

# Investigation on the Ergonomics Design of Wudhu' (Ablution) Station at a Mosque in a Higher Learning Institution

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**ABSTRACT** – The ablution area is compulsory for each mosque, and it is essential for Muslims to perform ablution ritual. Supposedly, the well-design of ablution station is one of the crucial aspects to be considered in prayer facility infrastructure, but certain mosques provide poor ablution. The objectives of the study were to investigate if there is a mismatch between the design of the existing ablution station with Malaysian anthropometry measurement, to identify the user's satisfaction on existing ablution design through survey and to propose the improvement of the existing ablution station based on suitable anthropometry dimension and ergonomic aspects. The quantitative approach study was adopted. The ablution stations' existing design are observed and measured to compare with the related anthropometric data. Experienced users satisfaction towards the ablution station is also investigated. As the result, Design 2 either male or female ablution unit, had ergonomics characteristics and acceptable measurement dimensions compared to Design 1. Henceforth, it becomes preferable design among a Higher Learning Institution users compare to Design 1. In conclusion, an ablution station that has ergonomic characteristics and acceptable measurements based on anthropometric dimensions will result in high satisfaction among users.

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## INTRODUCTION

Ablution or *Wudhu'* in Arabic is a practice involving clean water to cleanse particular body parts from uncleanness before performing the prayers. *Wudhu'* is a word of basic Arabic noun called *al-wadhaah*, which means clear and bright. *Wudhu'* is a verb referring to a ritual using water [1]. This practice is applied to all Muslims before performing prayers five times daily, regardless of gender, age, and physical status. Every mosque or any public prayer facility has equipped by ablution stations where it has different designs and concepts. There are various possible designs of an ablution station such as ablution with a seat, ablution without a seat but with the barrier, ablution without a seat and barrier, and ablution with a lavatory where most people use in their home [2].

The ablution area is compulsory for each mosque for Muslims to complete the prerequisite activity before performing their prayer. Hence, the facilities as ablution are essential for Muslims, and supposedly, the well-design of ablution station be one of the crucial aspects to be considered in prayer facility infrastructure. Since the ablution station categorizes as supporting spaces, designers typically ignore it [3].

The design, selection of materials, and dimensions of the ablution unit are vital aspects in designing the facilities where it can also affect accessibility and comfortability. If not well designed, the ablution can become dangerous and messy, also, and some issues need to be considered when space is planned [4]. However, the design guidelines, research, and documentation about the station's standard dimension are still lacking [2]. The previous study found that some ablutions unit design in a mosque was not practicable due to inappropriate seats dimension and distance [5]. The ablution spaces are much more challenging in their design than other areas in the mosque. Many designers are not familiar with the details and functions of an ablution station [2]. The outcome of poor designs causes discomfort in using the facility and users being exposed to a safety hazard.

Thus, this study investigates the ablution station ergonomics design by evaluating the ergonomic aspects and comparing the ablution station's dimension with Malaysian anthropometry to point out the mismatch that may arise. Identifying the user's satisfaction with the existing ablution design can also improve the design based on their preference.

## METHODOLOGY

A quantitative approach study is adopted to investigate the mismatch in the existing ablution design. Walkthrough observation and ablution station measurement are performed based on the tool developed and used by the previous work (see Appendix A and B).

The online survey to identify the user's satisfaction is also conducted to evaluate the ergonomics aspect. The initial study is performed to determine the questionnaires of user's satisfaction survey whether the questions are comprehensible, proper, well defined, clear understanding and presentable [6].

The survey questions are divided into two parts; Part A demographic data consists of 3 questions, and Part B represents the user's satisfaction data made up from 13 questions. It was distributed to a Higher Learning Institution Mosque. The respondent's criteria are a Muslim and had experienced using the ablution station either Higher Learning Institution Mosque. A reliability test is conducted on collected data to find Cronbach's Alpha value using software of Statistical Package for the Social Science (SPSS).

## RESULTS AND DISCUSSION

### Walkthrough observation

Walkthrough observation is conducted to observe the ergonomic aspect at the ablution station of a Higher Learning Institution Mosque. Figure 1 shows the ablution station for male, and Figure 2 shows the ablution station for female. As can be seen, all the ablution stations are not provided with a seat, handrail, and splash barrier.



**Figure 1.** (a) Design 1 of male ablution station (b) Design 2 of male ablution station.



**Figure 2.** (a) Design 1 of female ablution station (b) Design 2 of female ablution station.

Six criteria have been observed, and the design that collects the highest score defined as an ergonomic station. The total score is 6. Design 2 of male and female ablution received the highest score (6/6), and for Design 1 for each gender score, 4/6. Generally, Design 2 able to serve more comfortable, user-friendliness, and safe rather than Design 1. Hence, based on data collected on the conducted survey, most respondents, either male or female, preferred to choose Design 2 during ablution performance.

During observation, the floor material of Design 1 is made up of ceramic with a smooth surface that makes them slippery during the presence of water splash or any contaminants due to poor housekeeping. Other opinions from Design 1 users, male: 62.5% and female: 34.8%, also thought that the ablution is constructed with a slippery floor surface. Another factor that can be discussed is floor condition. Design 1 is located at closed space with limited airflow as a contributing factor for a long time is needed for the floor to dry naturally. The finding during the walkthrough observation shown in Table 1.

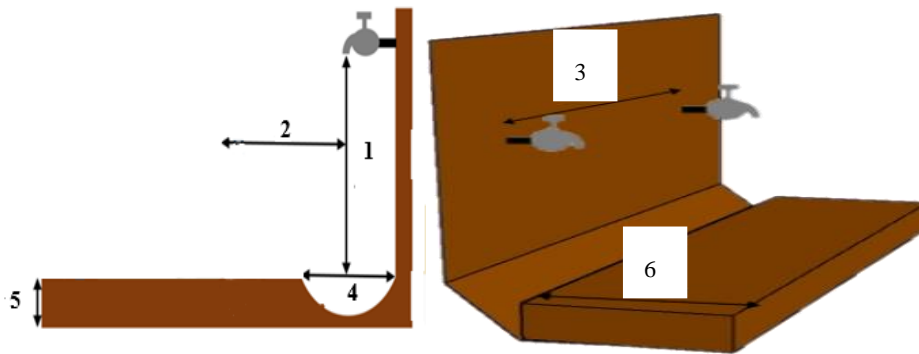
**Table 1.** The checklist with the total score of each ablution design Ergonomic aspects

Location	Faucet allocation	Faucet functionality	Floor material	Floor condition	Platform height	Total score
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		Adequate	Easy-to-use	Well function	Not slippery	Dry	Suitable	6/ 6
Male abluion	Design 1	✓	✓	✓	o	o	✓	4/ 6
	Design 2	✓	✓	✓	✓	✓	✓	6/ 6
Female abluion	Design 1	✓	✓	✓			✓	4/ 6
	Design 2	✓	✓	✓	✓	✓	✓	6/ 6

**Evaluation of abluion station dimension**

There are six abluion station dimensions: (1) tap height, (2) tap-to-user distance, (3) abluion point-to-point distance, (4) drain width, (5) floor elevation and (6) footstep width have been measured by using measuring tape. The illustration of measured dimensions is shown in Figure 3. Meanwhile, Figure 4 shows the picture of the study abluion station's dimension measurement points.



Note. Adapted from: Aman, A. (2017)

**Figure 3.** Ablution station illustration for measuring the dimension.

Comparing the dimension measurements with existing Malaysian anthropometric measurement is conducted to identify the mismatch that may arise and the proposed new abluion design unit. The anthropometric dimensions are adapted from the previous study [8; 9]. The 50<sup>th</sup> percentile and 95<sup>th</sup> percentile of males are chosen to be compared with the measured dimensions with the justification of male anthropometric data fit for both genders [10]. Also, the existing measurement is used for a certain dimension. The abluion's tap height is compared with 95<sup>th</sup> percentile of elbow height; the tap-to-user distance is compared with 50<sup>th</sup> of the shoulder grip length; the abluion point-to-point distance is compared with 95<sup>th</sup> percentile of elbow span. According to the previously mentioned, that recommended a minimum horizontal distance of abluion is 82 cm. It can avoid the users hitting one another [2]; drain width and floor elevation compared with existing measurement and footstep width are compared with 95<sup>th</sup> percentile of foot length. Figure 4 shows the abluion station's dimension measurement points, and Table 4 shows the detailed results of mismatch calculation.

The match or mismatch is interpreted based on the percentage of change calculation [11]. For increase percentage,  

$$\% \text{ Increase} = [( \text{New number} - \text{Original Number} ) / \text{Original Number}] \times 100 \tag{1}$$

and for decrease percentage,  

$$\% \text{ Decrease} = [( \text{Original Number} - \text{New number} ) / \text{Original Number}] \times 100 \tag{2}$$

The new number represents the suggested anthropometric dimension, while the original number is the existing abluion dimension measurement. Match interpretation is obtained from the increase percentage value, but mismatch interpretation resulting from the decrease percentage value.

**Water tap**

Water tap height measured for all design is 45 cm; Design 1 male abluion station, 76 cm; Design 2 male abluion station, 48 cm; Design 2 female abluion station, 66.4 cm; Design 2 female abluion station. The measured unit dimension be compared with 95<sup>th</sup> percentile elbow height, which range is 120 cm. The mismatch was rose for all design where the tap allocation is too low caused the user to bend their body, leading to discomfort among users, especially elderly or sick users.

**Tap-to-user distance**

The tap-to-user distance is measured to identify the distance between the water tap and the user standing point, either it is ergonomic or not. The distance measured for Design 1 for each gender was 35 cm, and for Design 2, both genders

have the same value as 40 cm. The adaptable tap-to-user distance can be within of 5<sup>th</sup> percentile of arm reach forward dimension [10]. For this study measurement to be used is the 50<sup>th</sup> percentile of shoulder grip length, 70.5 cm. All the design had mismatched for this dimension. The closer the user to the water tap, they may face cloth to get wet by splash water or difficulty moving the limb for ritual while too far. It is inconvenient for reaching and accessibility of small population groups. Also, it can cause a waste of building material and impact the size of the ablution station area. The designated ablution platform distance with water tap needs to be improved on all design to achieve the desired measurement.

**Ablution point-to-point distance**

Design 1 of the male ablution station is 58 cm, and Design 2 is 98 cm. For the female ablution station, Design 1 is 65 cm, and Design 2 is 67 cm. Researchers had compared the measured ablution point-to-point distance with the 95<sup>th</sup> percentile of elbow span dimension. Different opinion from the previous study stated that suitable measurement could be referred to as span [13]. The consequences may arise, more spacious areas needed, and limited water tap allocation then following the elbow. In the small population group, both genders can reach the facility, while for a large population group can fit the design. The 95<sup>th</sup> percentile of elbow span data is 96.3 cm [5]. Meanwhile, it was stated, the ideal ablution point-to-point distance that may be followed is 82 cm [2]. All three design on existing ablution facilities shown mismatch dimension except for Design 2, male ablution. Discomfort experience may arise among large population group which they are unfit to the design. They will have limited movement, especially during hand and leg cleaning. Improvement need to be done in term of ablution point-to-point distance to increase the comfortability among users also considering the elderly or sick user who need more space to perform the ablution activity especially for those who use walking aid can avoid the users hitting one another [2].

**Drain width**

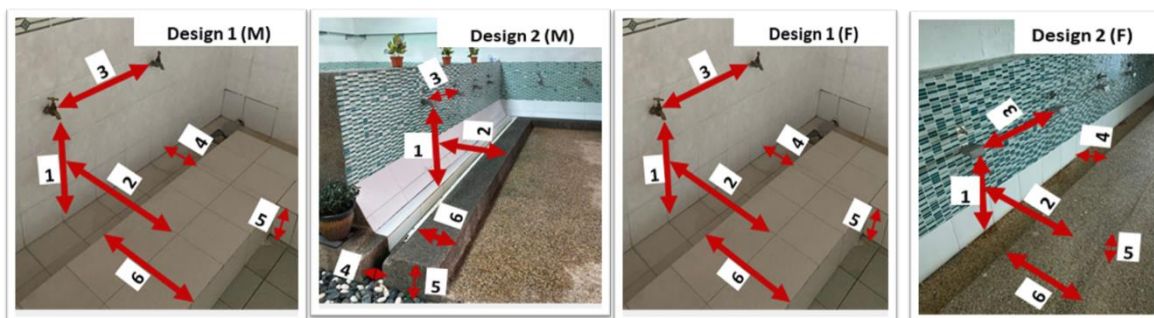
The width of the drain for the male ablution station for Design 1 and 2 is 30 cm and 9 cm. Then, for female ablution station is 32 cm and 28 cm. All the width measurements were compared with the existing measurement range between 28 cm - 32 cm, and only the Design 2 ablution unit had mismatch measurement. Though Design 2 of the male ablution station is spacious, it has the smallest size of drain width. Possible consequences that may arise are wastewater from ablution activity overflow to the ablution area during peak hours, such as daily congregational prayer or Friday prayer. It shall cause an unhygienic environment for the user. Other than that, the user's cloth getting wet and slippery floor due to wet condition. Wet condition or water presence on any surface will expose the user to slip hazard [7].

**Floor elevation**

The dimension was measured for all designs as male ablution design measurement is 19 cm (Design 1) and 14 cm (Design 2). For female design, the measurement is 20 cm (Design 1) and 13 cm (Design 2). Since no specific measurement for floor elevation found from the previous work, the existing measurement is used as a comparison range of 13 cm - 20 cm. The most consideration of the dimension, it must be visible and noticeable by the ablution unit's users. The selection of colour and adequate lighting also contributed to the determination of floor elevation. Considering suitable elevation of floor height is important; otherwise, the user may expose trip hazard due to too low and unnoticeable floor level changes. No improvement needed for the existing design.

**Foot width**

For this dimension, the 95<sup>th</sup> percentile of foot length is the most suitable dimension to be considered, and the measurement is 26.9 cm. This study's foot width measurement is 40 cm and 28 cm for the male ablution station, whereas 40.9 cm and 47.5 cm for the female ablution station. The measured dimensions are compared with the minimal anthropometric dimension. It provides firm base support and comfortability toward users, especially during foot cleaning where he/ she needs to lift one leg to clean and the other leg supports the body weight.



**Figure 4.** Ablution station's dimension measurement points.

**Table 2.** Comparison of the measurement table.

No	Description	Ablution dimension (cm)	Anthropometry dimension (cm) [8;9]	Reference [10;13]	Remarks
<b>Design 1 (Male)</b>					
1	Tap height	45	120	95 <sup>th</sup> of standing elbow height	Mismatch
2	Tap-to-user distance	35	70.5	50 <sup>th</sup> of shoulder grip length	Mismatch
3	Ablution point-to-point distance	58	96.3	95 <sup>th</sup> of elbow span	Mismatch
4	Drain width	30	28 - 32	Existing measurement	Match
5	Floor elevation	19	13 - 20	Existing measurement	Match
6	Foot width	40	26.9	95 <sup>th</sup> of foot length	Match
<b>Design 2 (Male)</b>					
1	Tap height	76	120	95 <sup>th</sup> of standing elbow height	Mismatch
2	Tap-to-user distance	40	70.5	50 <sup>th</sup> of shoulder grip length	Mismatch
3	Ablution point-to-point distance	98	96.3	95 <sup>th</sup> of elbow span	Match
4	Drain width	9	28 - 32	Existing measurement	Mismatch
5	Floor elevation	14	13 - 20	Existing measurement	Match
6	Foot width	28	26.9	95 <sup>th</sup> of foot length	Match
<b>Design 1 (Female)</b>					
1	Tap height	48	120	95 <sup>th</sup> of standing elbow height	Mismatch
2	Tap-to-user distance	35	70.5	50 <sup>th</sup> of shoulder grip length	Mismatch
3	Ablution point-to-point distance	65	96.3	95 <sup>th</sup> of elbow span	Mismatch
4	Drain width	32	28 - 32	Existing measurement	Match
5	Floor elevation	20	13 - 20	Existing measurement	Match
6	Foot width	40.9	26.9	95 <sup>th</sup> of foot length	Match
<b>Design 2 (Female)</b>					
1	Tap height	66.4	120	95 <sup>th</sup> of standing elbow height	Mismatch
2	Tap-to-user distance	40	70.5	50 <sup>th</sup> of shoulder grip length	Mismatch
3	Ablution point-to-point distance	67	96.3	95 <sup>th</sup> of elbow span	Mismatch
4	Drain width	28	28 - 32	Existing measurement	Match
5	Floor elevation	13	13 - 20	Existing measurement	Match
6	Foot width	47.5	26.9	95 <sup>th</sup> of foot length	Match

**User satisfaction survey**

For the user satisfaction survey, the questionnaire is developed and then tested. The reliability test is conducted, and the Cronbach's Alpha value is obtained (Table 3). The finding of the test is 0.727 indicates acceptable internal consistency. The explanation of Cronbach's Alpha range and internal consistency is in Table 4.

**Table 3.** Result of the initial study for the user's satisfaction survey.

Cronbach's Alpha	Internal Consistency	Number of Questions	Number of Respondents
0.727	Acceptable	10	47

**Table 4.** The range of Cronbach's Alpha and internal consistency [14].

Cronbach's Alpha	Internal Consistency
$a \geq 0.9$	Excellent
$0.9 > a \geq 0.8$	Good
$0.8 > a \geq 0.7$	Acceptable
$0.7 > a \geq 0.6$	Questionable
$0.6 > a \geq 0.5$	Poor
$0.5 > a$	Unacceptable

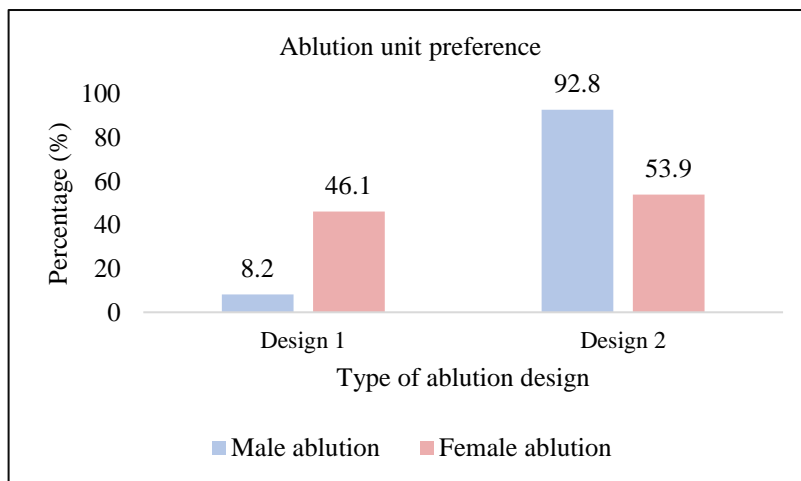
The estimated total of a Higher Learning Institution's staff and student who met the criteria is 7 000, with about 364 sample size needed for the survey [12]. Still, only 303 respondents took part in responding to the survey. About 17.2% represent the Higher Learning Institution's staff, while 82.8% of students participated in a user's satisfaction survey. They come from varied age and the age is ranked into 6 levels, 18-24 years old (72.3%), 25-31 years old (13.5%), 32-38 years old (7.6%), 39-45 years old (4.3%), 46-52 years old (4%) and 53-59 years old (1%). The respondents mostly came between age 18 to 24 years old and the least respondents came between age 53 to 59 years old. The majority of the respondents are female (67%) and followed by male (33%).

**Table 5.** The distribution of respondent according to demographic data.

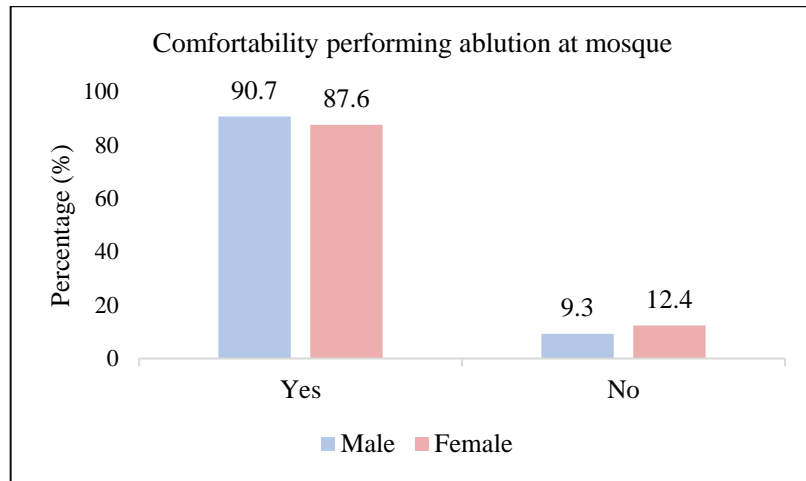
Variable	Category	Percentage (%)
Position	Higher Learning Institutions staff	17.2
	Higher Learning Institution's student	82.8
Age	18 – 24 years old	72.3
	25 - 31 years old	13.5
	32 - 38 years old	7.6
	39 - 45 years old	4.3
	46 - 52 years old	1.3
	53 - 59 years old	1.0
Gender	Male	33.0
	Female	67.0

The survey questions comprise 17 close-ended questions divided into Part A, 3 questions, and Part B, 14 questions. The respondent's sample size is determined by referring to Krejcie and Morgan Table [12]. All the gathered data will express in term of frequency and percentage. The design that becomes the user's penchant for male ablution station is Design 2 (91.8%) while Design 1 only 8.2% (Figure 5). The female ablution received 53.9% for Design 2, and Design 1 is 46.1%. The majority of male (90.7%) and female users (87.6%) are comfortable performing ablution activity at the mosque (Figure 6).

In contrast, 9.3% and 12.4% are conversely due to the ablution unit does not comply with their satisfaction or had experienced cloth to get wet due to excessive water splash during ablution ritual caused uncomforted to an individual. Next, preferable position to perform ablution activity 100% stand for male users but about 85.4% and 83.7% of female's response preferred stand position compared to 14.6% and 16.3% chose sit position during ablution ritual (Table 6). Selection of sit position may have a relationship with limited body movement, sick condition, or imbalance while lifting the leg in foot cleaning activity.



**Figure 5.** The distribution according to the user's ablution unit preference.



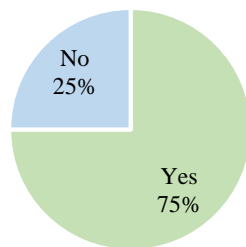
**Figure 6.** The distribution according to the user's comfortability performing ablution at the mosque.

**Table 6.** The distribution according to the user's preferable position during ablution activity.

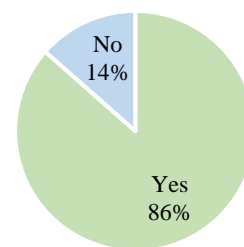
Variable	Category	Design 1	Design 2
		Percentage (%)	Percentage (%)
<b>Male Ablution Station</b>			
Position	Sit	17.2	-
	Stand	82.8	-
<b>Female Ablution Station</b>			
Position	Sit	14.6	16.3
	Stand	85.4	83.7

The suitability of tap height also had been asked in the survey. Allocation of water tap height also plays an important role on constructed ergonomic and user-friendly ablution unit. If the tap is too low or too high, the user needs to trunk or knee awkwardly. 25% of male respondents who used Design 1 and 13.5% for Design 2 were the belief that the water tap height was not suitable. The users who are thought not appropriate water tap height may be too high or too low to be reached. Hence, 75% (Design 1) and 86.5% (Design 2) strongly agree that the water tap height is suitable. It can be seen for female users, 67.4% (Design 1) and 83.7% (Design 2) convinced that the height is suitable for both designs, while negative feedback arises 32.6% for Design 1 and 16.3% for Design 2. The minority population who do not agree with the water tap height might be a small body and shorthand dimension where face difficulty in reaching the water tap if it allocated too high. Still, if too low, the large population group need to bend their trunk to reach the tap may experience discomfort while the ablution ritual [3]. Figure 7 shows the results of distribution according to the tap height suitability.

Design 1 (Male): tap height suitability



Design 2 (Male): tap height suitability



Design 1 (Female): tap height suitability

Design 2 (Female): tap height suitability



**Figure 7.** The distribution according to the tap height suitability.

The survey finding obtained about 62.5% (Design 1) and 88.8% (Design 2) male users appoint their opinion as the tap-to-user distance is acceptable. Otherwise, 12.5% (Design 1) and 4.5% (Design 2) mentioned the distance is too far. 25% of the users on Design 1 and 6.7% of users on Design 2 thought the distance between tap and user is too close. Meanwhile, for female users, suitable distance is the highest 78.7% (Design 1), 84.6 (Design 2) followed by too close distance, 12.4% (Design 1), 7.7% (Design 2) and too far distance about 8.9% and 7.7%. The details of the result can be seen in Table 7. The user who is voting for too close may experience limited movement during cleaning of body parts. The design provides inadequate distance, or the user represents a large population group and contrasts those who thought the distance too far due to shorthand dimension.

**Table 7.** The distribution according to the user's satisfaction on tap-to-user distance.

Variable	Category	Design 1	Design 2
		Percentage (%)	Percentage (%)
<b>Male Ablution Station</b>			
Tap-to-user distance	Too close	25	6.7
	Too far	12.5	4.5
	Suitable	62.5	88.8
<b>Female Ablution Station</b>			
Tap-to-user distance	Too close	12.4	7.7
	Too far	8.9	7.7
	Suitable	78.7	84.6

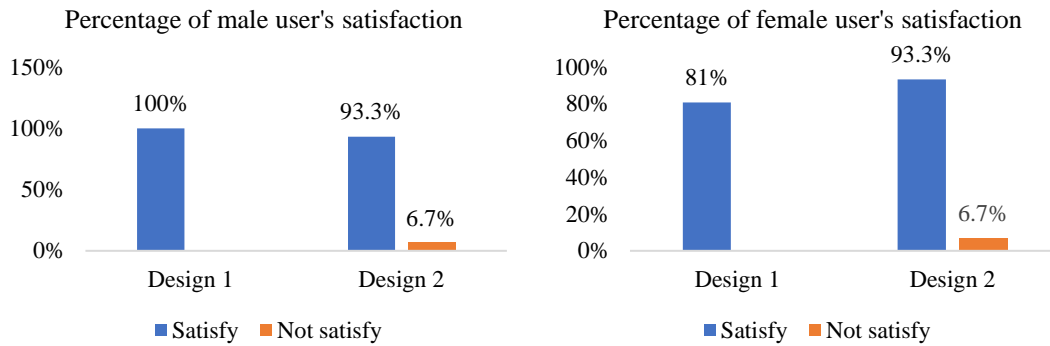
Most users agreed to the male ablution unit, Design 1 (87.5%) and Design 2 (91%), regarding the footstep width. Nonetheless, 12.5% (Design 1) and 9% (Design 2) expressed their opinion on the existing design's narrow footstep width. Among female users, the majority of 88.8% (Design 1) and 87.5% (Design 2) stated suitable dimension for footstep width, but about 11.2% and 12.5% experienced oppositely that the width of a footstep is too narrow due to large foot length dimension.

Furthermore, the provision of handrail, seat and splash barrier are not provided on the existing design, but the survey was asked to identify the needs of all three facilities based on user's demand. The majority of the user strongly encourage handrail, seat, and splash barriers, which each facility provides a different function. Provision of handrail and seat can be as additional support for either adult or elderly user during ablution activity simultaneously. A splash barrier can prevent the user's cloth from getting wet from splash water. But, consideration of splash barrier height plays a crucial role in the designing phase. Too wide splash barrier width, the users may experience difficulty to reach water tap and need to bend their trunk also require more effort to lift the lower limb during ablution in the same time too high of the design will cause similar consequences.

As a result, from the online survey, Design 1 (male and female): 62.5%, 74.2% and Design 2 (male and female) 48.3%, 43.3% pointed that slippery condition for both designs as an instance of floor materials selection and poor housekeeping. Least percentage on Design 2 because of floor surface rougher than Design 1. Poor housekeeping can cause water splash or excessive water to accumulate on the floor, leading to fall or slip hazard. The slip and fall can happen on slippery or wet floor surface [7]. Also, slip can cause either minor or major injuries, such as back injury, bone fractures, head injury and others [7]. In conjunction, about 29% of male user and 57% of female user had experienced slip at the ablution area.

Although Design 1 of the male ablution unit had several mismatches but received 100% overall user satisfaction compared to Design 2, however, for the female ablution unit, Design 2 nominate higher overall satisfaction than Design 1.





**Figure 8.** The distribution according to overall user's satisfaction

**Proposed new design of ablation station**

Male anthropometric dimension is fit for both genders, so it is an appropriate reference in determining the dimension measurement for the new unit design [10]. The seat's height must follow the average of buttock-popliteal height as anthropometric data, while the mean value of sitting hip breadth is for the width. Water tap must be placed below shoulder height and above elbow height, and the tap-to-user distance within the mean of arms reach dimension. For handrail installation, the mean of the horizontal grip takes into consideration for handrail height measurement. Recommended measurement for handrail distance to user distance is elbow span of 5<sup>th</sup> percentile dimension. Moreover, for the splash barrier' height is the 5<sup>th</sup> percentile of knee cap height, and the width is the mean of arms reach forward. The recommended measurement for the new design based on the anthropometric dimension expressed in Table 8.

**Table 8.** Proposed measurement for new ablation design

Dimension [10]	Recommended measurement [10;13]
Tap height	95 <sup>th</sup> percentile of elbow height
Tap-to-user distance	50 <sup>th</sup> of shoulder grip length
Ablution point-to-point	95 <sup>th</sup> percentile of elbow span
Seat height	Mean of buttock-popliteal height
Seat width	95 <sup>th</sup> of sitting hip breadth
Handrail height	Mean of horizontal grip
Handrail-to- user distance	50 <sup>th</sup> percentile of elbow span
Splash barrier height	5 <sup>th</sup> percentile of kneecap height
Splash barrier width	Mean of arms reach forward

**CONCLUSION**

The mismatch between the existing ablation station's design is identified by comparing the station's measurements with anthropometric dimensions. As a finding, Design 1 of the ablation station for each gender did not comply with anthropometric measurements. Design 2 of the male ablation station has an acceptable range for dimension measurements except for the drain width, while all measurement of the female ablation station is within the anthropometric dimension range. Design 2 also has ergonomic criteria such as adequate water taps allocation, suitable platform height, and anti-slippery floor. The preferable design among the Higher Learning Institution users is Design 2 for each gender based on the user's satisfaction survey. A new design unit has also been proposed according to suitable anthropometric. Considering needs to be prioritized in the designing process as seat dimension, colour selection and accessibility of the facility. In conclusion, an ablation station with ergonomic characteristics and acceptable measurements based on anthropometric dimensions will result in high satisfaction among users.

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**APPENDIX**

**Appendix A: Walkthrough observation checklist**

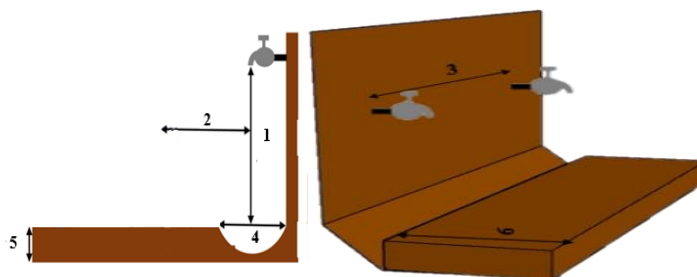
Ablution station design:

- Design 1 (Male)
- Design 2 (Male)
- Design 1 (Female)
- Design 2 (Female)

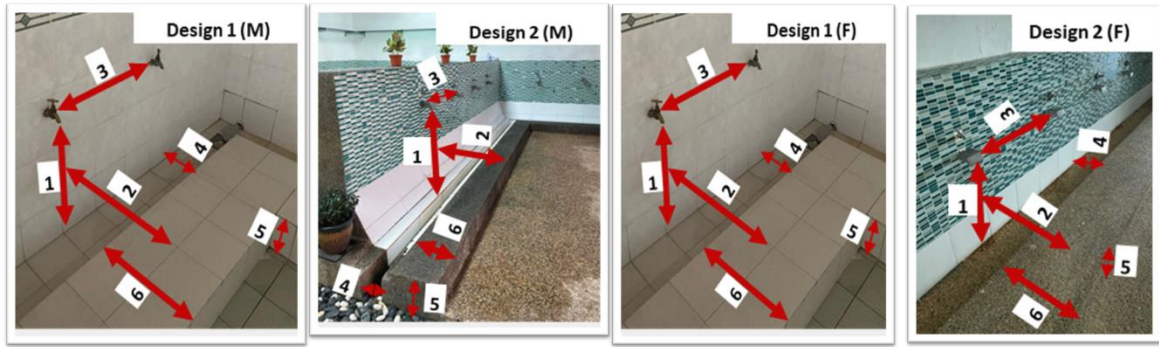
Ergonomic aspects						
Faucet allocation	Faucet functionality		Floor material	Floor condition	Platform height	Total score
Adequate	Easy-to-use	Well function	Not slippery	Dry	Suitable	6 / 6
						/ 6

*Note.* Adapted from Abdul Rahman et al. (2018)

**Appendix B: Evaluation form for existing ablution station**



*Note.* Adapted from: Aman, A. (2017)



No	Description	Measurement of dimension (cm)
1	Tap height	
2	Tap-to-user distance	
3	Ablution point-to-point distance	
4	Drain width	
5	Floor elevation	
6	Footstep width	