STRATIFICATION OF STUDENTS’ SATISFACTION REQUIREMENTS USING THE KANO MODEL

Jailos Mrisho Nzumile,
Department of Legal and Industrial Metrology, College of Business Education (CBE), P. O Box 1968, Dar es Salaam, Tanzania.
E-mail: mrishojailos@gmail.com

&

Ismail W. R. Taifa,
Department of Mechanical and Industrial Engineering, College of Engineering and Technology, University of Dar es Salaam,
E-mail: taifaismail@yahoo.com

ABSTRACT
Satisfying students, especially in the service institutions, is a bit complicated due to the diverse and dynamic nature of students when it comes to service provision compared to products. This study thus aimed at stratifying students’ satisfaction requirements at higher learning institutions using the Kano model. Qualitative data were collected from a primary source through interviews and questionnaires. A qualitative approach assisted in collecting forty-six requirements from college students. The Kano model analysed the forty-six requirements. One-dimensional requirements were twenty-three, must-be (14), attractive (4), indifferent (3) and reverse (2). For a college to satisfy students, it has to focus on the fourteen must-be attributes as they are the basic requirements for satisfaction. Subsequently, a college needs to increase students’ satisfaction rate by focusing on one-dimensional attributes by increasing their performance. Nevertheless, to delight students, attractive attributes requirements should be fulfilled whilst paying less attention to indifferent attributes and getting rid of reverse attributes. Regarding the results on the satisfaction and dissatisfaction coefficients, those with maximum coefficients of satisfaction should be considered first during the improvement processes, followed by those with less coefficient of satisfaction. This would impact students’ satisfaction rate positively and eventually would attract the number of students in the respective colleges through word-of-mouth from the current students.

Keywords: Satisfaction, Kano model, college students, customer requirements, higher learning institutions.

INTRODUCTION
Background Information
The existence of any company, organisation or institution in a competitive market depends on the extent to which customers are satisfied with the services or products offered. Both customer expectations and perceptions are irrational, thus making it difficult to satisfy customers if the company would not comprehensively consider different vital factors. Customer satisfaction involves the fulfilment of customer’s expectations, wishes, requirements or pleasure towards a product or service. According to ISO (2018, p.16), “satisfaction is a judgement, an opinion expressed by the customer.” The level of satisfaction signifies the existing gap between the expectation and perception of customers in terms of product and delivery of the product (ISO, 2018).

In the satisfaction view, customers perceive product and service differently. Product dimensions include aesthetics, performance, perceived quality, safety, serviceability, durability, features, reliability and conformance (Opara & Mazaud, 2001; Kenyon & Sen, 2015). Service dimensions include responsiveness, completeness, assurance, timeliness, accuracy, credibility, reliability, empathy and consistency (Tan & Pawitra, 2001; Sulisworo & Maniquiz,
There is robust progress in increasing entry to education in Tanzania (Joshi & Gaddis, 2015). The high admission rate at higher learning institutions (HLIs) depends mostly on the admission rate and examination pass rate for the “Certificate of Secondary Education Examination (CSEE)”, and the “Advanced Certificate of Secondary Education Examination (ACSEE)”. Students admitted at HLIs increased progressively between 2012/2013 and 2016/2017 academic year with 44715, 52538, 59887, 65105 and 69539 students, respectively, to each academic year (TCU, 2018). However, there was a rapid decrease of students in 2017/2018 as the HLIs recorded circa 63737 students for undergraduate studies (TCU, 2018).

Better learning results at HLIs cannot be achieved without better services. Inadequate learning results are profoundly rooted in failures to deliver satisfactory services, along with misalignments, inadequacies, and disproportionateness in resource distribution, which requires to be tackled in the short, medium and long period (Joshi and Gaddis, 2015). Although the country is enjoying a good number of enrolled students, such students admitted at several HLIs expect receiving educational services that meet or exceed their perceptions and expectations.

It is generally known that students’ preferences vary in terms of service offered at their specific institutions. Students have optimistic views of higher education (Kandiko & Mawer, 2013). Some may prefer one attribute more than the other, while others consider the preferred ones less compared to others. It is somehow complex to determine students’ preferences towards services than products unless extensive analysis of interrelated factors are executed (Kandiko & Mawer, 2013). Although HLIs might be achieving the minimum number of registered students annually (TCU, 2018); students expect to receive educational services that satisfy their perceptions and expectations (Kandiko & Mawer, 2013). Satisfying current students create alumni who become good ambassadors of their specific institutions over an extended period. It is crucial to achieve students’ satisfaction to elevate the satisfaction level (Taifa & Desai, 2017). To understand students’ satisfaction, one requires first to analyse how each service or product attribute impacts satisfaction level. Therefore, the question requires investigation on defining and stratifying customers’ (i.e. students’) requirements to increase the satisfaction level at HLIs. This paper thus aims at defining and stratifying students’ satisfaction factors towards services offered at higher learning institutions.

**LITERATURE REVIEW**

**Customer satisfaction**

The concept of customer satisfaction has evolved for over an extended period and presented by many researchers (Fornell, 1992; Zeithaml et al., 1996; Shahin & Zairi, 2009; Wang & Ji, 2010; Mote et al., 2016). There is no unified definition of customer satisfaction; as a result, researchers define it differently, but all present the same concept. For example, Gitomer (1998) defines satisfaction as a general assessment of a consumer regarding products or services on how products or services meet customers’ needs, expectations or desires. Customer satisfaction has to be considered by companies as the key factor to remain competitive in the market. Determining customer satisfaction level of an organisation is a bit difficult following the dynamic nature of customers. Some might use traditional ways to determine it, but they are not adequate at all because most of customers’ information like complaints and feedback do not reach senior management in an effective manner as pointed out by Ilieska (2013). In considering customer behaviours, instead of using traditional ways to measure and monitor customer satisfaction, a procedural approach is much adequate by setting up of objectives, determine the target group, choosing data collection method, develop the measurement, data analysis and reporting, and apply the collected information on customer satisfaction (Ilieska et al., 2002).

Normally satisfaction level varies from customer to customer (Selnes, 1993). Customer satisfaction constitutes a positive move in retaining customers, which eventually leads to increased profits. Jain et al. (2019) studied the influence of consumer relationship management on customer loyalty and found that the powerful drivers toward retaining customers are customers’ perception of quality and customer satisfaction. It means that as the customer becomes satisfied with the service offered or product, he/she would continue to buy or use the service. Jain et al.
(2019) also found that there is significant association amongst the perceived value of customers, business performance and customer satisfaction.

It has been noticed that the perceived value of customers and customer satisfaction are the primary driving forces to ensure customer retention. Studies conducted by Fornell (1992); Anderson et al. (1994); Itiner and Larcker (1996) and Eklöf et al. (1999) indicated that customer satisfaction and service qualities lead to company’s profitability. For an organisation to make profits, customer satisfaction has to be directly linked to the quality of the service offered. Anderson and Sullivan (1993) stressed that the future profitability of a firm depends on the way current customers are satisfied. Customer retention, as well as satisfaction, is related directly with high-quality service, which in turn leads to a profit increase in an organisation (Reichheld and Sasser, 1990). Customers normally have their own preferences when it comes to satisfaction. Thus, they should be managed as assets as indicated since they differ in terms of their needs, buying behaviour as well as price sensitivity.

Following a sharp surge in academic institutions offering the same courses in Tanzania, it resulted in a competitive market. Therefore, institutions focused more on providing high-quality services to students to attract new and retaining the existing for postgraduate courses. Therefore, delivering high services for customer value and satisfaction always enhances a firm to be more competitive (Deng et al., 2013). Stratifying customer satisfaction factors would enhance the institution to focus on customers’ value more and make an effective decision on the resource allocation aiming at continuous improvement considering their needs and wants. Researchers claimed that satisfaction differs demographically (Bryant & Cha, 1996). Service quality is normally determined by considering more than one factor. Zeithaml et al. (1996) identified ten determinants of service quality needed to measure customer satisfaction. These include knowing customers, credibility, communication, tangibles, courtesy, access, competence, responsiveness, reliability and security. Also, Marković et al. (2014) indicated that quality service and satisfaction is of great importance for the survival of any organisation in a competitive market environment. Customer satisfaction is a determining factor towards their retention as well as acquiring new customers which in turn lead to profit creation in the long run (Yazdanpanah & Feyzabad, 2017).

Manosalvas et al. (2019) also deduced the positive relationship between service quality and customer satisfaction. Customer complaints are obviously connected to unsatisfied customers, as their expectation does not meet by the product or service offered to them. Thus, to lower customer complaints and if possible, to get rid of them, an organisation should ensure customer satisfaction is significant (Baker and Crompton, 2000). Son & Lee (2011) also suggested that achieving high customer satisfaction and quality performance create greater tolerance and loyalty to price surges and the improved status of an organisation and lowering customer complaints. For an organisation to retain customers, customer satisfaction plays a significant role in the sense that nearly half of the satisfied customers return to buy or reuse the services offered to them (Zeithaml et al., 1996).

Kano Model

The Kano model of customer satisfaction was purposefully developed to classify product attributes considering customers perception and their effect on customer satisfaction. The model was firstly proposed by Noriaki Kano and his colleagues in 1984 (Kano et al., 1984; Wang & Ji, 2010; Taifa & Desai, 2015b). The model classifies various customer needs (Wang and Ji, 2010). The model also suggested that focusing on continuous improvements of all product attributes is unproductive, and there is always no direct relationship with customer satisfaction increase.

Therefore, to capture the relationship between the two, stratifying each product’s attributes towards satisfaction would eventually turn to the product improvement than unproductive one. The model has been widely applied not only in product but also in service industries such as banking (Pourhasomi et al., 2013), restaurants and grocery (Scheveneldt et al., 1991; Gregory et al., 2015). Other scholars applied the Kano model to capture customer satisfaction requirements for product improvements (Taifa & Desai, 2016; 2017). The model contains different levels or categories of customer requirements and their impacts on satisfaction. The Kano model describes five categories of customers’ requirements to influence their satisfaction (Linares and Page, 2011; Sulisworo & Maniquiz, 2012; Pourhasomi et al., 2013; Yuan & Guan, 2014; Taifa & Desai, 2016; Taifa, 2016; Mote et al., 2016).

The Kano model also classifies service qualities by evaluating customer responses to the absence or presence of the attribute (Gregory et al., 2015). It examines different product features and functions of customer satisfaction. The model employs an x-y plane to present the relationship. Figure 1 describes these five requirements presented in a two-dimensional orthogonal axis containing four different categories based on user requirements (Kano et al., 1984). The horizontal line indicates the presence of or achievement of given features at full or not at all. Similarly, the

---

How to cite this paper

vertical axis indicates the degree of satisfaction when these attributes are fulfilled or not fulfilled. The maximum and minimum satisfaction level are termed as very satisfied (delight) and very dissatisfied (disgust), respectively.

Source: (Kano et al., 1984).
Figure 1. The Kano model of quality attributes

These categories in Figure 1 are described as follows:

**Basic attributes:** These attributes are also termed as must-be attributes in the sense that customers usually expect to find them on the product. If a customer does not see these attributes in a product, the result would be a total dissatisfaction towards the product, whereas finding it does not bring any effect on the satisfaction level. A good example is a car (product); customers always expect to find a car steering as a ‘must-be’ attribute. By meeting must-be attributes always leads to an expression of “I am not dissatisfied” by a customer (Sauerwein et al., 1996).

**Performance attributes:** These are also called “one-dimensional” attributes. They are characterised by their direct proportional (linear) relationship with the customer satisfaction rate. That means, their presence ultimately leads to an increase in the satisfaction rate whilst not meeting these attributes leads to customer dissatisfaction to some extent. A higher degree of meeting these attributes reflects a greater degree of customer satisfaction and vice versa. Shahin and Zairi (2009) indicated that these requirements are sometimes referred to as functional, normal, or apparent requirements. By fulfilling these attributes, it eventually leads to customer loyalty (Mote et al., 2016). An example of these attributes is in an Information and Communication Technologies (ICTs) lab; having a modernised ICTs lab would ultimately lead to an increased level of student satisfaction.

**Attractive attributes:** They are also referred to as the excitement or satisfaction attributes. They are considered to be the key factor in customer satisfaction (Taifa & Desai, 2015b). Product or service differentiation is of outermost importance mainly when competing companies produce nearly the same product or service. Incorporating these attributes into a product or service would undoubtedly delight customers and differentiate a product or service from the rest. Meeting these attributes would sharply increase the level of satisfaction simply because they were unexpected to be found by customers while not meeting them would have no harm to the satisfaction level. Because customers do not explicitly express them, the best way to find attractive attributes is through a simple review of a competitor’s product and find out what they miss, which probably would delight customers. Researchers indicated that the higher performance on these attributes on a product or service would definitely impact the overall satisfaction significantly towards a service or product rather than lowering performance (Tan & Pawitra, 2001; Mikulić & Prebežac, 2011). It is thus recommended to extract the benefits out of these attributes, and an organisation requires to increase the performance level whenever it chooses to incorporate them into a product or service. A good example of attractive attributes is promotion during sales which can excite customers on buying products or services.

**Indifferent attributes:** These can also be termed as neutral attributes. They are those features of products or services that customers are indifferent to, and there is no effect on the satisfaction or dissatisfaction level when meeting or not meeting them, respectively. Customers do consider these attributes as of no importance towards their satisfaction or dissatisfaction (Dreessen and Elfers, 2017). Therefore, for an institution, it would be wise not to invest much on these attributes following their impact on customer satisfaction.
**Reverse attributes:** Contrast to one-dimensional, reverse attributes always bring dissatisfaction when present in a product or service (Wang & Ji, 2010). Thus, to increase customer satisfaction, it is recommended to get rid of them. It is also linear but, in the opposite (negative) direction such that the more the absence of reverse attributes, the more customers become satisfied.

**Figure 2 depicts the conceptual framework to execute this research. Only the key phases are depicted.**

![Figure 2. A conceptual framework to execute this research](image)

**Tools and Methods of Data Gathering and Analysis**
Translating customer requirements using the Kano model can effectively be executed through the qualitative strategy (Wang and Ji, 2010; Mikulić and Prebežac, 2011). This research thus used a qualitative approach, as it employed questionnaires and interviews to collect customer (student) requirements. The questionnaire was then analysed to draw inferences about Critical to Quality (CTQ) attributes of service (Taifa et al., 2019).

**Sample size calculation**
Sample size (n) was computed based on the targeted population. The targeted population size (N) was two thousand, with a 95% confidence level (CL), and the precision level or sampling level was 5%. As pointed out by Slovin (1960) and Yamane (1967), a sample size for a population of less than ten thousand can be calculated by employing equation (1). Alternatively, the sample size can be computed using equation (3) where n is the needed sample size; p is the forecasted proportion of an attribute existing in the targeted population (p is 0.05); q=1-p; e is the sampling margin of error. The statistical table assisted in obtaining the value of Z, whereby for a 95% chosen CL, Z is 1.96:

\[ n = \frac{N}{1 + Ne^2} \]  

(1)

\[ n = \frac{2000}{1 + (200 \times 0.05^2)} = 333 \]  

(2)

\[ n = \frac{(Z^2 \times p \times q \times N)}{(e^2 \times N) + (Z^2 \times p \times q)} \]  

(3)
\[
\begin{align*}
  n &= \frac{(1.96)^2 \times (0.5) \times (0.5) \times (2000)}{(0.05)^2 \times (2000) + (1.96)^2 \times (0.5) \times (0.5)} \\
  n &= 322.126 \approx 323
\end{align*}
\]

Based on equations (1) and (2), the calculated sample size was 333; whereas, for equations (3) and (4) the sample size was 323. So, 333 questionnaires were distributed; among these, only 100 were filled correctly and returned, making a response rate of 30.03%. When collecting user or customer requirements, responses from 20 to 30 participants in a homogeneous segment are sufficient to capture 90 to 95% of all essential requirements (Griffin & Hauser, 1983; Sauerwein et al., 1996). The response rate of 30.03% is sufficient to capture the needed requirements.

**Sampling procedures**

The College of Business Education (CBE) was considered as a case study through the use of the Kano model. Not all students were involved in the study. The target was only for the students who have already been at the college for more than a semester. The preference was given to the final year students of each respect diploma or degree. This allowed gathering rich information from experienced students, thus leaving new students less participating in this study.

**Types and sources of data**

Qualitative data were collected from a primary source through interviews and questionnaires to college students’ requirements regarding the service offered to them. The Kano questionnaires were distributed to students. Then, the gathered data were classified using the Kano framework (Figure 3).

**The Kano framework**

In order to scrutinise the impact of individual factors or requirements on the students’ satisfaction level, Figure 3 helped to stratify students’ requirements exhaustively. Thus, using a questionnaire, students were asked to rank the collected requirements (Figure 4). Based on Figure 3, a student was required to provide two responses, one from each form of a question functional and dysfunctional, thus resulting in analysing the gathered responses as illustrated in Figure 3.
RESULTS AND DISCUSSION

Executing the Kano model necessitated formulating a list of potential requirements to be used when ranking attributes. The direct interview sessions were conducted to collect an exhaustive list of students’ requirements. Students were asked to provide their views on the status quo of the service offered to them. This includes an improvement or addition of service requirements to increase their satisfaction level. The modification of the stated requirements was performed based on expert judgement. The requirements were divided into three categories: management, academics, and facilities (Figure 4).

Note(s): Indifferent (I), Reverse (R), Attractive (A), One-dimension (O), Must be (M), student’s satisfaction (SS) and student’s dissatisfaction (SD). Source: Summarised from Kano et al. (1984).

Figure 3. The Kano framework to execute stratifying students’ satisfaction requirements.
Response analysis was performed with the help of Figure 3. All analysed requirements were categorised, as presented in Table 1.

Table 1. Classification of students’ satisfaction factors or requirements using the Kano model.

<table>
<thead>
<tr>
<th>Group</th>
<th>Code</th>
<th>Students’ response (%)</th>
<th>Class</th>
<th>SS</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>M</td>
<td>O</td>
<td>I</td>
<td>A</td>
</tr>
<tr>
<td>A1</td>
<td>0</td>
<td>56.74</td>
<td>45.46</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>A2</td>
<td>0</td>
<td>52.99</td>
<td>47.01</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>A3</td>
<td>0</td>
<td>58.45</td>
<td>40.14</td>
<td>0</td>
<td>1.41</td>
</tr>
<tr>
<td>A4</td>
<td>0</td>
<td>60.32</td>
<td>39.68</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>A5</td>
<td>0</td>
<td>70.99</td>
<td>29.01</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>A6</td>
<td>0</td>
<td>58.82</td>
<td>41.18</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>A7</td>
<td>61.76</td>
<td>0</td>
<td>13.53</td>
<td>21.18</td>
<td>3.53</td>
</tr>
<tr>
<td>A8</td>
<td>0</td>
<td>45.86</td>
<td>37.59</td>
<td>0</td>
<td>16.55</td>
</tr>
<tr>
<td>A9</td>
<td>61.9</td>
<td>0</td>
<td>4.76</td>
<td>20.42</td>
<td>12.92</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>A10</td>
<td>70.64</td>
<td>0</td>
<td>2.38</td>
<td>26.98</td>
<td>0</td>
</tr>
<tr>
<td>A11</td>
<td>0</td>
<td>51.69</td>
<td>48.31</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>A12</td>
<td>27.5</td>
<td>52.5</td>
<td>0</td>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td>A13</td>
<td>0</td>
<td>45.04</td>
<td>29.79</td>
<td>0</td>
<td>25.17</td>
</tr>
<tr>
<td>A14</td>
<td>66.43</td>
<td>0</td>
<td>5</td>
<td>28.57</td>
<td>0</td>
</tr>
<tr>
<td>A15</td>
<td>0</td>
<td>0</td>
<td>14.01</td>
<td>47.77</td>
<td>10.83</td>
</tr>
<tr>
<td>A16</td>
<td>48.92</td>
<td>0</td>
<td>17.2</td>
<td>33.33</td>
<td>0.55</td>
</tr>
<tr>
<td>A17</td>
<td>27.46</td>
<td>0</td>
<td>23.32</td>
<td>45.6</td>
<td>3.62</td>
</tr>
<tr>
<td>A18</td>
<td>0</td>
<td>41.98</td>
<td>58.02</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>A19</td>
<td>0</td>
<td>50.36</td>
<td>29.93</td>
<td>0</td>
<td>19.71</td>
</tr>
<tr>
<td>F20</td>
<td>45.39</td>
<td>0</td>
<td>39.23</td>
<td>15.38</td>
<td>0</td>
</tr>
<tr>
<td>F21</td>
<td>70.63</td>
<td>0</td>
<td>0</td>
<td>26.98</td>
<td>2.38</td>
</tr>
<tr>
<td>F22</td>
<td>0</td>
<td>62.5</td>
<td>36.03</td>
<td>0</td>
<td>1.47</td>
</tr>
<tr>
<td>F23</td>
<td>75.69</td>
<td>0</td>
<td>4.86</td>
<td>15.97</td>
<td>3.48</td>
</tr>
<tr>
<td>F24</td>
<td>75.57</td>
<td>0</td>
<td>0</td>
<td>24.43</td>
<td>0</td>
</tr>
<tr>
<td>F25</td>
<td>81.89</td>
<td>0</td>
<td>1.57</td>
<td>16.54</td>
<td>0</td>
</tr>
<tr>
<td>F26</td>
<td>72.88</td>
<td>0</td>
<td>3.39</td>
<td>23.73</td>
<td>0</td>
</tr>
<tr>
<td>F27</td>
<td>71.53</td>
<td>0</td>
<td>6.94</td>
<td>21.53</td>
<td>0</td>
</tr>
<tr>
<td>F28</td>
<td>0</td>
<td>51.88</td>
<td>40.6</td>
<td>0</td>
<td>7.52</td>
</tr>
<tr>
<td>F29</td>
<td>15.45</td>
<td>48.78</td>
<td>29.27</td>
<td>0</td>
<td>6.5</td>
</tr>
<tr>
<td>F30</td>
<td>0</td>
<td>56.93</td>
<td>40.15</td>
<td>0</td>
<td>2.92</td>
</tr>
<tr>
<td>F31</td>
<td>0</td>
<td>44.64</td>
<td>48.22</td>
<td>0</td>
<td>7.14</td>
</tr>
<tr>
<td>F32</td>
<td>0</td>
<td>63.43</td>
<td>29.85</td>
<td>0</td>
<td>6.72</td>
</tr>
<tr>
<td>M33</td>
<td>0</td>
<td>71.64</td>
<td>26.86</td>
<td>0</td>
<td>1.5</td>
</tr>
<tr>
<td>M34</td>
<td>5.98</td>
<td>0</td>
<td>29.92</td>
<td>19.66</td>
<td>44.44</td>
</tr>
<tr>
<td>M35</td>
<td>0</td>
<td>0</td>
<td>35.54</td>
<td>59.5</td>
<td>0</td>
</tr>
<tr>
<td>M36</td>
<td>0</td>
<td>66.49</td>
<td>32.44</td>
<td>0</td>
<td>1.07</td>
</tr>
<tr>
<td>M37</td>
<td>0</td>
<td>52.15</td>
<td>38.17</td>
<td>0</td>
<td>9.68</td>
</tr>
<tr>
<td>M38</td>
<td>0</td>
<td>58.14</td>
<td>41.86</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

How to cite this paper
Student’s satisfaction (SS) and dissatisfaction (SD) coefficients were also computed for each requirement, as presented in Table 1. SS and SD were computed to determine the impact of a specific requirement on students’ satisfaction or dissatisfaction when the requirement is met or not met. As specified by Sauerwein et al. (1996) and Taifa and Desai (2016), SS and SD coefficients are calculated by equations (5) and (6), respectively.

\[
SS = \frac{A+O}{A+O+I} 
\]

\[
SD = -\frac{M+O}{A+M+O+I} 
\]

Satisfaction coefficient ranges from 0 to 1, i.e. the more it approaches to one, the higher the satisfaction. Dissatisfaction coefficient ranges from 0 to -1, i.e. as the coefficient approaches -1 the more dissatisfaction it becomes. From Table 1, the highest SS coefficients identified by students are ‘sufficient study areas’ which is a must-be (M) attribute, followed by ‘well-maintained projector’, which is also a must-be (M) attribute and ‘conducting study tours’ which falls under one-dimension (O) attributes. This means that college must ensure that there is a sufficient study area to accommodate students for their private studies within the college premises. They should also perform continuous maintenance of the projector to satisfy students. Likewise, students would need at least one study tour (one-dimension) to increase their satisfaction. Other results in Table 1 can be interpreted similarly.

Table 1 results were further summarised into Figures 5 to 7, thus representing students’ satisfaction factors regarding academics, facilities, and management, respectively. Likewise, Figure 8 depicts a Pie chart (attributes distribution) for students’ satisfaction requirements as summarised from Table 1.

Note(s): Full forms for the codes A1 to M46 are in Figure 4.
Figure 5. Students’ satisfaction factors regarding academics

Figure 6. Students’ satisfaction factors regarding facilities

How to cite this paper
From Figure 5, students’ satisfaction factors (academics matters) are widely distributed among the five attributes. Among the nineteen attributes, one-dimensional attributes are predominant, with eleven attributes under it, i.e. attributes (number 1 to 6, 8, 11 to 13 and 19). Satisfaction and dissatisfaction of students depend on the performance of college regarding these attributes. They are one-dimensional attributes; thus, the satisfaction increases proportionally to the performance on these attributes. Attributes (number 7, 9, 10, 14 and 16) are under a must-be category. The college must ensure that students are provided with such requirements because failing to fulfil them dissatisfy students. Nevertheless, to delight students, there should be ‘tutorials and presentation’ and ‘short training courses’ which fall under attractive attributes. ‘Awarding students’ is the only indifferent attribute, and no need for the college to focus on it, though it should not be ignored (Taifa and Desai, 2016).

Regarding facilities (Figure 6), students identified most of the requirements as must-be requirements denoted by numbers (20, 21, 23 to 27): fulfilment of such attributes lowers the dissatisfaction rate. Also, one-dimensional attributes include (number 22, 28, 29, 30 and 32). Requirement number 31 is the only indifferent attribute under the facilities category, which requires no effort as it has no impact on satisfaction.

The management category is predominantly occupied by one-dimensional requirements denoted by numbers (33, 36, 37, 38, 40, 43 and 45). For these requirements, the college needs to increase their performance for the sake of satisfaction while decreasing dissatisfaction. Requirements number 39 and 41 fall under must-be attributes; the emphasis must be put on them for students’ satisfaction. Indifferent attributes are denoted by number 46 and should
not be considered as much as compared to others. Students do not require reverse attributes represented by numbers 34 and 42 (as they result in total dissatisfaction.

**CONCLUSION AND RECOMMENDATIONS**

**Conclusion**
This study defined and stratified students’ satisfaction factors towards services offered at higher learning institutions. CBE was used as a case study. The Kano model translated students’ requirements through the qualitative strategy. The Kano model categorisation includes basic attributes, performance attributes, excitement attributes, neutral attributes, and reverse attributes. Knowing these categories of customer requirements would assist the college to identify the attributes of service to be considered first in order to retain, attract and satisfy new and current students. Generally, the distribution of attributes is presented in Table 4 and Figures 5 to 8. One-dimensional attributes form 50% of the overall attributes; this equals to twenty-three out of forty-six requirements. Must-be category occupies 30% of the overall distribution equals fourteen out of forty-three requirements. Next is an attractive attribute which occupies 9% of the distribution, equals four requirements. Indifferent and reverse attributes occupy 7%, and 4% of the distribution equals to three and two requirements, respectively.

Based on the findings, the following are recommended:

Due to the dynamic nature of customer behaviour towards service and product, it is recommended that institutions should adopt a continuous improvement culture to cope with customer’s needs. Through continuous improvement, colleges should be able to determine the students’ needs and wants and should similarly offer services or products which enormously satisfy and delight students.

College administration needs to look at one-dimensional attributes as they form a large number (Table 1). Fulfilment of such requirements would increase students’ satisfaction. This is because the one-dimensional requirements possess a linear relationship to customer satisfaction.

Colleges should not ignore the must-be attributes because students know and expect them in advance. Therefore, the college should consider the fourteen requirements occupying 30% of the students’ satisfaction attributes. Their impact on satisfaction is not that much, but when missing, they result in total disqualification of the service or product to students.

For the sake of students’ satisfaction, colleges need to focus on one dimensional, must-be and attractive attributes without completely neglecting indifferent attributes. Colleges should get rid of reverse attributes.

Besides, the results in Table 1 are of significance when it comes to prioritise or resource allocation during the improvement process of the identified requirements. Thus, considering the satisfaction and dissatisfaction coefficients, those with maximum coefficients of satisfaction should be considered first during the improvement processes, followed by those with less coefficient of satisfaction. This would definitely result in positive impacts on students’ satisfaction rate and eventually would attract the number of students in the respective colleges through word-of-mouth from the current students.

**Limitations and future research**
Firstly, the study considered a single college to stratify college students’ satisfaction requirements, but actually, there are many colleges in the country with diverse students’ characters. Therefore, to widen the stratification, it is recommended to extend this research to other colleges and universities within Tanzania to generate comprehensive results. Accomplishing that would help to obtain comprehensive satisfaction factors or requirements for broader geographical coverage. Secondly, only the Kano model was executed in this study. It is recommended to integrate other approaches that help to capture customer (student) satisfaction requirements. Some of the standard used approaches include quality function deployment (QFD) (Pourhasomi et al., 2013; Taifa and Desai, 2015a), SEVQUAL (the Service Quality) model (Sulisworo and Maniquiz, 2012), among others. According to Sulisworo and Maniquiz (2012), applying two approaches in a complementary way establishes some practical and methodological advantages. It is thus suggested to integrate the Kano framework with SEVQUAL or QFD. Thirdly, despite that the results of the Kano model stratified the key students’ satisfaction requirements, it cannot provide a solution on how the identified and stratified requirements can be satisfied fully. Thus, Sulisworo and Maniquiz (2012) suggest integration with QFD to minimise such a limitation. Fourth, based on the results in Table 1, structural equation modelling can be used to explore the contribution of the indicators to measure the satisfaction of students at colleges. Thus, that forge future research which would demonstrate how constructs (i.e. facilities, management, and academics) are related. This could also involve hypothesis formulation among the three constructs.

How to cite this paper
Acknowledgement
The authors appreciate all participated students from the College of Business Education (CBE) at Dar es Salaam Campus for their crucial support during the data collection phase. Similarly, the authors would not have completed this study without the support and help from Martin Banja and James Makunge, both pursuing a bachelor’s degree in Metrology and Standardisation.

REFERENCES


