# Investigating the Delivery Features of Apprenticeship Courses for Apprentices' Satisfaction and Engagement in Kingston University

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## Abstract:

Using semi-structured interviews and questionnaires, this study examines the influence of the characteristics of higher education apprenticeship programs on the engagement and satisfaction of apprentices. It found that apprentices are most satisfied with the provision of information technology facilities in the university but quite dissatisfied with the most important satisfaction indicator such as the limited time allocated by their employers to study. The interviews support this where many claim that they were allocated little or no time to study independent study. These have negative impact on their health and wellbeing as found. Kendall's tau-b test results support this showing that "sense of wellbeing" correlate with five characteristics of higher education apprenticeship, but none has strong correlations. The characteristics include "the university (KU) and apprentices' employer working together to support them in the programme" and "apprentices' employers working closely with their university (KU)". Programmes-caused stress positively correlate with "the responsibilities of the parties in my programme are unclear and fragmented" and "apprentices' employer prioritising own business over apprentice's academic programme". While additional studies on the influence the features of higher education apprenticeships on the health and wellbeing of apprentices is recommended, the requirement for smarter ways of addressing the limited independent study hours allocated to apprentices to improve engagement and satisfaction is needed.

## 1 Introduction

Apprenticeship programme delivery model is different from traditional (full or part-time) higher education courses. For example, there are more parties involved than in traditional student courses (Chankseliani and Relly 2015); the employers are the customer and purchaser of the apprenticeship not the apprentice (QAA 2018); and there is a higher burden of resources on employers (Muikeen et al. 2017). Apprentices are often mature, therefore more likely to have family commitments and different levels of interests and expectations. There is a risk of the academic aspect receiving less attention; some employers may not fulfil their obligations (Muikeen et al. 2017). This may explain the findings of authors such as Muikeen et al. (2017) that apprenticeship student disengagement occurs at the early stages of the programme when compared to full time traditional students. Hence recommendation of "distinctive teaching, learning and assessment strategies when compared to those applied to full-time (traditional?) programmes" and the need for further research on the apprenticeship students' experiences, among many, their sense of belonging.

Consequently, it is logical to ask: What are the effects of apprenticeship delivery features on apprentices' satisfaction and engagement in Kingston University? Retention and progression are dependent on student engagement, which contributes to Teaching Excellence Framework and National Student Survey (Manoharan et al. 2017). Despite the numerous studies on student engagement in and outside Kingston University, for example, Dimitrova et al. (2018), apprentices and apprenticeship programmes delivery have received no attention.

The following objectives were set to answer the question:

- Determine apprenticeship delivery features which influence apprentices' satisfaction and engagement within the university
- Assess the degree of influence of apprenticeship delivery features on apprentices' satisfaction and engagement within the university.
- Explain how apprenticeship delivery features influence the satisfaction and engagement of apprentices within the university.
- Consolidate the findings of the study and develop a framework of recommendations on apprenticeship delivery (including teaching and learning) within the university.

## 2 Research Approach

### 2.1 Short discussion of the research method(s)

Questionnaires and face-to-face, in-depth, semi-structured interviews were conducted and analysed via SPSS and NVivo respectively. Details of the analysis are discussed in section 2.3 of this report. Survey questions response options were in ordinary scale, for example, ranking from 1 to 5 where 1 is 'Strongly disagree'; 2 is 'Disagree'; 3 is 'Neither agree nor disagree'; 4 is 'Agree' and 5 is 'Strongly Agree'. The interviews were refined with the four-stage interview protocol refinement framework by Castillo Montoya (2016). It was ensured that the questions aligned with the research aim/objectives and elicited discussions during the interviews. Stage three involved seeking feedback on the data collection instrument, which was then piloted on a few students in the fourth stage. The use of these two methods provided the opportunity to extract valuable qualitative insights from apprentices themselves, whist allowing detailed quantitative analysis to ensure the results provide clear findings for actionable recommendations.

### 2.2 The scale and scope of your research

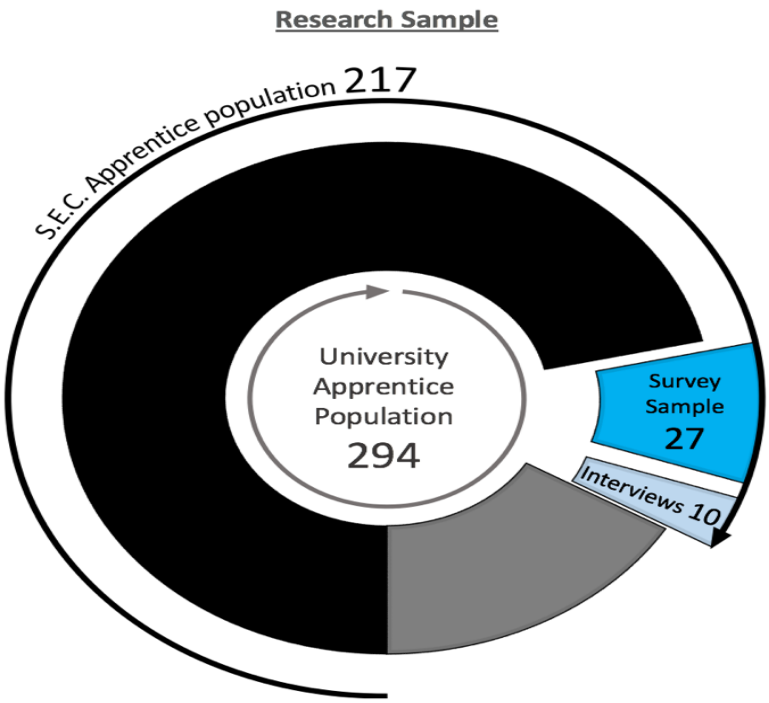


**Figure 1** - Diagram of Research population and sample population

As illustrated in Figure 1, the survey sample of 27 were in addition to 10 interviewee, a total of 37 participants, over 17% of the sample population of 217 School of Science, Engineering and Computing (SEC) apprentices. By implication, the findings are skewed to SEC. Figures 2, 3, 4 below provide the identity configuration of the 27 survey participants only.

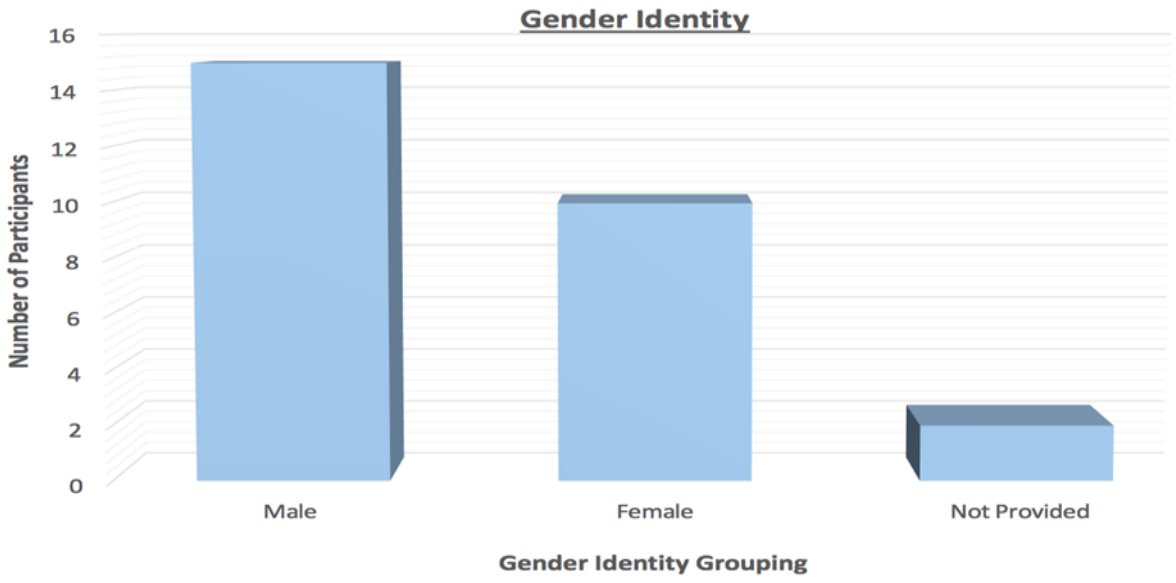


**Figure 3** - Sample gender identity bar chart

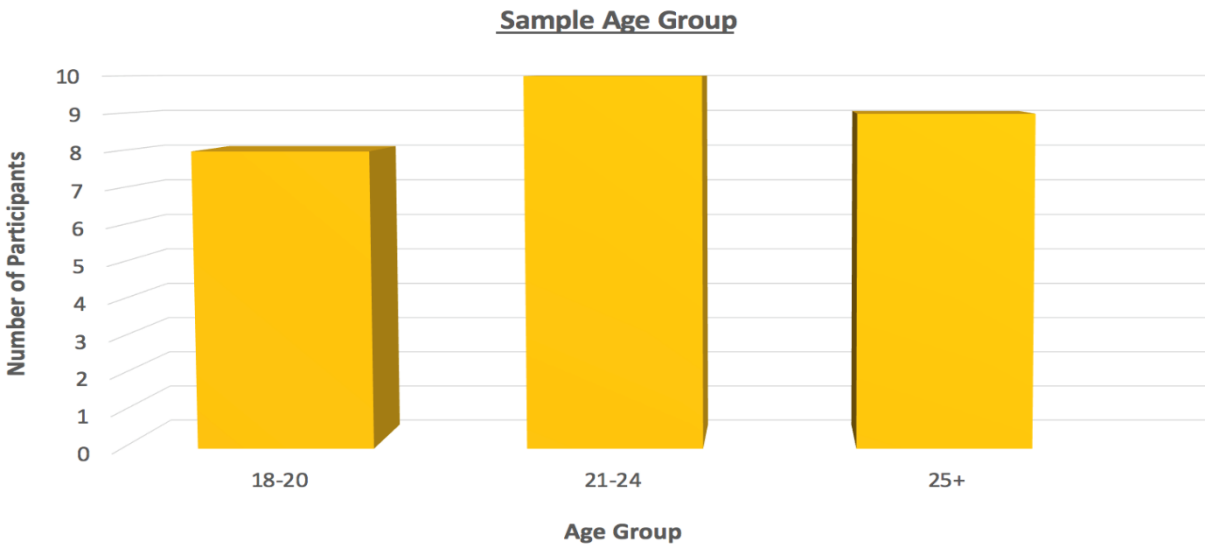


**Figure 2** - Sample age bar chart

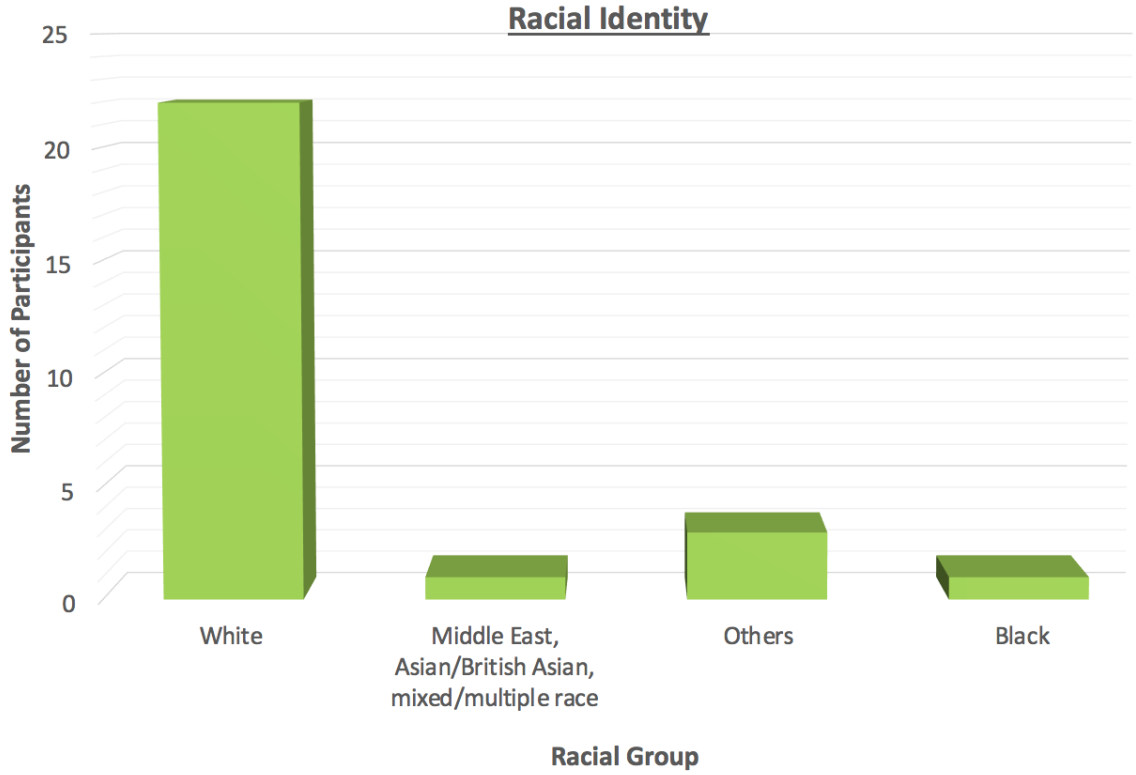


**Figure 4** - Sample racial identity bar chart

Figures 5 to 9 presented below provide the industrial backgrounds and the field of study of the 27 survey participants only.

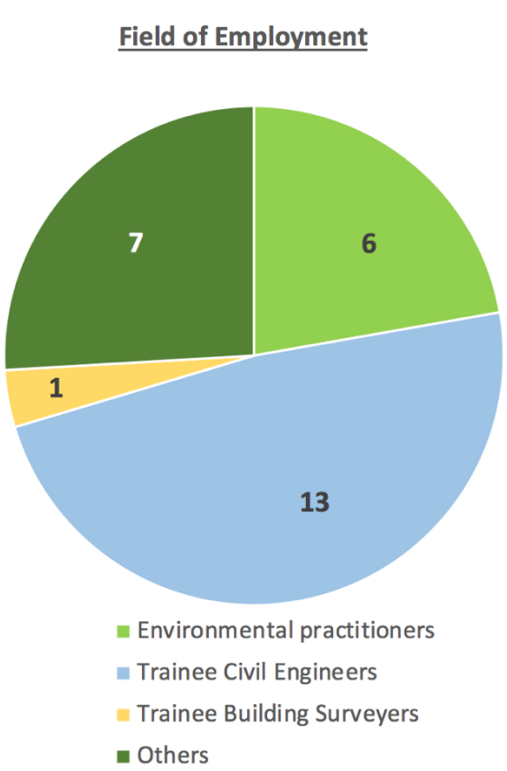


**Figure 5** - Field of employment of participants

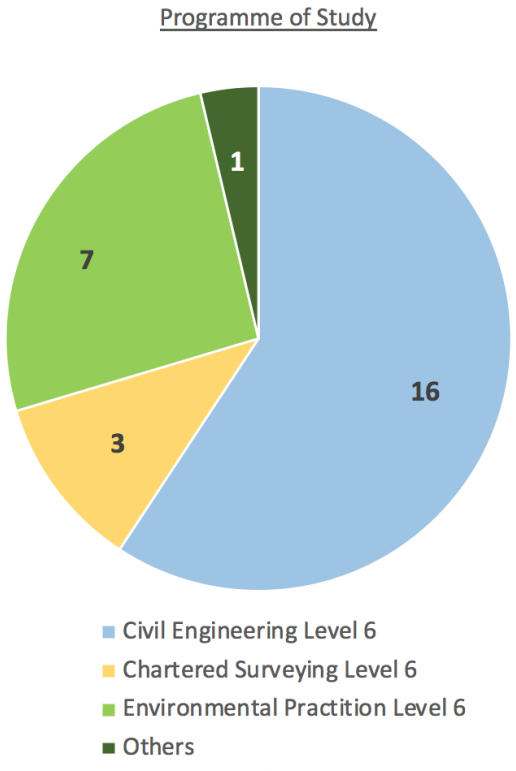


**Figure 6** - Programme of study of participants

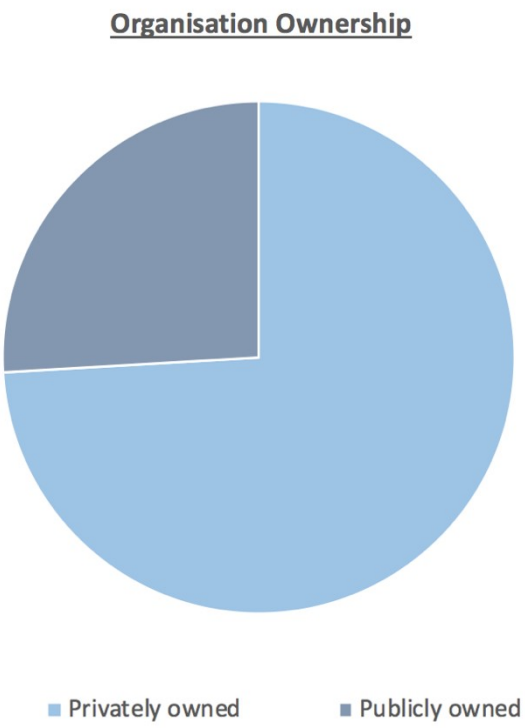


**Figure 9** - Participant employer organisation ownership

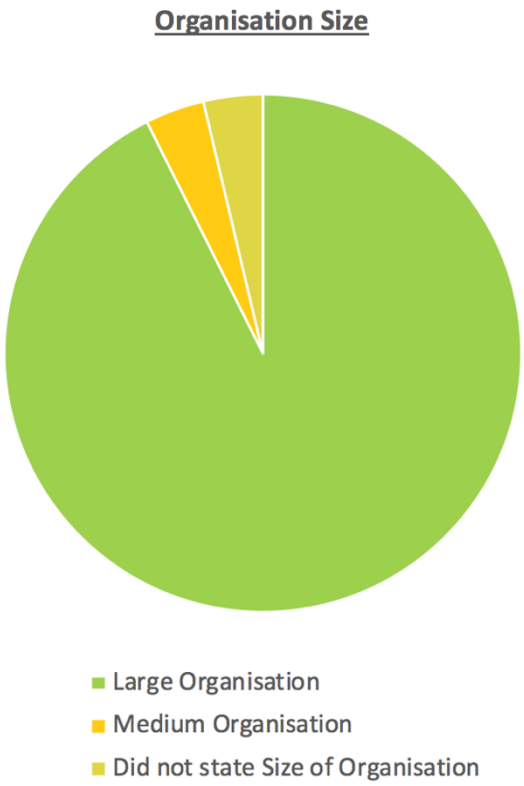


**Figure 8** - Participant employer organisation size

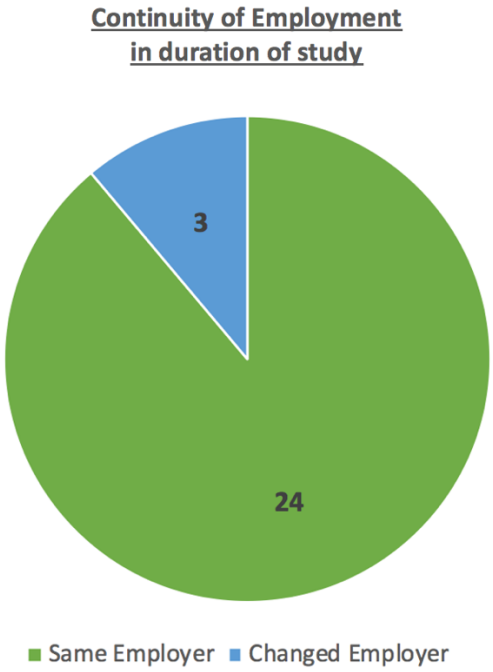


**Figure 7** - Participant continuity of employment during study

What can be inferred from sample identity charts above is that the sample underrepresents the views of ethnic minority and non-male apprentices, therefore the views expressed may not accurately be applied to the population.

### 2.3 Data analysis

Questionnaires were anonymised in a spreadsheet and stored in a password secured computer. Statistical Survey for Social Science (SPSS) was utilised to conduct mean score, relative importance index and Kendall's tau-b tests on the survey data. The Kendall's tau-b test cross-checked for associations between the measures of the characteristics of apprenticeship programme delivery features and apprentice engagement and satisfaction. In-depth, semi-structured interviews were analysed thematically using NVivo. The six-phase thematic analysis by Braun and Clarke (2006) was adopted, involving the reading over of data, initial coding of common themes and arrangement into potential themes and subthemes. These were reviewed in the fourth stage, re-examined, redefined and re-named where relevant. The data was then reported in the final stage.

## 3 Project findings

### Measure of the characteristics of apprenticeships programme delivery

Table 1: Summary of measures of the characteristics of apprenticeship programme delivery

| Measure of the characteristics of apprenticeships programme delivery | Analysis code | Mean | SD | Rank |
|---|---|---|---|---|
| I appreciate that I am being paid while studying | CAP9 | 4.52 | .753 | 1 |
| I appreciate that I will graduate with a professional qualification (where applicable) | CAP10 | 4.26 | .984 | 2 |
| The responsibilities of the parties in my programme are unclear and fragmented | CAP7 | 3.31 | 1.192 | 3 |
| There are communication difficulties between my employer and KU | CAP4 | 3.27 | 1.002 | 4 |
| My school (KU) and my employer work together to support me in the programme | CAP6 | 3.19 | 1.059 | 5 |
| My employer prioritizes the business over my academic programme | CAP2 | 2.96 | 1.285 | 6 |
| I get fixed on-the-job-training | CAP8 | 2.93 | 1.328 | 7 |
| I triangulate what I learn in school and work | CAP5 | 2.85 | 1.231 | 8 |
| My employer works closely with my school (KU) | CAP3 | 2.69 | 1.158 | 9 |
| My employer struggles to meet their responsibilities in my programme e.g. allocating me to the relevant department of my current module of study | CAP1 | 2.48 | 1.397 | 10 |

Table 1 shows that out of all the measures of the characteristics of apprenticeship programme delivery, the apprentices mostly appreciate being paid whilst studying over other features. An additional attraction to the programme is gaining professional qualification on graduation which ranks high, with a mean of 4.26. These are consistent with the views of interviewees.

**Apprentice satisfaction**

Table 2 show the level of apprentice satisfaction over the course of their apprenticeship programme and the level of importance they attach to each satisfaction indicator. There is evidence that being allocated "enough time to study" is ranked the most important indicator for satisfaction, however received a low (but above mean score of 2.5) satisfaction rating for the time they are allocated to study.

Table 2: Apprentice satisfaction levels ranked by importance

| **Apprentice satisfaction** | **Code** | **Extent of Satisfaction** | | | **Importance** | | |
|---|---|---|---|---|---|---|---|
| | | Mean | SD | Rank | Mean | SD | Rank |
| Allocation of enough time to study by my employer | SAT3 | 3.15 | 1.460 | 6 | 4.56 | .641 | 1 |
| I.T. facilities e.g. Canvas | SAT5 | 3.81 | 1.111 | 1 | 4.48 | .849 | 2 |
| Support from work-based mentor | SAT1 | 3.67 | 1.209 | 2 | 4.41 | .747 | 3 |
| Model of apprenticeship (on-the job training) | SAT7 | 3.44 | .934 | 4 | 4.37 | .688 | 4 |
| Assessment by KU | SAT6 | 3.48 | 1.014 | 3 | 4.11 | .698 | 5 |
| Quality of collaboration among parties in my programme | SAT4 | 2.81 | .962 | 8 | 4.04 | .808 | 6 |
| Support from relevant KU personnel responsible for my programme | SAT2 | 3.19 | 1.145 | 5 | 3.96 | .980 | 7 |
| Quality of pastoral care by KU | SAT9 | 2.89 | 1.013 | 7 | 3.12 | 1.306 | 8 |
| Participation in recreational activities e.g. Societies and Student Union Events | SAT8 | 2.41 | 1.152 | 9 | 2.11 | 1.251 | 9 |

*Note: Only the **"Apprentice Satisfaction"** criteria were subjected to inferential statistics.
'SAT1-9' covers only the 9 satisfaction, criteria not the level of importance.
"**Importance**" is ranked separately in columns 7, 8 and 9 above.

The second most important satisfaction indicator is the use of "I.T. facilities" but received the highest satisfaction rating. When subjected to an additional test in relation to engagement, it again ranked the highest with a mean score of 4.22 (Table 4). This is encouraging, however, when subjected to stronger statistics, as can be seen in Table 7, there was no correlation between the indicators of engagement and any of the apprenticeship delivery features.

**Apprentice engagement**

Table 3: Summary of affective engagement

| **Affective Engagement** | **Code** | **Mean** | **SD** | **Rank** |
|---|---|---|---|---|
| Stress caused by the programme e.g. attending school | AFE1 | 3.89 | 1.251 | 1 |
| Management of expectations of the programme | AFE5 | 2.96 | 1.055 | 2 |
| Sense of wellbeing | AFE4 | 2.81 | 1.111 | 3 |
| Sense of connectedness to class environment including non-apprentices | AFE3 | 2.28 | 1.189 | 4 |
| Sense of belonging to the school/university | AFE2 | 2.26 | 1.163 | 5 |

Table 4: Summary of cognitive and behavioural engagement

| Cognitive Engagement | | Code | Mean | SD | Rank |
|---|---|---|---|---|---|
| | I understand what is taught in school/work | COGE3 | 3.70 | .823 | 1 |
| | I critically connect/evaluate work activities and learning | COGE1 | 3.19 | .962 | 2 |
| | I monitor and evaluate set apprenticeship goals | COGE2 | 3.15 | 1.047 | 3 |
| | I learn from peers (non-apprentices) at school | COGE4 | 2.00 | 1.240 | 4 |
| **Behavioural Engagement** | | | | | |
| | I interact with Canvas | BEHE2 | 4.22 | .892 | 1 |
| | I participate in class activities | BEHE1 | 3.52 | .893 | 2 |
| | I use a study routine with access to course materials | BEHE 3 | 3.41 | .971 | 3 |
| | I balance work and school learning as expected in the programme | BEHE 4 | 3.04 | 1.192 | 4 |

## Impact of apprenticeship delivery features on apprentices' satisfaction

While Tables 3 and 4 show the level at which the apprentices have experienced the engagement indicators. For example, the view that the stress from apprenticeship programmes rank the highest (see tables 3 and 4 for other indicators). Results of Kendall's tau-b test in Tables 5, 6 and 7 show the level of correlation between the measures of the characteristics of apprenticeship programme delivery features and apprentice engagement and satisfaction. The nominal codes assigned to each factor in Tables 1 to 4 (eg: CAP1-9 and BEHE1-4) are used in cross-tabulation on Tables 5 to 7 to present the resulting correlation between the two factors. Importantly, only the "Apprentice Satisfaction" criteria were subjected to inferential statistics. 'SAT1-9' covers only the 9 satisfaction criteria not the level of importance ranking (see ***Note** on Table 2, above). Only selected correlations are expanded, see Table 5 for full details.

Table 5: Kendall's tau-b test on correlations between the measure of the Characteristics of Apprenticeship Programme delivery features (CAP1-10) and Apprentice Satisfaction (SAT1-9)

| Measure of apprenticeship delivery features | SAT1 | SAT2 | SAT3 | SAT4 | SAT5 | SAT6 | SAT7 | SAT8 | SAT9 |
|---|---|---|---|---|---|---|---|---|---|
| **CAP1**<br>**Sig (2-tailed)** | -.328*<br>(.044) | -.357*<br>(.028) | -.356*<br>(.027) | | -.435**<br>(.009) | | -.428*<br>(.010) | | |
| **CAP2**<br>**Sig (2-tailed)** | -.386*<br>(.017) | | -.534*<br>(.001) | | | | -.368*<br>(.026) | | |
| **CAP3**<br>**Sig (2-tailed)** | | .558**<br>(.001) | | .544**<br>(.001) | | | | | |
| **CAP4**<br>**Sig (2-tailed)** | | | -.396*<br>(.019) | -.630**<br>(.000) | | | -.499**<br>(.004) | | -.547**<br>(.002) |
| **CAP5**<br>**Sig (2-tailed)** | | .332*<br>(.039) | | | | | | | |
| **CAP6**<br>**Sig (2-tailed)** | | .514<br>(.002) | | .684**<br>(.000) | | | .453**<br>(.008) | | .418*<br>(.015) |
| **CAP7**<br>**Sig (2-tailed)** | | | | | -.551**<br>(.001) | -460<br>(.006) | -.506**<br>(.003) | -.367*<br>(.031) | -.578*<br>(.001) |
| **CAP8**<br>**Sig (2-tailed)** | .354*<br>(.028) | | | | | | .590**<br>(.000) | | .363*<br>(.027) |
| **CAP9**<br>**Sig (2-tailed)** | .370<br>(.028) | | | | .353*<br>(.042) | | | | |
| **CAP10**<br>**Sig (2-tailed)** | .376*<br>(.030) | | | | .522*<br>(.003) | | | | |

**Correlation is significant at 0.01 level (2 tailed); *Correlation is significant at 0.05 level (2 tailed)
- sign = negative correlation
no sign = positive correlation

Table 5 shows that according to Kendall's tau-b test there are 31 correlations between the indicators. "My employer struggles to meet their responsibilities in my programme e.g. allocating me to the relevant department of my current module of study" and "the responsibilities of the parties in my (apprentice) programme are unclear and fragmented" recorded the highest number of correlations with the satisfaction indicators, where all correlating results are negative on both rows.

While correlation does not determine causation, it shows concurrent increase or decrease in the indicators. For example, it shows that "the responsibilities of the parties in my programme are unclear and fragmented" has a large negative co-relationship with the satisfaction determinants: "IT facilities e.g. Canvas" ($\tau b = -.551$, $p = .001$) with "Model of apprenticeship (on-the job training)" with ($\tau b = -.506$, $p = .003$) and "Quality of pastoral care by KU" ($\tau b = -.578$, $p = .001$). Meaning that the more fragmented the responsibilities in the apprenticeship programme appear to be to the apprentice, the more the aforementioned satisfaction indicators reduce and vice versa. A lower negative correlation also exists between the aforesaid delivery feature and "Participation in recreation activities e.g. Societies and Student Union Events" ($\tau b = -.367$, $p = .031$).

Kendall's tau-b test shows a negative correlation between apprenticeship delivery feature "my employer prioritizes the business over my academic programme" and "allocation of enough time to study by my employer" ($\tau b = -.534$, $p = .001$) which is large, at a significant level of 0.01. However, there are other medium correlations in Table 5.

**Impact of apprenticeship delivery features on apprentices' engagement**

Another Kendall's tau-b test aims to investigate if there are associations between the measures of the characteristics of apprenticeship programme delivery feature (CAP) and affective engagement (AFE) and cognitive engagement (COGE). The relevant results are presented in Table 6.

Table 6 Kendall's tau-b test on the correlations between the measures of the characteristics of apprenticeship programme delivery feature (CAP) and apprentice affective engagement (AFE) and cognitive engagement (COGE)

| **Measure of apparent. delivery features** | **AFE 1** | **AFE2** | **AFE3** | **AFE4** | **AFE5** | **COGE 1** | **COGE2** | **COGE 3** | **COGE4** |
|---|---|---|---|---|---|---|---|---|---|
| **CAP1 Sig (2-tailed)** | .405* (.015) | | -.327* (.044) | -.440** (.007) | | | | | |
| **CAP2 Sig (2-tailed)** | .407* (.013) | -322* (.047) | -335* (.038) | -441** (.007) | | | | | -406* (.013) |
| **CAP3 Sig (2-tailed)** | | | | .415* (.013) | | | | | |
| **CAP4 Sig (2-tailed)** | .364* (.036) | | | | | | | | |
| **CAP5 Sig (2-tailed)** | | | | | | .707** (.000) | .346* (.038) | .433** (.009) | |
| **CAP6 Sig (2-tailed)** | | | | .433** (.010) | | | .331* (.050) | | |
| **CAP7 Sig (2-tailed)** | .644** (000) | -632** (.000) | -.391* (.018) | -.391* (.019) | -.492* (.003) | | | -.451** (.008) | |
| **CAP8** | | | | | | | | | |
| **CAP9** | | | | | | | | | |
| **CAP10 Sig (2-tailed)** | | .375* (.036) | | | | | | | |
| **Correlation is significant at 0.01 level (2 tailed); *Correlation is significant at 0.05 level (2 tailed) | | | | | | | | | |

**Affective engagement (AFE4)**

In relation to affective engagement, "sense of wellbeing" has the highest number of correlations with the features of apprenticeship programmes with five in total. Table 6 shows that these are mainly medium correlations, two were positive and three negatives. Specifically, there is a medium-positive correlation between apprentices' "sense of wellbeing", and "the university (KU) and apprentices' employer working together to support them in the programme" ($\tau b = .433$, $p = .010$) at a significant level of 0.01, and "apprentices' employers working closely with their university (KU)" ($\tau b = .415$, $p = .013$) at a significant level of 0.05.

For the negative correlations with AFE4 and other indicators, see Table 6. Unexpectedly, the correlations here are not strong. However, the interview expands on the findings in relation to health and wellbeing. The majority of interviewees expressed concern on balancing life, work and study. Examples given include 20 per cent of allocated time being spent on attending lectures, therefore reading taking place over the weekend in personal time, resulting in their families, including children being deprived of care and attention.

Another factor, 'stress caused by the programme e.g. attending university", records four positive correlations where one is strong; "the responsibilities of the parties in my programme are unclear and fragmented" ($\tau b = .644$, $p = .000$) at a significant level of 0.01. The remaining co-relationships which are medium are in Table 6, for example, with "apprentices' employer prioritising own business over apprentices academic programme" ($\tau b = .407$, $p = .013$) at a significant level of 0.05. 'Sense of belonging to the school/university' affective engagement indicator has a strong negative co-relationship with "The responsibilities of the parties in the apprentices programme are unclear and fragmented" ($\tau b = .632$, $p = .000$) at a significant level of 0.05. Other correlations are in Table 6.

The interviews show that the issues of lack of "sense of belonging" were mainly experienced by apprentices under 20 and in their early 20s, whereas those with previous apprenticeship/work experience and prior degrees, tended to understand what they had signed up for. Overall, apprentices, irrespective of age or experience, view themselves as detached from the university, not part of it and social activities not for them. They mainly form their own bubble and view that other students have little understanding of the nature of the programme and their challenges within it.

**Cognitive engagement (COGE)**

The programme delivery feature with the highest number of associations with COGE indicators is "the ability of apprentices to triangulate what is learnt in school and work". However, this indicator has no correlation with AFE and BEHE indicators (Tables 6 and 7). CAP5 has a large positive correlation with "apprentices critically connecting/evaluating work activities and learning" ($\tau b = .707$, $p = .000$) at a significant level of 0.01. See Table 6 for the remaining correlations.

**Behavioural engagement (BEHE)**

Correlations in Table 7 are limited at four but none strong. 'Apprentices getting fixed on-the-job-training' has a positive correlation with "apprentices having a study routine with access to course materials" ($\tau b = .370$, $p = .038$) at a significant level of 0.05. The remaining correlations can be found in Table 7.

Table 7: Kendall's tau-b test on the correlations between the measures of the Characteristics of Apprenticeship Programme delivery feature (CAP) and apprentice Behavioural Engagement (BEHE)

| Measure of apparent delivery features | BEHE1 | BEHE2 | BEHE3 | BEHE4 |
|---|---|---|---|---|
| CAP1 | | | | |
| CAP2<br>Sig (2-tailed) | | | | -.435**<br>(.007) |
| CAP3 | | | | |
| CAP4 | | | | |
| CAP5 | | | | |
| CAP6 | | | | |
| CAP7<br>Sig (2-tailed) | | | .365*<br>(0.40) | -.451**<br>(.012) |
| CAP8 | | | .370*<br>(0.38) | |
| CAP9 | | | | |
| CAP10 | | | | |
| **Correlation is significant at 0.01 level (2 tailed); *Correlation is significant at 0.05 level (2 tailed) | | | | |

## 4 Institutional impact of the project

- This study reveals the satisfaction indicators of apprentices and shows that satisfaction is not being achieved. If indicators are factored into apprenticeship programme design, including communicating with parties such as employers, the voices of the apprentices will be heard. This will result in a higher state of well-being, their needs being met, and satisfaction being achieved from their programme.

- The study is expected to draw the attention of the University and employers to the difficulties that impact apprentices' engagement, such as the limited independent reading time they are allocated, causing work-study-life balance challenges.

- The positive impact of IT facilities such as Canvas on apprentices' engagement and satisfaction is clearly evident in this study, hence the need to sustain this. It is expected that the university will maintain and improve on this.

- Above all, although the voices of ethnic minority apprentices were not captured, that of apprentices have been heard for the first time in KU. This will improve their sense of belonging which the study has found to be low. This is a major apprentice disengagement factor in the early phase of the programme.

## 5 Institutional recommendations

- Redesign of the time allocation strategy of the programme, as apprentices require more time for independent reading. A suggestion is an additional day per week during term time, which will recovered during summer time for the employer.
- Take additional steps to work with employers to improve the health and wellbeing of apprentices not only in relation to allocation of more time to study, but support them to have work-study-life balance.
- Assess and clarify the responsibilities of parties in the programme and address issues causing unclear and fragmented collaboration. This will improve the satisfaction and engagement of apprentices.

- Integrate the expectations of the apprentices into various spheres of matters and activities.
- Further research on the influence of apprenticeship delivery features on the mental health and wellbeing of the apprentices is recommended.
- Further research can seek understand why some co-relationships between satisfaction level and programme characteristics or between the later and engagement indicators are inconclusive for example, between 'IT facilities' and engagement indicators.
- A larger study on the research question of the current study that will cover all the schools in KU is recommended.

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