

# Expectations of student with disability living in off-campus student housing in Ghana: a Gap Model approach

Off-campus  
student  
housing in  
Ghana

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## Abstract

**Purpose** – Previous students' housing studies have neglected the need to study all-inclusive student housing and quality of services delivery among students with disability. This study explores the expectations in students' housing among university students living with disabilities (SWDs) in Ghana.

**Design/methodology/approach** – The study adopted a mixed-methods approach, involving 423 SWD selected from five public and three private universities across Ghana. Grounded on the Gap Model, the study employed exploratory factor analysis to extract factors of service quality delivery and universal building design for SWD living in off-campus students' housing.

**Findings** – The study uncovered that, expectations of SWD regarding building design specifications hinges more on inbuilt universal design than external building environment designs. SWD are more interested in safety, health, managerial assurances and security. In all, five factors provided a huge gap in services quality delivered by off-campus students' housing.

**Practical implications** – The Gap Model technique offers a framework that provides an insight for students' housing investors, managers, researchers and local authorities that provides an insight on the needs of SWD in student housing, thus making it possible to attain satisfactions amongst SWD.

**Originality/value** – Unlike health-related studies that deals with expectations of all-inclusive buildings for persons with disability in hospitals, this study uniquely uncovered the expectations of services delivery and building design support to SWD in the Ghanaian context.

**Keywords** All-inclusive building, Universal building design, Student housing, University, Satisfaction, Off-campus

**Paper type** Research paper

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## Introduction

Contemporary studies on students' housing have limitedly explored the inclusion and expectations of persons with disability. The call for assessing the expectations of students is highly subscribed among researchers (Hines, 2017; Romero, 2017). Globally, the needs of persons with disability remain topical because of the constant increases in ageing process, population growth and medical improvements (Khetarpal, 2014). Out of the 600 million persons living with disability in the world, 80 million live in Africa (Ayoun *et al.*, 2021). This has raised concerns on the need for pragmatic measures by academic institutions to equally provide facilities that can adequately cater for their needs (Ayoun *et al.*, 2021). By this, all stakeholders in education delivery, especially higher learning institutions, have assumed responsibility for protecting the social, economic and political rights of citizens.

In the past, off-campus student housing for educational institutions in Africa was not prevalent. Now, due to the increase in student enrolment among universities in Africa, most universities cannot provide adequate housing for students. Besides, prior to the emergence of the "off-campus student housing" concept in Africa, on-campus building designs had been presumed to provide acoustics, meeting the minimum standards for size, heating and lighting for persons with disability (Oke *et al.*, 2017). However, expectations of students with disability living in off-campus housing have not been met. In Ghana's public tertiary institutions, for instance, there seems to be equal treatment for all classes of students which balances worryingly against students with disability (SWD). Huge students' housing, lecture theatres, laboratories and libraries are built without due reflection on the need for physical access of students with disability. It is worrying to see SWD scuffle to climb staircases to their rooms while handling their books on their shoulders. Besides, students' housing designs do not provide the necessary service quality to SWD.

Despite the effort of Ghana's Disability Act (2006), which enjoins all public institutions to create convenient access to persons with disability (Act 715), many public institutions, including universities, are yet to comply. This defeats the expectations of agenda 2030 of Sustainable Development Goals 4 and 10, and especially goal 11, which aims to make human settlements and cities safe, inclusive and sustainable to deliver equitable education for all (Asamoah *et al.*, 2018). This requires the examination and inclusion of expectations of SWD in students' housing design to avoid the elimination of all forms of discrimination and social exclusion. Based on that, this study explores the expectations of SWD in off-campus students' housing in Ghana. The study significantly unearths service quality enjoyed by SWD in student housing. Again, it provides guidelines to both students' housing owners and academia and social policy experts on the provision of all-inclusive students' housing that support SWD. Moreover, identifying the expectation gap among persons with disability living in students' housing will contribute to the "student housing research" agenda. The study is designed to test the hypothesis that SWDs' expectations on managerial operations will reflect in housing service delivery. It is further hypothesised that SWD require the inclusion of universal building design services in their accommodation.

## Theoretical and empirical overview

### *The Gap Model*

The Gap Model (Parasuraman *et al.*, 1985), also known as the dis/confirmatory model, can be described as the difference between an end-user's pre-purchased expectation and post-consumed perception for a product or service (Brown and Swartz, 1989). A product could be a manufactured item, such as student housing facility, or a service, such as facility management services. The Gap Model forms an extended version of the service quality model propounded by Parasuraman *et al.* (1985). Service quality in student housing involves the interaction between students' housing managers and students. Students determine the quality of services during the service delivery process. When post-consumed perceptions do not meet pre-purchased

expectations, students as end-users are usually dissatisfied because service quality is not at its acceptable standards. Service quality among student housing studies may include interior and indoor air quality, room layout and furniture, supporting services, visual comfort and acoustic and efficiency of circulations (Hassanain, 2008; Sanni-anibire and Hassanain, 2016).

The model presents seven major gaps for assessing service quality as well as expectations among customers and business owners. The first gap assesses customers' expectations and perceptions for business management. With this gap, inadequate marketing research among businesses have generated communication barrier between customers and management (Dhanalakshmi *et al.*, 2003). The second gap looks at customer expectations and perceptions for service specifications. Under this principle, examples include the perception of unfeasibility, inadequate commitment to service quality as well as the absence of goal setting affect customers' expectations. The third gap addresses the connection between customers' service delivery expectations and perceptions. Examples of this gap include lack of supervision, lack of teamwork among managers, ambiguity and conflict, and poor employee-job fit. Gap four assesses the relationship between customers' expectations and perceptions for external communication in service delivery. Gap five determines the divergence between customers' expectations and perceptions for the responsiveness of the service delivery system. These determine the gap between customers' expectations and perceptions for the service providing system. The sixth gap determines the difference between customers' expectations and perceptions on employees in service delivery. The final gap determines the discrepancy between employee's expectations and perceptions on management in service delivery. Studies (e.g. Dehghanpouri *et al.*, 2020; Sanderson and Edwards, 2016; Shahin and Janatyan, 2011) have shown that the Gap Model is one of the best service quality models used in expectation assessments. However, its application is limited in housing studies.

*Expectations of students living with disability: student housing management perspective*

Expectations of conducive living in student housing are determined by both managerial and building support design indicators. Managerial expectations describe the managerial decisions in controlling students' housing that affect students' expectations. These include the functional, physical, service, economic and environmental indicators. The functional indicators of student housing refer to the support housing offers to persons with disability. These are management decisions which establish management work according to workplace standards and organisational culture as related to Parasuraman *et al.*'s (1985) Gap Model 2. These include adaptability and flexibility, quality of space, layout, ambient, image and communication. The principal aim of functional indicators is to ensure a continuous alignment of supply of appropriate functional space to anticipated service demands (Kant and Jaiswal, 2017).

Functionality also ensures fitness for purpose in meeting business requirements in terms of location and distribution, type, form and size of buildings (Kant and Jaiswal, 2017). Physical indicators describe the managerial inputs with regards to understanding the behaviour of buildings in terms of finishes. Managers are concerned with the effectiveness and efficiency of operation aspects of managing a property. Here, managers are interested in the maintainability, deterioration and durability of a building to ensure its sustainability (Khajehzadeh and Vale, 2016). Forsythe (2007) argued that quality expectations of physical indicators by managers are required to ensure empathy, assurance, reliability, technical competence and care in work output. This is essentially determined by preserving the value of building and to safeguard the building condition from needless liability and operational risks. Economic indicators, on the other hand, are decisions made at the strategic level to ensure value for money. These include amalgamation of efficiency and profitability, investment value, rate of depreciation, capital and revenue expenditure and contribution to productivity (Forsythe, 2007). The ultimate aim of these indicators at the managerial level is to ensure optimum resource allocation among all sectors of students' housing management.

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Service indicators are actions and decisions related to quality perceptions of students' housing users. These are expectations of students relating to quality of service offered by students' housing owners. These determine the gap 5 principle of [Parasuraman et al. \(1985\)](#). According to the service indicators, the culture of student housing within the context of business must sufficiently be replicated in service delivery. These indicators include building services efficiency such as lighting, energy, air-conditioning and comfort. [Oke et al. \(2017\)](#) also indicated that services such as fire protection, electricity supply, safety, cleaning, garbage and waste collection, friendliness of resident managers, enforcement of rules, water supply and telephone services as pertinent in students' expectations. Similarly, [Agyekum et al. \(2016\)](#) identified access to transport, security, car parking, cafeterias, water and electricity supply, and garbage disposal as core students' expectations. Finally, environmental indicators are grouped into security, health and safety. Managers are expected to monitor all these indicators to ensure a sustainable student housing environment.

#### *Expectations of service provision: perspective of universal building design*

Universal building design principles are physical accessibility guidelines aimed to support the disabled. These guidelines capture the knowledge of designing every part of the environment or inside the building to make it easily useable and accessible to support persons with disability ([Zajac, 2016](#)). In-built design is made to cater for the internal usage of buildings. In-built design requirements are expected to physically provide accessibility to configured rooms and specially designed parts of the interior to meet the physical needs of people with disability ([Foxlin, 2014](#); [Tutuncu and Lieberman, 2016](#)). Supporting design includes provision of unimpeded lobby, configured elevators, controlled button fitted at reasonable height, baths and toilet with grab rails and slip-resistant floor covering ([Tutuncu and Lieberman, 2016](#)). [Hamzat and Dada's \(2014\)](#) study measured both in-built and environmental design factors and found that, within the building, disabled persons cannot open their doors to make way for the movement of wheelchairs. Elsewhere, [Owusu-Ansah \(2011\)](#) found that 46.15% of housing considers only clutches and wheel chairs in their designs. Also, distances between common areas and lighting quality in buildings affect the perception of accessibility among disabled people ([Granzer et al., 2010](#)).

The environmental design perspective of housing accessibility for persons living with disability includes common areas linked to information accessibility and physical accessibility. Such common areas require regular accessibility to solve emergency cases, maintain the well-being of the disabled and provide convenience to them. According to [Leitner and Leitner \(2012\)](#), environmental design such as the ease of distance to functional spaces in common areas determines whether mobility is declined. Specific environmental design access indicators include accessible entrance, accessible parking, tactile markings, clear signage and rational counter heights for disabled persons with wheelchair. [Castell \(2014\)](#) also used accessibility to parking and found that the extent of access to parking does not provide unbending directions on how to accomplish required access. However, the identification and use of tactile signs was mainly of benefit for the vision-impaired. [Samson \(2010\)](#) also found that, while parking as an environmental design indicator was exceptional in addressing 50% of the needs of disabled students in accessing the library, distance from the entrance to the library was, interestingly, wide. Similarly, [Hamzat and Dada \(2014\)](#) found low accessibility of buildings among students as wheelchair-mobile students did not have access to the several services provided in school libraries. [Barth's \(2006\)](#) also found that parking spaces were far and there was lack of signage to provide information and guidelines to students.

## **Methodology**

### *Study design*

A mixed-methods design (questionnaire-based survey and passive observation) was employed for the study. The mixed methods research design adopted for this study was a

convergent parallel mixed-methods design (Levitt *et al.*, 2018), which allowed both survey data and observation data to be collected at the same time and integrated during the analysis stage. The study targeted SWD in public and private universities living in off-campus student housing across Ghana. Off-campus student housing was used because it dominates the Ghanaian student housing market.

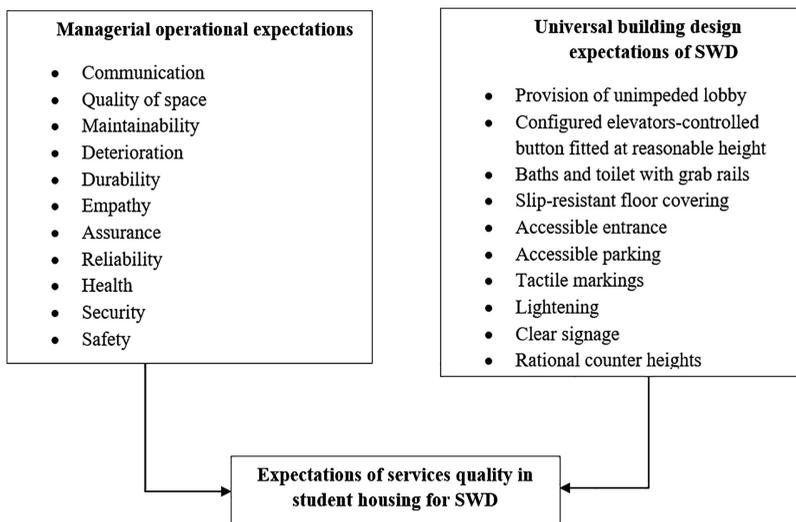
*Data collection*

Five public and three private universities in Ghana were selected for the study using simple random sampling. The selected institutions are University of Ghana (UG), University for Development Studies (UDS), Kwame Nkrumah University of Science and Technology (KNUST), University of Education – Winneba (UEW), Simon Diedong Dombo University of Business and Integrated Development Studies (SDD-UBIDS), Central University College (CUC), Valley-view University (VUU) and Garden City University College (GCUC). In addition, students with specific disabilities were purposively selected based on common disabilities among Ghanaians, which include deafness, blindness or low vision and physical disability. The selection of SWD was based on records from the Association of Hostel Owners in each of the eight universities. According to the data obtained from the Associations, there were 511 SWD living in off-campus students’ housing in the selected universities over the past four years. In total, 423 were surveyed due to their availability and willingness to participate in the study using questionnaire. Among them, 63 were females and 360 were males, representing 14.9 and 85.1% respectively.

The quantitative variables of measuring expectations were grouped into both managerial aspects and universal design perspectives based on extracts from the extant literature. The purpose of this was to determine the gap in service quality delivery by student housing managers to SWD. The managerial variables were measured using a five-point Likert scale while the universal building design requirements were measured as YES or NO. Figure 1 shows the indicators used for the study. Besides, direct observation was employed to record information on service areas within students’ housing using a checklist to support the quantitative data.

*Data analysis*

Exploratory factor analysis was used to assess the expectation gap in service delivery among student housing in support of SWD. With the exploratory factor analysis, we determined the



**Figure 1.**  
Study indicators

PRR

reliability of the data, the sample adequacy and the strength of the relationship among the variables. In the reliability test, the Cronbach alpha produced 0.612 for managerial operation variables and 0.741 for building design expectations, all of which are within the range of acceptance ranging from communication to safety, and provision of unimpeded lobby to rational counter heights. The use of the Kaiser-Meyer-Olkin (KMO) test produced a sample adequacy of 0.51 (see Table 1) among the variables which exceeds a barely accepted rate of 0.5 (Kaiser, 1974). The data showed a stronger internal consistency among expected variables of managerial operations based on the Bartlett's Test of Sphericity (see Table 1).

## Results and discussion

### *Building design gaps in off-campus student housing*

This study found 21 building design variables that support SWD in off-campus students' housing in Ghana. Using the universal building design variables in Table 2, availability of slip resistant floor covering and toilet facilities was common in students' housing. Toilet facilities commonly found within student housing were not purposely designed for SWD. With slippery floor covering in place, SWD were freed from hazards and disasters that may come their way. The other 19 variables provided clear expectation gaps in building design

#### KMO and Bartlett's test

Kaiser-Meyer-Olkin measure of sampling adequacy		0.516
Bartlett's test of sphericity	Approx. Chi-square	609.784
	Df	36
	Sig.	0.000
Determinant		0.0021

**Table 1.**

Data suitability test

#### Expected building design variables

Variables	Yes	No
Availability of clear and accurate visual signs in the buildings	31.4	68.6
Configured elevation	26.1	73.9
Availability of unisex toilet	41.8	58.2
Controlled fitted button at reasonable height	29.5	70.5
Provision of alarm signals	22.8	77.2
Provision of baths and toilet with grab rails	34.7	65.3
Slip resistant floor covering	50.5	49.5
Installed automatic swinging doors	29.4	70.6
Ability for corridor to support wheelchair movement	27.3	72.7
Distance of individual rooms to fire exits	21.3	78.7
Availability of seats at the reception	18.3	81.7
Availability of artificial and natural lightning	45.3	54.7
Accessible entrance	23.9	76.1
Accessible parking	17.1	82.9
Tactile markings	22.8	77.2
Clear signage	35.7	64.3
Visible marked entrance at the lobby	31.3	68.7
Access ramps landing at the top	33.4	66.6
Access ramps landing at the button	28.3	71.7
Provision of door spaces outside	25.6	74.4
Availability of directional signals on handrails	34	66

**Table 2.**

Universal building design variables among student housing

**Source(s):** Field data, 2021

requirements that affect service delivery to SWD. In relation to provision of SWD in in-built building services, conformity was similarly low. With respect to configured elevations within the buildings, only 26.1% of students' housing had it. Aside that, 29.5% of the controlled fitted buttons in the students' housing were found to be at reasonable heights. Among other variables, the study found that 29.4% of them had installed automatic swinging doors, 27.3% of corridors had the ability to support wheelchair movement, 21.3% of student housing had short distance of individual rooms to fire exits and 18.3% were with seats at the reception to support SWD. Moreover, 45% of students' housing across the study universities had artificial and natural lighting in them. Environmental building design variables also provided similar gaps in service delivery. The entrance of housing provided little accessibility with less visible marked entrance at the lobby (see [Table 2](#)). Access to parking space was very low across the study locations. Other gaps in environmental design included; 28.2% availability of tactile markings, 35.7% clear signage, 33.4% access ramps landing at the top, 28.3% access ramps landing at the button, 25.6% provision of door spaces outside the housing and 34% of housing had directional signals on handrails. These results show that most students' housing do not cater for SWD as advocated under the principles of universal design.

The study uncovered that student housing managers have done little to meet specifications for SWD. This is consistent with the literature, including [Foxlin \(2014\)](#), [Karunasena \(2018\)](#), and [Vaccaro and Kimball \(2019\)](#). Among the building design specifications, firstly, it is worthy to provide an all-inclusive clear visual signal showing directions and hazards at either side of the building as seen in [Tutunea and Lieberman \(2016\)](#). This may require regular checks on the positions of visual signals in buildings to support SWD. Secondly, future expectations will require fixing alarm signals in rooms and corridors. This will require control and regular maintenance as part of service quality delivery, which is in line with the view of [de Kervenoael et al. \(2020\)](#). Nonetheless, in the hospitality context, control and maintenance of facilities enhances end-users' service quality. Also, in-built corridors are required to meet the acceptable minimum requirement of 120 cm wide and this enhances the comfort of SWD ([Zajac, 2016](#); [Daamen and Hoogendoorn, 2012](#)). Student housing with elevators would need to fix handrails on each side and provide tactile braille evidence next to the control button to enable accessibility by wheel chair users. Environmental design requires accessible, marked and parking entrances to support SWD movements. Access to ramps at each side will facilitate walking and wheel chair movements. All these facilities can impact positively on the academic achievement of SWD as alluded by [Ramli et al. \(2018\)](#).

#### *Managerial operation expectation factors among SWD*

The study used nine operational variables (see [Table 3](#)) based on gaps 5 and 6 of [Parasuraman et al. \(1985\)](#). The exploratory factor analysis results found that only four operational service quality factors were satisfactory among SWD. Among the four, safety measures at students' housing premises contributed the highest total variance explained with 20.51%. Others included accessibility to health (16.67%), assurance (14.35%) and provision of security (13.72%). This implies that SWD are not satisfied with the remaining five factors of managerial operations creating a huge gap in ensuring quality of service delivery. Among the four total variances explained, SWD expressed expectations for safety to include fire extinguishers to be available in case of fire, room finishes required to be fully fitted, distancing in rooms to reduce overcrowding and noise insulation at the minimum (see [Table 3](#)).

Considering the contributing effects of these factors, fitted room finishes contributed the highest expectations followed by availability of fire extinguishers and distancing in rooms to reduce overcrowding (see [Table 4](#)). Availability of noise insulation at the minimum contributed the lowest to safety expectations. This gives an indication of weak or non-availability of noise insulation systems in students' housing across the study locations. The baseline of this result exposes the managerial perceptions on meeting service specifications

**Table 3.**  
Total variance explained for managerial operations

Total variance explained		Initial eigenvalues		Extraction sums of squared loadings		Rotation sums of squared loadings	
Component	Total	% of variance	Cumulative %	Total	% of variance	Total	% of variance
1	1.979	21.986	21.986	1.979	21.986	1.845	20.505
2	1.475	16.394	38.380	1.475	16.394	1.501	16.674
3	1.238	13.759	52.140	1.238	13.759	1.292	14.354
4	1.180	13.112	65.252	1.180	13.112	1.235	13.719
5	0.909	10.104	75.355				
6	0.827	9.183	84.539				
7	0.682	7.579	92.118				
8	0.512	5.687	97.805				
9	0.198	2.195	100.000				

**Note(s):** Extraction Method: Principal Component Analysis  
**Source(s):** Field data, 2021

Management operational factors explained	Attribute loadings	Variance explained
<i>Safety</i>		20.51
Fire extinguishers available in case of fire	0.654	
Room finishes are required to fully fitted	0.731	
Distancing in rooms to reduce overcrowding	0.635	
Noise insulation at the minimum	0.485	
<i>Health</i>		16.67
First aid is accessible	0.41	
Environmental protection agency licences available	0.532	
Sewerage management is key	0.711	
<i>Assurance</i>		14.35
Ability to respond to repairs	0.421	
Disputes resolution among students is required	0.501	
Deposit returned when tenancy expires	0.514	
<i>Security</i>		13.72
Presence of hostel manager/caretaker at all times	0.609	
Provision of private security required	0.417	
Fixing of weak lightning systems around hostel required	0.346	

**Table 4.** Attribute loadings for managerial operation variance explained

Source(s): Field data, 2021

and solving SWD's expectations as indicated by [Parasuraman et al's \(1985\)](#) Gap Model because installation of noise insulation systems have the proclivity to reduce stress on SWD. With respect to health, the factor loadings showed sewerage management as a key determinant aside accessibility to first aid, and the presence of environmental protection licences (EPL). Accessibility to first aid showed the weakest attribute loading to health. This result is shocking as basic health care was limitedly available across the study locations.

Assurances in dealing with SWD issues also produced three factors. These were managements' ability to respond to repairs on time, ability to resolve disputes among students and deposit returned when tenancy expires (see [Table 4](#)). Among these factors, SWD saw a weak response to repairs on the part of management than the other factors. Security provision on the other hand showed that manager/caretaker presence at the premises provides a good security to students. However, external lighting systems were damaged and not maintained. Field observations in some universities showed that providing external lighting systems was an additional cost to students' housing owners. Therefore, when a bulb stops working, students need to fix it themselves. The ripple effect of this act of service delivery has impact on SWD who are the most vulnerable.

The results in [Table 4](#) suggest that SWD are very keen on health, assurance, safety and security provisions in housing. Even though students indicated the availability of some of these services, they equally expressed that the services require some improvements. This result supports the literature (e.g. [Agyekum et al., 2016](#); [Oke et al., 2017](#)). Regarding safety issues, the other variables seemed better except the existence of noise insulation. This implies that noise insulation systems needs to be installed in students' houses not for the benefit of SWD alone but to provide a congenial study environment for all as indicated by [Ramli et al. \(2018\)](#) and [Zajac \(2016\)](#). For health-related issues, it is expected that first aid boxes be available at all times to provide acute health needs of SWD.

## Conclusion

The expectations of SWD living in off-campus student housing has been an on-going debate. Using [Parasuraman et al's \(1985\)](#) Gap Model of service quality and Exploratory Factor Analysis, we found that students' housing managers have done little to improve the managerial requirements and ensure quality of service delivery. Also, student housing facilities did not

meet the universal building design requirements for persons living with disability. As a means to improve on future managerial operations, authorities of universities would need to sensitise students' housing owners and managers on the need to understand and appreciate SWD as patients who need special care. Among important managerial needs include noise insulation systems to be installed in all students' housing, first aid boxes to be made available in all premises at all times, managers to respond to repairs and provide regular facility checks, security to be improved by employing private security and repairing all weak lighting systems around buildings. As a need to improve on universal building design requirements, emerging students' housing should adhere to the universal building design requirements for persons living with disability. Theoretically, the study has contributed to Parasuraman *et al.*'s (1985) widely used Gap Model with experience from Ghana.

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