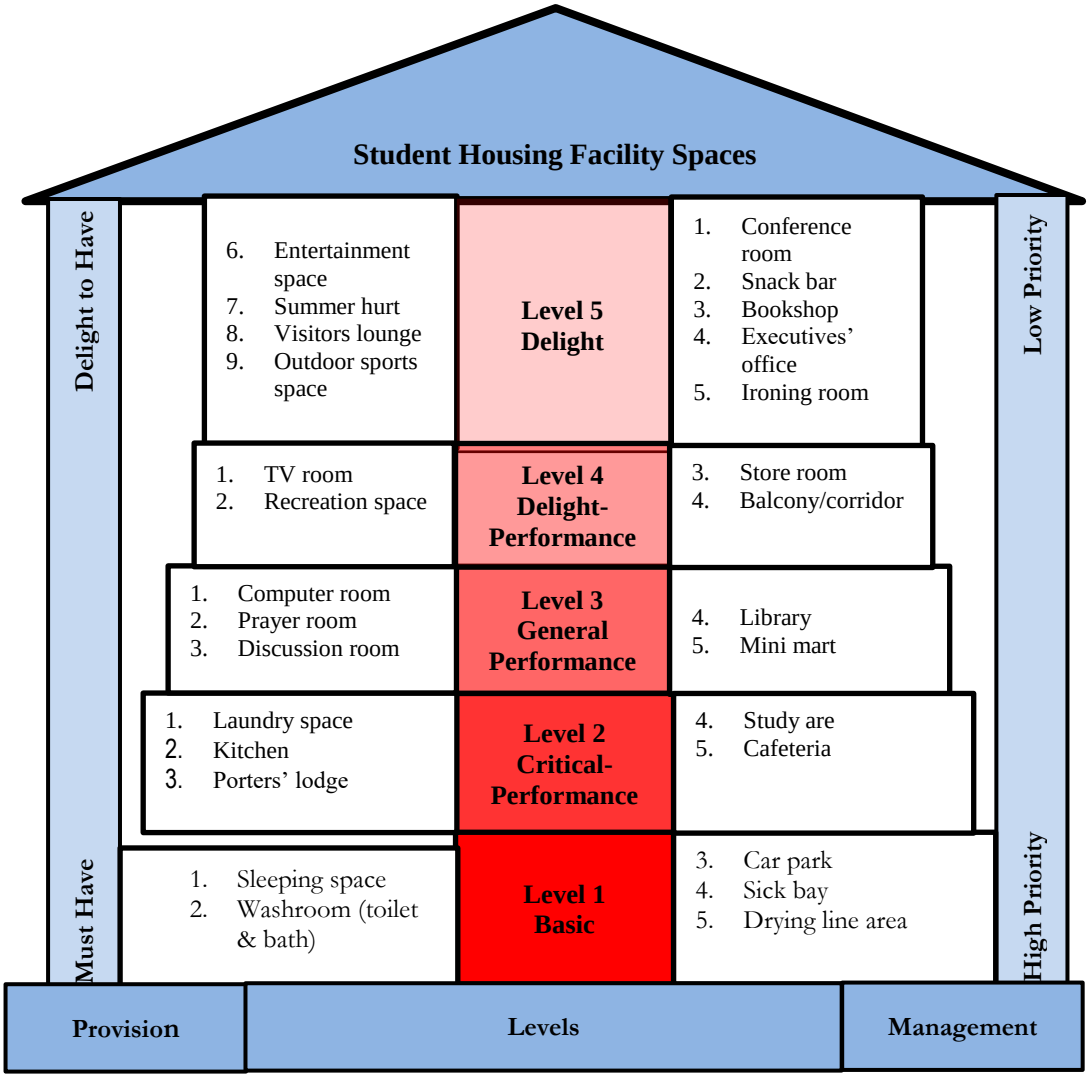

Figure 1. Prioritisation framework for providing and managing SHF spaces (Source: Author's construct)

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