

Strategies for Improving Construction Craftspeople Apprenticeship training Programme

ABSTRACT

This study seeks to address two research questions: (i) what are the factors responsible for the non-completion of craftspeople apprentice training program? and (ii) how can the non-completion of construction craftspeople apprenticeship programmes be improved? Seventeen semi-structured interviews were conducted with relevant stakeholders involved apprenticeship in the UK. The finding reveals that multiplicity of factors contribute to the non-completion of craftspeople apprenticeship. The study reveal that , 'underestimation of the apprentice programme', 'poor career guidance' and inappropriate placement' have not been previously mentioned in literature as factors responsible for the non-completion. Also, it was found that 'improvements in recruitment methods' and 'improvements in learner's experiences during apprenticeship' are vital strategies for improving completion rates of craftspeople apprenticeships. By understanding these strategies, the construction sector would have a better chance of attracting and training a young workforce to meet its future needs. Young workforce is vital for improving productivity and organisational sustainability in the construction sector. The research contributes to current body of knowledge by providing in-depth understanding of challenges faced in craftspeople apprenticeship training and how to improve its outcome.

Key words: Apprenticeship, craftspeople, construction, interview, skill shortage

1. INTRODUCTION

The labour force is a resource for the construction sector, and plays a key role in the performance of projects. Poor performance of projects has been observed in various countries across the world (Eras et al., 2013; Ding et al., 2018) and this outcome was linked to low labour productivity (Cottrell, 2006). Also, shortage of construction workers are associated with low profits for contractors and poor project performance (Construction Industry Development Board, 2017).

Globally, the construction workforce in developed countries is ageing and this affects project performance (Conen et al., 2012). Based on the foregoing, it is evident that scarcity of workers and ageing of the construction workforce contribute to poor project outcomes. Thus, the recruitment of young people is vital for long-term sustenance of the construction sector.

Apprenticeship programmes are designed to attract young people and trainees develop the competence to practice a trade at the end of the training. Apprenticeship programme exist in several countries. For example, the joint apprenticeship programme in the USA (Bilginsoy, 2003); the enhanced construction manpower training scheme in Hong Kong (Ho, 2016); WorldSkills South Africa (Construction Industry Development Board, 2017) and the Modern Apprentice and Young People Training Program in the UK (Hogarth and Gambin, 2014). Despite the existence of these apprenticeship programs, it has been reported that about half of the construction workforce in Hong Kong and UK are above 45years of age (McNair and Flynn, 2006; Hong Kong Construction Association, 2013). These training programs are vital for sustainable talent management (Gardas et al., 2019) and improving labour productivity. Successful completion of apprentice training programs would facilitate the replacement of the ageing workforce and improve the outcomes of construction projects.

However, successful completion of apprenticeship training programs remains as a major challenge in several countries. Evidence gleaned from literature shows that non-completion rates in the UK and Australia are 30% and 45%, respectively (Bednarz, 2014; O'Connor, 2016). The existence of previous studies on apprenticeship in the construction sector of the UK is acknowledged. For example, Wang et al. (2008) examined the effectiveness of apprenticeship training for craftspeople in the US. Bosché et al. (2015) developed a mixed reality system for training of tradespeople in the construction sector. Kappia et al. (2007), explored the factors that influence career

development among trainees in the construction sector and Gambin and Hogarth (2016) identified factors that contribute to the non-completion of apprentice programme. However, little is known about strategies for improving the outcomes of apprenticeship programs for craftspeople in the construction sector.

In view of these, the current study is aimed at addressing two research questions: Q1, *What could be the factors responsible for the non-completion of craftspeople apprentice training programme?*, and Q2, *How can the non-completion of construction craftspeople apprenticeship programmes be improved?* The need to develop and implement strategies for enhancing experiences of apprentice during trainings has been mentioned in previous research, such as Uwakweh (2006). This study contributes to knowledge in the field of Construction Engineering Management in several ways by providing empirical evidence on strategies for improving the completion rates of craftspeople apprenticeship programmes. First, it provides insight into factors responsible for the non-completion of apprenticeship programme which adds to existing literature on factors that contribute to the non-completion of apprentice programme from construction and civil engineering perspective. Second, the study identified the strategies for improving the outcomes of apprenticeship programme in the construction sector.

2. LITERATURE REVIEW

The literature review section of this paper is divide into two parts. The first part provides insights into apprenticeship training programme in the UK. The second part focuses on the factors responsible for non-completion of apprenticeship training programmes.

2.1 An Overview of Apprentice Training Programmes in the UK

United Kingdom is constituted of England, Northern Ireland, Scotland and Wales. According to Toner (2008), a decentralized National Vocational Qualification (NVQ) was introduced to replace the traditional process of training semi-skilled workers. Before the implementation of NVQ, there was no framework for evaluating vocational qualifications (Agapiou, 1998). Thus, the qualifications obtained at the end of apprenticeship were non-transferable. As stated in Gospel (1998), NVQs afford trainees the opportunities for further progression. For example, NVQ at Level 3 is viewed as an equivalence of A Levels. Despite the successes associated with NVQs, it has been said that the competition among training providers could compromise the quality of skills acquired by trainees (Toner, 2008). Several key authors have written on the evolution of the apprentice training process in the UK (see Agapiou, 1998; Gospel, 1998; Toner, 2008). Due to the word count requirement, the discussion here focuses on the dominant issues facing apprentice training in the UK's construction sector, e.g. NVQ.

The acquisition of the NVQ is important for any individual wishing to practice a trade within the UK. NVQs provide insights into the level of competence expected of a craftsman, i.e. a measure of an individual's ability to execute a task. The achievement of NVQ certification entails two main components: (i) training [theoretical and on-the-job training] and (ii) pass of an examination [A trainee needs to pass examinations and assessment at a particular level before progressing to the next level]. In the UK construction craftspeople apprenticeship program is typically delivered in 2 to 3 years (Hogarth and Gambin, 2014). This requires an entry level of a foundation year where students try out numerous trades and will then complete NVQ level 2 in 2 years on day release and level 3 (fully-skilled) in 3 years (Arkani et al., 2003). In comparison, NVQ Level 2 and 3 are the minimum requirements for practising a trade in England and Scotland, respectively (Gordon et al.,

2008; Toner 2008). The application of appropriate pedagogy during the apprenticeship would facilitate the production of competent workforce for the economy.

Research indicates that there is a decline in the volume of modern apprenticeships, i.e. NVQs, within the UK's construction sector. This reduction has been attributed to "decline in the volume of government-funded infrastructure projects", "increase in the volume of self-employed workers", and "growth in the number of small firms" (Forde and MacKenzie, 2004; Toner 2008). Also, other challenges associated with apprenticeship training include: limited incentive to proceed to NVQ Level 3 when compared with NVQ Level 2, limited opportunities for trainees to gain real-world experiences due to non-availability of placement opportunities and the use of inappropriate metrics for allocating funds for training (Agapiou, 1998; McIntosh, 2005). However, it must be mentioned here that policies are being developed and implemented to address these issues. For example, collaboration between training providers and employers ensured that apprentice are job-ready at the completion of their training (Whitehead, 2012). Also, there has been a shift away from examinations towards the use of competency-based assessments (Gordon et al., 2009). Generally, the use of competence-based assessment is a reliable way for evaluating skills acquired by trainee over a period of time. Continuous monitoring and coordination among stakeholders is vital for sustaining apprentice training programs in the UK.

The above review of extant literature shows that various models exist for craftspeople apprenticeship within the UK. However, non-completion of apprenticeship is a common problem that limits the successes of these programs. In view of these, this study focuses on exploring the factors that contributes to the non-completion of craftspeople apprentice training programme and to identify strategies for improving it.

2.2 Factors responsible for non-completion of apprenticeship training program

An understanding of factors responsible for non-completion of apprenticeship training would aid the development of strategies for improving its success. A number of investigations have provided insights into the factors responsible for non-completion (Donkor, 2012; Gambin and Hogarth, 2016) of craftspeople apprentice training. A multiplicity of factors could contribute towards non-completion of training.

The factors identified from literature that contributes to the non-completion of apprentice training programme include age, race, gender, ethnicity, level of education, disability, academic achievement, loss of interest, interpersonal skills, economic background, language (Berik et al., 2011; Fries et al., 2014; Mangan and Trendle, 2008; Mangan and Trendle, 2010; Mangan and Trendle, 2017; Stromback and Mahendran, 2010). Taken together, these studies demonstrate that the array of factors that lead to non-completion of apprenticeship among craftspeople. However, there is a need to understand the severity of the impact of each of these factors.

Using secondary data, the effect of each factor on completion rates have been examined. However, the generalisability of some findings can be problematic due to variance in the approach used to train craftspeople and inconsistency between results presented in previous studies. For example, there appears to be a reduction in non-completion rates among older trainees in Australia (Mangan and Trendle, 2010). In contrast, Gambin and Hogarth (2016) found that older apprentice are less likely to complete their training in the UK. Despite the observed variances, some findings are consistent. For instance, Berik and Bilginsoy (2000) showed the rates of non-completion was higher for females when compared to males. Similarly, Mangan and Trendle (2017) reported that a decrease in attrition rates for males. Given the desire to the increase participation of under-

represented groups in the construction sector, there is a need for develop strategies to improve completion rates of apprenticeship among minorities.

Other factors identified by scholars that influences the non-completion of apprentice training programme include; : low wages, content of training (variety of tasks, complexity and depth), teaching methods, relational difficulties, sponsor of training program, discrimination, exploitation, long work hours, unemployment rate/job prospects, health challenges, duration of training period, state of the economy, climatic conditions, level of study/recognition of qualification, support from employers and supervisors, industry relevant of training, unemployment, certification requirement to practice a trade and redundancy (Berik and Bilginsoy, 2000; Berik et al., 2011; Bilginsoy, 2018; Donkor, 2012; Filliettaz, 2010; Fries et al., 2014; Gambin and Hogarth, 2016; Greig, 2019; Snell and Hart, 2008; Stromback and Mahendran, 2010). The outcomes of previous research show that a host of factors affect completion rates of apprenticeship programs for craftspeople. To gain additional insight, some authors have questioned the effect of these factors on completion rates.

A number of authors have attempted to explain the impact of each these factors on completion rates. The outcome of such investigation tends to vary or agree in certain cases. Greig (2019) found that high local unemployment rate leads to an improvement in completion rates in Scotland. In contrast, Bilginsoy (2018) demonstrated that non-completion rate and unemployment rate have a positive relationship in the US. The observed variances could be due to labour mobility across various cities in the US. Also, it could be difficult to compare the findings of both studies because the approaches used to collection of data vary from one location to another. Also, availability of finance (i.e. scholarship, wages, etc.) is one of the principal factors responsible for non-completion of apprenticeship training for crafts people in Ghana and the US, respectively (Donkor, 2012;

Glover and Bilginsoy, 2005). Collectively, these studies clearly shows all of these factors contribute towards non-completion of apprenticeship programmes.

3. RESEARCH METHOD

Qualitative research approach was used to understand the factors responsible for the non-completion of craftspeople apprentice training program in the construction industry and how the apprentice training programme could be improved. The qualitative research approach was used to address the research questions through an analysis of the conversation with the key stakeholders involved in the apprentice training programme (Bryman, 2016). Maxwell (2004) points out that qualitative research method are suitable for identifying and understanding the process responsible for an outcome. Creswell (2014) affirms that qualitative research approach allows the respondent to offer their opinion on the phenomenon investigated and not the view from literature alone. Gathering evidence qualitatively from those involved in the training of craftspeople would provide useful insights for understanding the underlying causes of non-completion of craftspeople training and this information is useful for improving its outcome.

Literature review was conducted initially to understand the on-going debate around apprentice training program with focus on the construction industry. Bryman (2016) pointed out that the review of literature ensures that the researcher understand the state of the knowledge relating to the topic being investigated and to position the current study appropriately. The review reveals that they various categories of apprentice training program exist in the construction sector of the UK such as level 3, level 4, level 6 and level 7 (Hogarth and Gambin, 2014). However, the current study focuses on level 3. The study focuses on level 3 because of its long history of existence compared to other levels of apprentice (Richter, 1998). The literature review enabled the study to develop the interview instrument and also in the identification of the key stakeholders involved in

the apprentice training programme. The interviews were semi-structured open ended to enable the respondent air their views which increase the riches of the evidence gathered. Aberbach and Rockman (2002) observed that interviewees were more comfortable to respond to questions in open-ended interview as it allow them to present their view in their own words. However, Harvey (2011) argued that the analysis of the open ended interviews could be difficult, but it best support the achievement of the aim of the current study as it allows the emergence of new concept from the respondent.

The open ended interview question was developed for the key stakeholders involved with apprentice training programme. These stakeholders include; the trainer (TR), the employers (EM), the apprentices (AP), Non-completion apprentice (NCAP) and the apprentice programme regulatory agency (RA). The interview questions were mostly similar for each of the stakeholder, however the framing and tone of the question varies. Also additional questions were added to the interviews for the “funding and regulatory agency” group. A total of nineteen in-depth interviews were conducted. This comprises of NCAP= 2, AP =10, TR = 2, EM = 3 and RA = 2. Table 1 provides further details about the key stakeholders interviewed. Purposive sampling was used in selecting in the research respondents (Bryman, 2016). In this study, purposive sampling was used as it enabled the researcher to identify the relevant population with the capacity to answer the research questions. The population purposively sampled include the; the trainee apprentice, apprentice who do not complete the programme, the training providers, the employer and the regulatory agency. Purposive sampling to obtain balanced information from those involved in the apprentice training programme. Table 1 reveals that key the stakeholders associated with the apprentice training program participated in the interviews. The 19 respondents that participated in the study were from across the UK. Ten from England, four from Scotland, three from Northern

Ireland and two from Wales. This ensures a clear and holistic picture of apprentice training programme in the UK is gleaned. Out of 12 apprentices that participated in the study, two did not complete the programme they started with. Their response provides insight into the reasons for non-completion of the apprenticeship training programme.

Table 1 reveals that the age range of the apprentice as of the time of start of the training programme is 16 - 18 years. However, the result indicates that majority tend to start at ages 16 and 17. Some of the apprentice claim to have done some level 1 and level two training or had informal work experience before signing on to the formal apprentice training programme. For such applicants' assessment of their previous knowledge and experience is done to decide on the right level for them to start. This shows that there is flexibility in admitting trainees into the apprenticeship-training programme.

Table 1. Research Participants Information

Age at start (Years)	Respondents Code	Trade	Stage in Training	Outcome Level
17	AP01	Brick layering	Final stage	Level 3
16	AP02	Painting	Year 2	Level 3
17	AP03	Electrician	Final stage	Level 3
18	AP04	Plumbing	Final stage	Level 3
16	AP05	Carpentry	Year 1	Level 3
16	AP06	Carpentry	Year 1	Level 3
16	AP07	Carpentry	Year 2	Level 3
17	AP08	Thermal Installation	Year 2	Level 3
16	AP09	Carpentry and Joinery	Year 3	Level 3
16 17	AP10 NCAP11	Carpentry Roofer	Year 2 Stop at yr 2	Do not complete
18	NCAP12	Carpentry	Stop at 6 month	Do not complete
		Position in organisation	Years of Experience	
	EM01	Community Liaison	20	

		Manager		
	EM02	Skill Development and Plan Manager	20	
	EM03	Engineer	26	
	RA01	Apprentice Coordinator	30	
	TRO1	Training Manager	16	
	TRO2	Tutor	15	

This means the interview response could be relied on. It has been suggested that the duration of interviews tend to vary from one respondent to another and could be influenced by several factors (Harvey, 2011). While the current interview was designed to last for 60 minutes not all interview went as planned. The duration of the shortest interview was 40 minutes and the longest interview lasted for 90 minutes. Harvey (2011) observed that interviews may not go as planned for different reasons. In the current study, most of the interviews went beyond the 60 minutes duration because the interviewees wanted to explore more. Again, this shows the subject of apprentice training programme is a burning issue in the construction industry and of concern to the key stakeholders in the sector.

The interview was recorded using digital recorder with consent of the interviewees. Recording provide opportunity for verbatim transcript and it ensures no qualitative data is lost in the interview process (Harvey, 2011). The interviews were conducted using the face-to-face approach. The research team travel to the interviewees’ site and office conduct the interviews. Although it could be expensive compared to other form of interviews, it provides the research team with more scope to ask follow-up questions and to observe the body language of the respondent (Bampton and Cowton, 2002; Bryman, 2016). For instance, in the study the research team conducted some of the interviews with the apprentice in their training school and also on the project site. These provide opportunity for the research team to observe the physical work environment.

The FTW transcriber was used to transcribe the recorded interview verbatim. The transcribed interview was analysed inductively with an approach qualitative researchers termed as ‘general inductive approach’ (Bryman and Burgess, 1994; Miles and Huberman, 1994; Thomas, 2006). The dominant concept that emerged from the cross analysis of the 17 transcribed interviews were categorised into themes and sub-themes. However, Pope et al. (2000) pointed out the quality of qualitative research is in the experience and integrity of the researcher. In view of this the analysis of the transcribed interview was done by the principal investigator who is very experienced in the analysis of qualitative data. However, the emerging themes and sub-themes were internally validated by the other members of the research team as suggested by Silverman (2013). Six (factors responsible for the non-completion of apprentice training) and eight (strategies for improving the outcomes of apprentice training) core themes emerged from the analysis of the interview and are discussed below.

4. RESULT AND DISCUSSION

4.1 Factors Responsible for the Non-completion of Apprentice Training Programme

The study identified various factors that contribute to the non-completion of craftspeople apprentice training programme from the theme that emerged from the interview transcript.

4.1.1 Underestimation of the Apprentice programme

The respondents gave a range of reasons for why they thought apprenticeships had low completion rates. The study found that some of the trainees underestimated the effort involved the programme, for instance AP03 stated that:

“I think people find them more difficult than they realised to start with, or they don’t realise what’s involved with them. A lot of the time apprenticeships are seen as if you can’t do anything else then you get an apprenticeship, you do an apprenticeship, whereas that’s not really the case

because there's quite a lot of classroom based work in.. I think a lot of people don't realise how difficult it is actually" [AP03]

This is consistent with the literature, Bilginsoy (2003) suggested that apprentices were less likely to complete their training if they were not well informed on the nature of the trade and training programme or were not correctly matched with the trade. Forsblom et al. (2016) reported that the use of job interviews and company visits, which exposes the trainees to expectations of training programme, increased completion rates. However, the government points out that when monitoring the training providers, they check to ensure the apprenticeship is suitable for the apprentice (HM Government, 2018). The findings suggest these checks are not always happening or are flawed in some way. However, another participant gave an example of how apprentices are told what to expect, RA01 stated:

“If you want to be a ground-worker and you start in January it is a horrible time of year for a ground-worker. You know, and they just do not see the benefit of it. But if they start in the summer we get them through the summer period (...) and they remember that “ah it will be summer soon” and they get through the winter ok. (...) it's really explaining to them the good parts of the job and also the bad parts of the job as well [RA01].

When accurate information regarding the scope of the trade and training programme is not properly shared with an apprentice, it may result in the apprentice quitting their job (Bilginsoy, 2003; Forsblom et al., 2016). Another inference from the statement by AP03 is that apprentice programme is not seen as a career route on its own, rather it is viewed as the last resort for those who could not proceed to acquire formal degree. McGuinness and Bennett, (2006) argued that apprentice programme should not be viewed as inferior to mainstream education system. Such

narrow view contribute to the underestimation of the apprentice training programme which in turn contribute to low completion rate.

4.1.2 Poor level of career guidance & apprentice not gold standard

The study found that lack of adequate career guidance was cited as another possible reason for apprentices not completing their training for instance EM02 stated:

“So I think we’ve got an issue with schools, schools’ careers advisers, job centre advisers, other employability advisers who may at times say ‘ok you’ve got very little in terms of qualifications’, usually they’ll say ‘you’re a male, you don’t know what else you want to do, go on a construction site’. And one of the routes might be apprenticeships. So, if that poor level of career guidance is happening for the individual, there are numbers of individuals who arrive, who construction isn’t their world” [EM02]

“Some us just finish school and do not know much about the trade we are going on to. I later discover this is not for me and then, I left for another trade” [NCAP11]

The statement from EM02 shows that there is a lack of objectivity and rigour in terms of advice provided to prospective apprentice by their career advisers. Again, seeing apprentice programme as the route for those who are underperforming by career advisers is a mis-normal. However, such narrow view by such career advisers is contrary to the UK government position, which consider apprentice-training programme as the major means to fill the skill shortage and boost productivity in all the sector of the economy (House of Common report, 2018). Recently, the current conservative government in the UK has pledged to commit £3bn pound over the next five years to the “new Skill Fund” which would boost the apprentice training programme (Linford, 2019). From

these initiatives, the core objectives of the apprentice trainings is to close the skill gap and improve productivity. The opportunities offered by apprentice programme has been expanded in the UK which now include level 6 (bachelor degree) and level 7 (master's degree).

Although, career advisers have a strategic role to play in guiding prospective trainees to select the right apprenticeship training programme, it could be argued that advising trainees to going on the wrong apprentice programme and for wrong purpose is as if placing a building on the wrong foundation, which in no distance time the building would fail. The issue of inadequate advice from career advisers was also identified as a major issue in the House of Common committee report titled: "The apprenticeships ladder of opportunity: quality not quantity"(House of Common report, 2018). The report recommends strict penalties should be developed for schools that gives poor career advice to their student.

Along a similar vein, respondent RA01 observed that schools are also instrumental in deterring people from accessing apprenticeships. RA01 stated that:

"Schools stopped employers coming in because as soon as they announced that you're staying on until you're 18 they'll stay in education, the schools just said 'university, university, university' and they were trying to push everybody that way. And they stopped employers coming in, but I think schools now realise not everyone is suited to full time education, so they're now starting to ask us back in again and actually give them talks about apprenticeships and other routes"[RA01]

This aligns with OFSTED (2015) report which stated that schools and colleges were not adequately promoting apprenticeships including to children who are expected to do well in their GCSE exams.

Indeed OFSTED (2015) highlighted that the government encourages school leavers to go for university education rather than other routes. Marangazov et al. (2009), highlight the importance of promoting apprentices to schools and colleges so that apprentices are seen as the gold standard rather than the current last resort for pupils to take.

4.1.3 Inadequate pay

The study found that inadequate pay was cited by some of the participants as making it difficult for apprentices to afford the cost of living while training, for example AP09 stated that:

“I said so how am I meant to live? I mean my quality of life. I haven’t got much quality of life, because you can’t. I can’t afford to do anything. And they was like ‘oh well, that’s what we can pay you, that’s what we can pay apprentices’ [AP09]

This finding is consistent with that of Glover and Bilginsoy (2005) who found that apprentices struggled with travel and living costs. Moreover, Young Women Trust (2017) highlight another problem by pointing out that “2 in 5 apprentices receive less in wages than it costs them to do their apprenticeship with many being forced to drop-out or put off choosing an apprenticeship in the first place”. Perhaps surprisingly, this is in contrast to the Department for Education (2018) study which identified that only 12% of apprentices reported difficulty in meeting living costs. For instance at the time AP09 was on minimum wage he could not afford to live so left for more money, stating that:

“Look” I said “I’ve got another company’s offered me three times the amount you’re paying me to do my apprenticeship, because they’ve seen my work and know I’m competent to do the work and you’re paying me £3.40 an hour”. And I don’t go out and do

a lot of things, I don't drink I don't smoke, yet I still can't afford to live. I can't afford my insurance, you know, the Corsa, which is the cheapest car you can't get [AP09].

The Department for Education (2017) pointed out that 31% of construction apprentices who left their employer gave 'wanting higher pay' as the reason for leaving. It could be argued that the apprentices are paid low wages while they learn the requisite skills for practicing a trade. However, the wages increase at later stages of training period when the apprentice exhibits competence of executing work (Woods, 2012). This is buttressed by AP10 who at NVQ level 2 stage in his training pointed out that he was earning more than double the apprentices minimum wage.

4.1.4 Quest for money and quick benefit and the problem of poaching

The study found that some young apprentices were motivated by the prospect of earning quick money during the training and not keen in developing a career. This suggest that they do not see the long-term benefits of persevering with their training and so they were vulnerable to poaching. For instance AP09 stated that "Some kids might not be into it, they might just want some money for a bit and not think in the long-run that it sorts them out for life". Also, TR02 stated that:

"I've known apprentices to be tempted to leave their apprenticeship to go and earn that money, because they can't see the long-term. They can't see that the money that they're being offered then and now by the other companies is good then, but it will always be at that level. Now if you progress through your training, then when you complete your training, your potential to earn more money will be greater"[AP09]

The narrowness in their decision could be due to their adolescence. Study has shown that the area of the adolescent brain to develop last is the prefrontal cortex, involved in rational thought and a

consideration of long-term consequences (Arain et al., 2013). Additionally, Blakemore and Robbins, (2012) argued that adolescence tend to make decision for quick gain and reward compared to their adult counterpart. This would suggest that apprentices under the age of 25 may be finding it more difficult to make important decisions about long-term goals and are instead drawn to instant rewards. This does not mean that the prefrontal cortex development is the only explanation for the apprentices that are opting for quick monetary gain and reward. Other social, family and social factors could contribute to this too. For instance, an apprentice who has family responsibilities or estranged for the family would be keen about earning money to keep his life going for the moment before considering the long-term benefit of the training. According to Anderson, 2014 and (O'Connor, 2006) apprentice training programme should be viewed as a social partnership between the trainee and other stakeholders involved. This implies that the employers and the training providers should not neglect the social and the family life of trainee.

For those who do persevere, the rewards are clear; the Department for Education (2018) revealed that 71% of those who were working towards or who had completed an apprenticeship felt that they had increased their earning potential by persevering with their course.

The short sightedness of an apprentice has could contribute to poaching. Poaching occurs when another company that did not contribute towards the training of an apprentice choose to offer them more money for their own benefits (Bilginsoy, 2003; Clarke and Herrmann, 2007). RA01 highlighted the issue of poaching by stating that: “well they’re going to be with us and they’re going to leave us and be somewhere else” and if you’ve got that kind of point of view in someone you don’t invest in them” [RA01]. However, the statement by RA01 suggests that employers have some negative pre-motives that the apprentice would leave them anyway. Such narrow view on the part of the employer would limit their commitment to provide adequate support for the trainee.

Hogarth and Gambin, 2014 and Wang et al, 2010 found that employer are reluctant to invest in apprentice training and development. It could be argued the employers are using poaching as a cover to avoid their responsibility of providing adequate training and support for the development and retention of the trainee.

4.1.5 Inappropriate placement on the trade and lack of buy-in from the main contractor

The investigation reveals that inappropriate placement on the trade contribute to non-completion of the programme. For instance, some of the apprentices might be given a placement that is quite unrelated to their trade, as EM02 noted that “I’ve even heard of an electrician being placed with a roofer and you got probably not much of the right experience”. Some employers could even ask the trainee to do different jobs on site (such as doing menial labour job, doing photocopy etc which may not relate to what they signed up for which usually demotivate them. Some of the apprentice view this as bullying as they are coerced to do some of these activities and in the process give up the training. Riggall et al.,(2017) identified bullying as among the factors that contributes to non-completion of apprentice training programme. The issue of wrong placement and bullying call for more attention from the regulators such as CITB, OFSTED and other relevant bodies to ensure the trainees are actually doing what the employer claim they are doing. The House Common report, 2018 found that the current monitoring is inadequate and suggest improvement to enable it achieve it objectives.

In other cases, contractors were reluctant to engage apprentice, as AP10 pointed out: “But then no companies want to teach people anymore, no-one wants an apprentice, they’re hassle”. Similarly, EM02 stated

“So a lot of contractors to an extent don’t see that they should take on apprenticeships. I’ve been fighting that argument since 2009, but nowadays I’m going ‘see the trouble you’re in because you haven’t taken on apprenticeships’[EM02]

Compared to 2005, OFSTED (2015) stated that employers are reluctant to take on apprentice because majority of them are over the age of 25 and the complicated administrative process associated with training. The introduction of the CITB levy ensures that employers can recoup the cost of training an apprentice (Agapiou, 1998). However, the finding suggests that companies are not aware of this, for instance RA01 noted that:

“It’s just poor information from government, when they introduced the apprenticeship levy and I don’t think that they’ve really sort of sent that message out to companies more. And clearly.. so.. you know I’m getting phone calls every day saying “I’ve got to take an apprentice on, I’ve got this money” you know.. I had a construction company from Scotland and they had £1,000,000 in their account”.

Indeed, the problem is that 23% of levy paying companies and 66% of non-levy paying companies have no understanding of the levy and how to access it (British Chamber of Commerce, 2017). This could mean some companies are paying into the levy and are not spending what they are entitled to. This shows the need to create more awareness among contractors of the apprenticeship training programme by the appropriate agencies and organisations.

4.1.6 Lack of investment in the trainees and poor business model by colleges

Lack of investment in the trainees has also been highlighted among the colleges and the training providers. For example EM02 stated that:

“You have some training providers, especially if they’re a college then they’re paid for bums on seats, or that’s their point of view. So, if they can get somebody into a full-time course, so not an apprenticeship, studying diploma level 2 or 3 construction, they give more to the full time because they get paid more, so they think”[EM02]

Indeed, the lack of investment by training providers affects the quality of training. OFSTED (2018) stated that the spending per student in colleges was 50% higher in 1990’s when compared with 2018 and this reduction is partly due to austerity. Thus, this would have had a significant impact on the investment in apprentice training. Also, interviewees raised an observation that apprentice did not receive enough individual attention at colleges, as AP02 stated “They can’t pay too much attention to each student, because the college are pressuring them to do everything else”; AP09 highlighted that:

“Our tutor, he mixed up all of our paperwork, he gave us the paper-based assignment which was out of date that year, it went out of date. And he gave us the paper-based assignment to do, you know coursework, when it was all online. So all the other classes were doing an online coursework system and we were on paper-based” [AP09].

Others discovered that their colleges were unable to arrange suitable placements for their learning needs, as AP03 stated “They tried but they couldn’t find anyone that would do industrial size electrics”. These particular findings corroborate those presented in (Department for Education 2018) where it was stated that 29% of apprentices could not complete their training due to issues with the course or apprenticeship itself. Problems with training providers have been widely reported. For instance, O’Connor (2006) found that apprentices have stalled in their course due to backlogs of apprentices trying to progress to the next phase of the course which resulted in the

apprentices being unable to complete within the given timeframe. Also, Department for Education (2018) revealed that the main reason for non-completion is largely due to poor management of the process of craftspeople training.

4.1.7 No potentials for career progression and absence of mentoring

The study found when apprentice feels that there is clear career within his current organisation he would be tempted to leave for organisation with clear career path. One of respondent stated that: “The organisation I was very small I cannot how I would progress here I then decided to leave” [NCP12]. This result align with the finding of Arkani et al., 2003 where they observed that a lack of clear framework for progression for trainee within the organisation would demotivate them from completing the programme. Having a clear career progression a major driver for retaining employees in an organisation. Some of the respondent [NCP11] also state that when they started no much mentoring from the organisation, which make them, feel neglected and abandoned. Mentoring is essential element of the apprenticeship training programme which when neglected defeats the overall aim of the programme. Literature has shown that mentoring is a major factor that support successful completion of apprentice programme (Hogarth and Gambin, 2014; O’Connor, 2006).

4.2 Strategies for Improving Craftspeople Apprentice Training Programme

Suggested strategies for improving apprenticeships fell broadly into two categories; those that *recruitment and early engagement*; and those that improve *the learner’s experience during training*.

4.2.1 Recruitment and Early Engagement

The content of this subsection are presented and discussed under two broad themes: Improving the *recruitment process and early engagement with the apprentice* and *matching candidate with the appropriate trade*.

4.2.1.1 Improving the Recruitment Process and Early Engagement with the Apprentice

Some interviewees felt that apprentices need an accurate explanation of what their chosen trade would entail, particular those trades exposed to weather, as RA01 noted that:

“Groundworkers, if it’s pouring down with rain they will still work – bricklayers will stop if it’s raining, but groundworkers don’t. So, actually it’s really explaining to them the good parts of the job and also the bad parts of the job as well” [RA01]

On the other hand it was sensed that parents and schools require more information about the trades and opportunities available for training, beyond just the most obvious ones, as RA01 noted:

“So I don’t think they do realise what opportunities there are in construction and we do, I think last count was 38 different types of apprenticeship in construction. You know, they all think of painting and decorating, bricklaying, and carpentry, but there’s things like demolition, there’s interior systems, there’s bathroom fitting which is a separate apprenticeship now, there’s kitchen fitting which is a separate apprenticeship. You know, so there are lots of different things, even a crane driver” [RA01]

A recent report by the Education Committee (2018) echoed the need for independent and impartial career advice to avail student with information on options available to them and called for greater enforcement by the government of the Baker clause. This clause was designed to raise awareness of technical education among secondary school students (Hochlaf and Dromey, 2019).

4.2.1.2 Matching Candidate with the Appropriate Trade

RA01 described how their organisation works hard to accurately match candidates with appropriate trades and courses:

“That’s where we actually start doing more in-depth recruitment, making sure we get the right person in the right job on the right course. So that’s our philosophy at the moment, to look at recruitment”

This result corroborates the findings presented in previous work. For instance, research has shown that exposure of prospective trainees to the content of training and working conditions during recruitment improves completion rates (Forsblom et al., 2016). This information ensures that prospective trainees make informed choices about their preferred trades.

4.2.2 Learner’s Experience during Training

The strategies for improving learner's experience during training are presented in this subsection.

4.2.2.1 Better Organisation by Training Providers and adherence to Standard

Turning now to potential changes that could be made once an apprentice has started their journey, the suggestions varied widely. One suggestion was that training providers need to be more organised in how they deliver apprenticeships, as AP09 felt that “well, my college anyway needs to be more on the ball and organised”, particularly given the experiences that the same apprentice talked about the use of wrong assessment tasks. The same apprentice also mentioned the lack of uniformity in the teaching methods: “The NVQ standard should have been harder and it was harder when we had another tutor in the last part of the year”, as well as expressing frustration at the quality of teaching received:

“And if you can’t cut straight, then you can’t call yourself a chippie and some of the kiddies would have big holes in their work, like the erm.. skirting and stuff, the joints would have big like 3mm, 4mm gaps in them and he’d be like ‘oh that’s alright, bit of filler’ and he’d pass their work off” [AP09]

To address this concern, an aforementioned publication by the Education Committee (2018) suggested that OFSTED should closely monitor training providers. Also, there is a need for monitoring of the quality of end-point assessment. It is hoped that this will reduce instances such as that described by AP09. Perhaps reassuringly for participants in the present study as well as for future apprentices, the Education Committee have also called for a more robust complaints procedure to be set up.

4.2.2.2 Making Apprenticeship a ‘Gold Standard’ and holistic Support to the trainees

One of the apprentice AP04, would have preferred a different route into the apprenticeship, suggesting that one should attend college first and that the apprenticeship should follow from that, rather than the other way around, stating that

“I think it should be via, like go to school, go to college, go to whatever and an apprenticeship comes from that. At least you know that there’s going to be apprenticeships and they know where to link up rather than looking for apprentice place and getting none”[AP04].

Two employers also spoke of the importance of improving quality in more ways than just through the curriculum. For instance, the inclusion of life skills and mental health training would improve completions rates of apprenticeship, RA01 stated:

“Young people have complex social lives now which interfere with work. That really is a big problem at the moment. And mental health is another one at the moment. (...) so we do a lot of work on things like discussing diversity with them, PREVENT is also discussed with them, how they treat other people so bullying, religion, we discuss that with them now when we do progress reviews” [RA01]. Furthermore EM02 stated

“You know, if we’ve got organisations and training partners who would genuinely engage more in terms of raising quality all the time in each area it would be great. In areas such as, student support, curriculum, equalities, whatever else there is to look at in terms of quality. I think that if we get that environment going then it’s just going to create that buzz. It’s going to create a movement, you know, to make apprenticeships the gold standard really” [EM02]

These thoughts were reiterated in the submission by the Education Committee (2018) which calls for more recruitment and support of young and disadvantaged people, such as ethnic minorities. Also, Smyth and Zimba (2019) affirmed that the provision of academic and pastoral support reduces apprenticeship attrition. This is a predictor of the successful completion of craftspeople training programme.

4.2.2.3 Shared Apprenticeship Scheme

Shared apprenticeship refers to a situation where a trainee is engaged by multiple employers during training. The study reveals that shared apprenticeship enhances completion rates. For example, EM02 stated that ‘CoTrain’ support this:

“What they do is they go and work with main contractors and subcontractors, and they say ‘look we’ve got an apprentice who we are training up for a particular trade, we need now

to get them on site so that they can complete the NVQ part of their training and get the evidence' (...) CoTrain is the employer, the shared apprenticeship scheme, and they're just lending that person out to the site. And they have expectations of the quality, the type of work that would be given to that apprentice so that they're getting the experience they need to pass their NVQ [EM02].

The shared apprenticeship scheme provides the trainees with the platform for developing the competence of practising a trade without long-term commitment to engage trainee upon completion of programme (CITB, 2019). This can be particularly useful in certain situation. For instance, a contractor handling a limited amount of work (lasting possibly 6 months) or an employer is unable to provide the type of work required for the collection of evidence for assessment. The shared apprentice scheme would ensure that apprentice execute an extensive arrange of works during training.

4.2.2.4 Communication between trainers and employers

The trainers and employers play key roles in enabling the successful outcome of apprentice schemes and therefore communication between the parties is critical, for instance TR02 stated:

“It’s really important that the apprentices know that we talk to employers, because it’s in everyone’s best interests, whether it be the training provider, the student or the employer that young person gets qualified”.

Good communication between training providers and employers is vital for the success of apprenticeships. Both parties would be directly involved in monitoring of the development of the trainee. Communication improves collaboration and it ensures that issues can be resolved in a timely manner during apprenticeships. Research has shown that improved communication

between industry and training providers ensures that trainees develop requisite skills and competence to meet the needs of the industry (Garlich and Tesinsky, 2005). Also, Johnson et al. (2014) pointed out that communication between employers and trainers results in valuable feedback on apprentice's performance and training needs. Callan et al. (2015) found that the implementation of e-portfolios for assembling the apprentice's evidence improved communication between the apprentice, trainers and employers and resulted in increased engagement from the apprentices.

4.2.2.5 Use of competency-based test

The apprentices are required to prove that they are competent to a certain level to gain their NVQ. Trainees are formatively assessed throughout their apprenticeship by their training institution in preparation for their final summative assessment. For instance, TR02 explained that:

“Now there's something called standards, and the standards are all about end point assessments, so there's an end point exam, one exam, theory exam, and there's an end point synoptic test, so you get six hours to do something so where you're given a drawing on the day and the students need to complete that. So it's moving away from more coursework”.

In 2020, a planned shift from framework to standards would be implemented in England. With this change, an independent government approved organisation would conduct an end point examination to assess the competence of apprentice (HM Government, 2019). Conversely, Gordon et al. (2009) highlights that in Scotland the system has been changing from final examinations to continuous competency-based assessments. This is a more reliable method of measuring an apprentice's skill level rather than relying on a snap shot on the day of the examination.

4.2.2.6 Variety of task

Non-involvement in repetitive and mundane tasks are essential for keeping apprentice motivated to perform optimally. For instance AP03 stated that “I enjoyed the variety of the jobs as well; they weren’t all the same thing every day”. Variety of task in the workplace has been found to improve productivity as well as increases that chance of an employee staying with a company (Staats and Gino, 2012). However, providing an apprentice with variety of tasks can be challenging at early stages of training due to the competence of apprentice to execute a variety tasks. Moreover, the availability of a variety of task is also largely dependent on the nature of each individual project; the construction industry is about temporary production therefore can provide variety in tasks. However, some tasks are still very repetitive and will serve to be de-motivators.

5. Conclusion

The present study was designed to explore the factors responsible for the non-completion of construction craftspeople apprenticeship training programme and to suggest strategies to improve it. The study found a broad range of factors that were responsible for the non-completion of craftspeople apprenticeship training programme such as underestimation of the apprenticeship training programme, poor level of career guidance, inadequate pay, quest for quick money and lack of investment. Most significantly, the study found that poor career guidance had been the cause of non-completions, with some trainees not being suited to the industry. It was also noted that schools had been promoting university education over apprenticeships and pointing out that apprenticeship are only a choice if pupils perform poorly in their exams. However, with the recent legislation in the UK namely the Baker clause, schools are now required to promote all available options.

With regard to strategies for improving the outcome of apprenticeship programmes, the current categorised these tactics for achieving this into two broad themes: “improvements in recruitment methods and early engagement” and “improvements in learner’s experiences during apprenticeship”. The research reveals that adequate information about the actual craft and the routines associated should be communicated early to the prospective apprentice. This information would ensure that intending trainees have a clear picture about the trade and also prepare their mind with the required resilience to compete the training. To further improve the craftspeople training programme, the study highlights the need to address the issues of poor organisation as highlighted by the participants in this study as well as the recent recommendation of Education Committee in the UK. This is essential due to the huge influx of new providers, and OFSTED should be doing more to monitor and capture the growing numbers in their inspections.

This study contributes to the knowledge in the field of Construction Engineering Management in several ways by providing empirical evidence on strategies for improving the completion rates of craftspeople apprenticeship programme. First, the identified new factors that contributes to the non-completion of craftspeople apprentice programme such as *underestimation of the apprentice programme, poor career guidance and inappropriate placement* which has not been reported in previous studies. It is also interesting to note the three factors are closely related. The current finding suggests that non-completion could be attributed to the mode of recruitment and the career guidance. However, these events occur prior to the commencement of apprenticeship. Second, the identified strategies, i.e. *recruitment improvements and early engagement*, and *improvements in the learning experience during the apprenticeship*, provide a focal point to all stakeholders who are keen about filling the skill shortage gap and productivity improvement in the construction industry to channel their resources and effort accordingly. In general, the results of this study

indicates that attention should not be given to only to factors such as such as gender and discrimination identified in previous studies, but should expand to include new factors that emerged from this study. The study conclude that to improve the outcome of craftspeople training energy should be directed towards recruitment methods and better organisation of the programmes to enhance the apprentice learning experience.

Although the study is based on the empirical evidence gleaned mainly from the UK, it could be adopted and serve as a lens to direct future improvements to apprentice training programme elsewhere in the world. Further research might explore the effectiveness of selected recruitment methods on outcomes of apprenticeship programmes.

DECLARATION OF INTEREST

The authors declared no conflicts of interest.

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