

Evaluation of On-Site Training and Certification Programmes for Semi-Skilled Construction Workers in Kenya: The Case of Nairobi City County

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Abstract

Kenya's construction sector can close the knowledge and skill gap by providing on-the-job training and certification programmes for semi-skilled workers, but low participation rates persist. The study mainly aimed to assess the extent of awareness of on-site training and certification programmes among semi-skilled workers in Kenya, focusing on their training needs, identification of such programmes, and exploration of communication and awareness tools. The study employed a qualitative research approach, incorporating theories such as the theory of reasoned action, Yale attitude change approach and cultivation theory. Descriptive research design was utilized, targeting semi-skilled workers, site managers, officials from NITA and NCA, and academic experts. The study utilized snowball sampling to select semi-skilled workers, followed by purposive sampling for interview responses. Microsoft Office Excel 2010 was utilized for data analysis, employing presentation strategies like frequency distribution in percentages to make the data easily understandable and referenced, along with pie charts and bar graphs. The study found that most semi-skilled workers were moderately or poorly aware, with direct communication being the primary method for raising awareness. The study recommended Kenya's government to boost on-site training programmes, enhance communication tools, increase awareness campaigns, and conduct more research on their efficacy and factors affecting their implementation among semi-skilled employees.

Keywords: Awareness, Certification, Construction, On-site, Programmes, Semi-skilled, Training

Introduction

Background

The National Construction Authority (2022) conducted a study to assess the training needs of construction workers in Kenya. The study identified the existence of skills and knowledge gaps in the construction industry which can be solved by training the workers. In the report, the authority recommended the need for basic training for those who enter construction informally or via programmes such as ‘Kazi Kwa Vijana’. William Mwanza, Director for National Industrial Training Authority, verified the presence of a skills gap between the present boom seen in the industry and the availability of qualified skilled personnel during a Dual Apprenticeship Launch event held in Kenya (Swisscontact, 2021). The gap was identified after a feasibility study was conducted and majority of the construction companies attested to facing the challenge of skilled labour (Swisscontact, 2021).

In the NCA training needs assessment report (2022), many respondents to a survey undertaken earlier by the authority indicated preference for on-site training programmes. The training method appealed to many respondents because it allowed trainees to be trained from wherever they are located. This was practical, economical, and avoided language barrier problems.

In order to attract construction workers with less than two years of experience and no technical certifications, the NCA created an apprenticeship programmes in 2016. An apprentice learns on the job while working for at least a year under a certified site supervisor, and he keeps track of his training activities in a logbook. Before the trainee is fully accredited after qualification, a competency assessment test is given to them (NCA, 2021). According to Mwitari (2018), other governmental and non-governmental stakeholders in the industry, in partnership with the NCA and NITA, have also adopted this form of training as a way of bridging the skill gap and empowering the trainees. A trainee can take this training on an ongoing construction site or an assembly workshop where related off-site activities take place.

Many emerging economies including Singapore, Philippines, South Africa and Namibia have incorporated on-the-job training programmes in training and certifying their semi-skilled workforce (Ogbeifun, 2011).

Problem Statement

In 2017, the Kenya Federation of Master Builders (KFMB) estimated the number of trained plumbers, painters and masons at less than 2,000 in the entire country indicating a general shortage of skilled artisans in the construction industry (Swisscontact, 2021). With a large youthful population of approximately 60% aged between 18 and 35 years, major stakeholders in the industry have embarked on training as a way of bridging the existing shortage in the country. The NCA (2022), estimated the demand for training to be at a million training man-days in a year. The authority forecasts a steady rise in this demand of up to twice this number in the next five years.

In 2020, the Government through the Kenya National Qualifications Authority (KNQA) developed Recognition of Prior Learning (RPL) Policy Framework in Kenya (NITA, 2022). In the Presidential Directive on RPL issued on 1st June 2021, Qualification Awarding Institutions (QAI’s) were required to roll out RPL to ensure the assessment and certification of uncertified workers. NITA in partnership with Kenya National Qualifications Authority took part in the development of the 1st draft policy of Recognition

of prior learning. This move was aimed at bridging the existing skill gap in the construction sector (Okongo, 2021). Recognition of Prior learning is used as a tool internationally for lifelong learning, access to higher education and credit towards a qualification. Learning that has taken place outside formal learning institutes, is acknowledged, assessed and certified (Mukhwana, 2021).

The NCA training needs assessment report indicated that the semi-skilled workforce had the least attendance to the training events organized by the authority within a year. This is in comparison to contractors and construction site supervisors (NCA, 2022). According to the NCA report (2022), in spite of the substantial effort by government and non-governmental stakeholders in organizing and conducting on-site construction training programmes, there has been consistent low turnout by the semiskilled workers. Only 55% of 120 workers had attended a training offered by NCA in the past one year (NCA, 2022). Therefore, the main focus of this study was to assess the extent of awareness of existing on-site training and certification programmes available among semi-skilled personnel working in construction sites in Kenya.

Research Proposition

The low level of awareness of the existing training and certification programmes offered at the construction sites in Kenya has resulted in low level of uptake by the semi-skilled construction workers.

Objectives of the Study

The main objective of the study was to investigate the extent of awareness of existing on-site training and certification programmes by semi-skilled construction workforce in Kenya.

The specific objectives of this study included:

- To describe the training needs of semi-skilled workers in construction site in Kenya.
- To identify the existing on-site training and certification programmes offered at the construction sites in Kenya.
- To investigate the existing communication and awareness tools utilized in awareness-raising of existing on-site training and certification programmes in Kenya.
- To present guidelines through which greater awareness of existing on-site training and certification programmes by semi-skilled workers can be achieved in Kenya.

Scope of the Study

The physical coverage of the research was Nairobi City County. There are many construction projects undertaken in Nairobi that vary in terms of scope and technology. The projects are handled by different contractors registered by the National Construction Authority (NCA) under different categories, spanning from NCA 1- NCA 8. All classes of contractors are represented in Nairobi and therefore construction work in Nairobi represents what is being undertaken in the rest of the country (NCA, 2020). This made it a better scope geographically because of the diversity it presents.

Literature Review

Training and Development

Training, as defined by Bass & Vaughan (1966), is a process of organizational improvement that seeks to bring about positive changes by altering the skills and attitudes of employees. This definition encompasses activities ranging from the development and modification of complex socio-emotional attitudes to the acquisition of simpler motor skills. Despite the fact that skills are improved, training aims to also improve on the attitudes of the workers towards the job. Training is therefore considered as an investment in human resource development since it improves the human asset in the organization.

According to Mumford (1988), development improves the managerial effectiveness through a learning process. Development process is well planned and deliberate targeting the managerial personnel in most cases. It aims at developing the conceptual skills. On the other hand, “training” is short term with an aim of imparting the technical and mechanical knowledge. Training is therefore vocationally or on the job oriented.

Some organizations prefer to recruit staff who are already trained while others have a policy that allows training and development as a measure to maintain key skills. Whichever option an organization desires to adapt, it should result in the desired effect. Buckley & Caple (1995) indicate that training should follow a systematic approach. The approach consists of stages that ensure the training achieves its desired intentions. The approach begins by identifying the training needs of the workers. Their training needs enable an appropriate training plan to be developed after which the training is carried out. The effectiveness is evaluated and if the desired intentions are not met, the training needs are identified again.

Construction On-Site Training and Certification

According to Alipour *et al.*, (2009), Training has been used throughout the world as a way of building capacity in the construction sector, as well as improving work productivity. Training and development enable an organization to effectively manage and maintain a skilled workforce. Training is further described as a situational process, meaning that no specific training method is correct for every situation.

In the twenty first century, on-the job training, also known as on-site training, has been used in construction sites to provide task specific knowledge and skills to the semi-skilled workers (Alipour *et al.*, 2009). The workers are able to carry out their work as they earn. Certification is done at the end of the onsite training as proof that the trainee is competent. The testing and certification process enable the trainer to assess the competency of the trainee. The certificate on the other hand improves the employability of the trainee, placing them at a better position to demand a better wage (Makena, 2016).

Global Perspective

Malaysia

According to Zaki (2012), the country introduced a two-year apprenticeship training programme in the year 2005 known as National Dual Training System (NDTS) as a measure to improve the shortage of skilled workers. The apprenticeship programme was aimed at producing a knowledge worker (K-Worker) with the appropriate technical competence, human and social competence, learning and methodology competence.

The apprenticeship training programme combines 20-30% classroom based vocational training at training institutions and 70-80% training at the workplace.

Singapore

A two-year apprenticeship program was introduced by Singapore's Building and Construction Authority in 2012. The program was designed to raise the level of expertise of construction employees so they could command higher wages. The apprenticeship program combined work experience and academic vocational instruction. An incentive for upgrading was offered to the learners, which helped them financially while they were in training. Following certification, their earnings increased by 10% to 20% percent (BCA, 2015).

According to BCA (2015), the apprenticeship programme had attracted more than 70 apprentices by the year 2015 and 80 percent were young people below the age of 35 years. The apprentices received their trade diploma certificates in the year 2014 after completion. The authority provided financial incentives to the participating construction companies by enabling them meet up to 80 percent of the training cost.

Construction On-Site Training and Certification in Kenya

Skilled construction workers including site supervisors are accredited by National Construction Authority (NCA). This is to ensure they have the skills required to practice their trade hence streamlining the industry. The trades covered include masonry, plumbing, electrical, wiring, tiling and roofing (Kagai, 2019).

The National Construction Authority rolled out an apprenticeship programmes in 2020 that allows semi-skilled construction workers to work under an accredited site supervisor to gain experience. The semi-skilled workers who wish to join the programmes are supposed to fill a downloadable form from the National Construction Authority's website (National Construction Authority, 2017).

According to NCA (2017), semi-skilled workers are issued with an apprenticeship card and a logbook which they are required to log in 288 hours during the programmes. The worker is then supposed to undergo a trade test with the National Industrial Training Authority to establish their competency. Most of the workers however find the trade tests expensive which hinders them from taking them. This explains why, despite the fact that these training and mentorship programmes are being carried out, only 34,295 artisans had been registered with NCA as at 2019.

The National Construction Authority set up training and mentorship programmes whereby the semi-skilled construction workers were trained and accredited. The training was held by the Authority at Kolping Vocational Centre in Kilimambogo, Kiambu County on 12th to 13th of January 2017. The training focused on construction workers and site supervisors and was themed: Be SAFE (Smart, Alert, Focused and Educated). The construction workers were trained on construction industry basics, construction safety, health and disaster response, work ethic, entrepreneurship and best practices for the industry. The benefit is that these training are offered at no cost to the workers (NCA, 2017).

The National Construction Authority set up another training and accreditation programmes in 2017 themed 'Jenga smart' that targeted artisans and site supervisors. The training was free and meant to sharpen the skills of the artisans, train them on the importance of using Personal Protective Equipment (PPE) and sensitize them on industrial rights. The training sessions were conducted on construction sites. The National

Construction Authority partnered with Technical and Vocational Education and Training (TVET) institutions and managed to train 15,000 skilled workers (Mwitari, 2018).

According to (Makena, 2016), a number of construction firms in Kenya have also dedicated their time and money to train and certify the semi-skilled workers as a way to make them competent improving their employability. The move is also meant to bridge the skill gap that is existing in the construction industry. Some of these firms are registered with NCA and NITA as trainers and work in partnership with other non-profit organizations.

According to NITA (2021), a list of valid training providers is released annually. There are construction companies such as Norken International Ltd, offering training to the semi-skilled workers and are registered by NITA and NCA as training providers.

Theoretical Perspective

Training theories are crucial for professional training design, enabling trainers to make informed decisions. Knowing what drives people's attitudes and behaviors is essential to comprehending how awareness is impacted and the potential improvement measures. The study focused on the theory of reasoned action, Yale attitude change approach and cultivation theory.

Theory of Reasoned Action

This theory highlights the importance of an individual's attitude and subjective norms in shaping their intention to perform a specific behavior. Attitude is influenced by the consequences and effect of performing such behavior. On-site training, such as skill rewards and competency certificates, can positively impact an individual's attitude. Information about training and certification benefits can also improve attitude, as social pressure from the surrounding environment can also influence it.

Yale Attitude Change Approach

The theory highlights the importance of persuasive messages in shaping individual attitudes and behavior. It suggests diversifying communication and awareness-raising tools, encouraging semi-skilled workers to attend training and certification programmes, and using credible sources like NCA and NITA to improve reception and raise awareness.

Cultivation Theory

The theory highlights the significant role of social media exposure in shaping attitudes and beliefs, suggesting that continuous awareness campaigns can positively influence the adoption of training and certification programmes among semi-skilled construction workers. The theoretical framework is captured in the Figure 1 below:

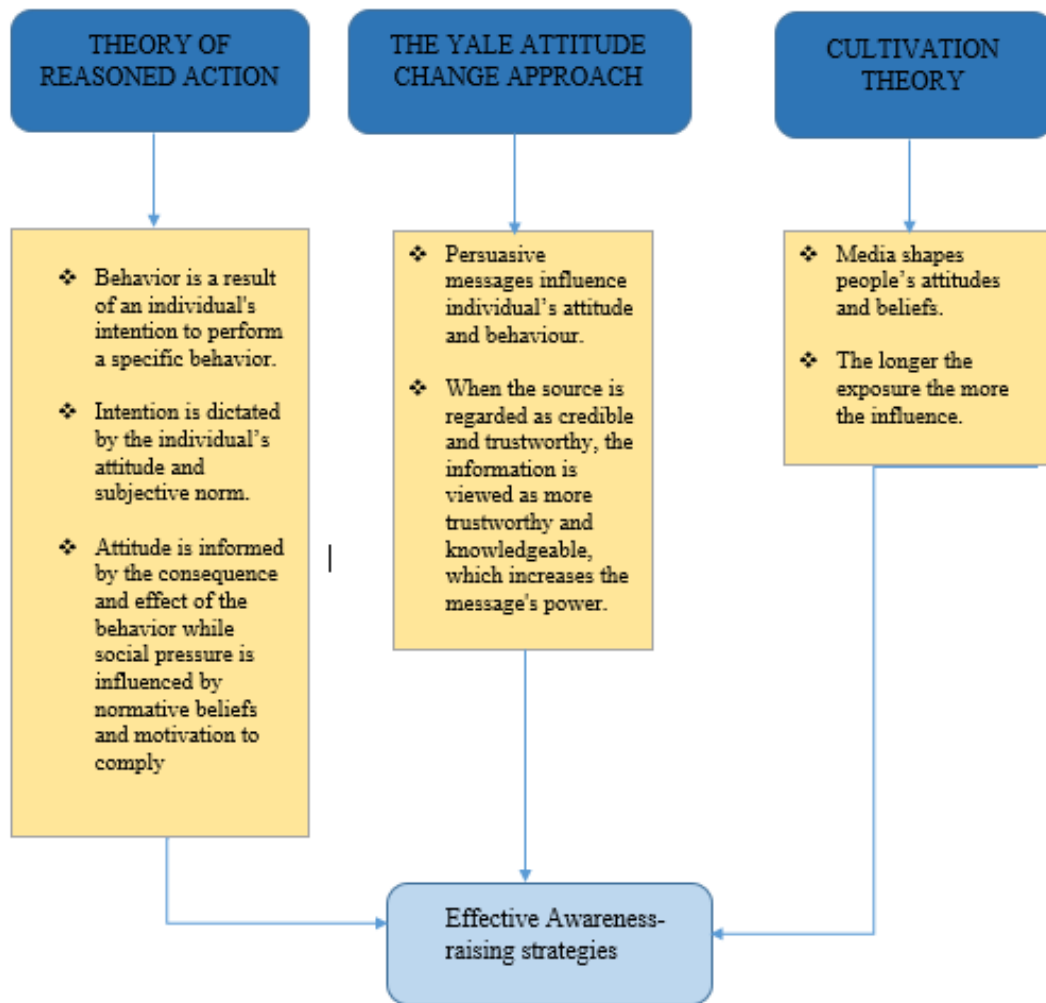


Figure 1: Theoretical Framework of the Study

Source: Author, (2022)

Research Gaps

Studies and literature on on-the-job training and certification point out only a few aspects of on-the-job training practice; they don't go into great detail on the degree to which semi-skilled workers are aware of the on-the-job training that is already in place. The knowledge and skill gap that currently exists in the construction industry was the main focus of the most recent training study NCA conducted. The survey focused on general training requirements in construction (NCA, 2022). It did not take into account how well-informed semi-skilled workers were about the availability of on-site training and certification programmes. The gaps as indicated above encouraged the researcher to carry out a detailed investigation on the extent of awareness of existing on-site training and certification programmes among semi-skilled workers.

Conceptual Framework

The literature has dealt with the concept of training and development, specifically onsite skills training for the semi-skilled workforce. According to Swaen (2015), a conceptual framework exemplifies the goals of the study. It specifies the study's variables and their relationships. The dependent variable in this study is the extent to which the semi-skilled workers in the construction sector are aware of existing on-site training programmes. The independent variable in this study is the existing on-the-job training programmes for semi-skilled workers. The conceptual framework is captured in the Figure 2 below:

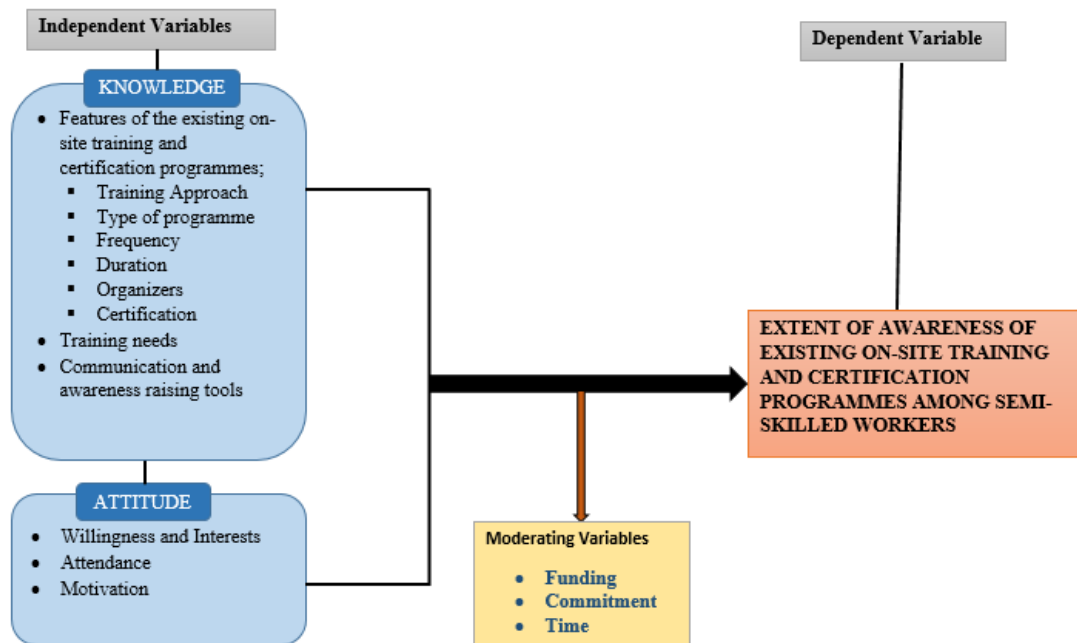


Figure 2: Conceptual Framework of the Study

Source: Author, (2022)

Methodology

Descriptive research was used in the study as the research design. The research questions in this study focused on understanding 'what' happens rather than 'why' it happens, making a descriptive research, the most suitable research design. The traits of a particular group were described including the frequencies in which they occurred (Kothari, 1990).

The first set of the target population for the study were semi-skilled construction workforce working in active construction sites under registered contractors in Nairobi. The second set of the target population were site managers, working under registered contractors, in charge of the selected active construction sites. The third set of the target population were; an NCA official from the department of Training and Capacity Building, training expert in academia from one of the government technical institutions in Kenya and a NITA official from the department of Industrial Training and Skills Development.

In the selection of construction sites under registered contractors in Nairobi City County, the stratified sampling technique was used. In this case, due to the expansiveness of Nairobi City County, the county was divided into sub-counties and in each sub-county, active construction sites under registered contractors in the different categories were selected to form part of the total population. Nairobi county was subdivided into 17 sub-counties and out of the 17, the study focused on 5 sub-counties due to time and financial constraints. Simple random sampling technique was used to select the five sub-counties. The selected sub-counties included: Westlands, Langata, Kasarani, Dagoretti North and Kamukunji.

Snowball sampling technique was used in selecting the semi-skilled workers in the active construction sites. According to Taherdoost, (2016), a non-probability sampling method called snowball sampling is best used when the population is small and challenging to reach due to its closed character. The approach solely relies on recommendations, with current subjects offering recommendations to find samples.

The site manager selected the semi-skilled workers under different trades, for the study. At least 3 semi-skilled construction workers were selected from different trades in every active construction site in the selected sub-counties in Nairobi City County (Westlands, Langata, Kasarani, Dagoretti North and Kamukunji). Construction projects that were under investigation were at different stages of construction. These trades were not in operation concurrently at the construction sites. Therefore, the trades chosen were unique to each site depending upon the stage of construction at which each project was at.

Purposive sampling technique was used to select official respondents from NCA, NITA and an institution of training. According to Tongco, (2007), the purposeful selection of an informant based on the informant's personal characteristics is known as the judgment sampling or purposive sampling technique. In this case, the researcher determines what information is required and then searches for sources who can and are willing to supply it based on their expertise or experience. Official communication was made to the institutions by the researcher which responded by recommending specific respondents drawn from the relevant departments within the institutions. An NCA official from the department of training and capacity building, NITA official from the department of industrial training and skills development and a trainer from a technical training institution within Nairobi City County, were referred to the researcher. The respondents were to provide authoritative information for the study. Table 1, 2 and 3 shows a breakdown of the target respondents.

Table 1: Table 1: Distribution of Calculated Sample Size of Active Construction Sites in Nairobi City County

Sub-Counties in Nairobi City County	Population distribution of active construction sites under registered contractors (N)	Sample size
Westlands	579	30
Langata	511	26
Dagoretti North	249	13
Kasarani	240	12
Kamukunji	199	11
TOTAL	1778	92

Source: Author's Construct, (2022)

Table 2: Distribution of Semi-Skilled Workers in Active Construction Sites in Nairobi City County

Sub-Counties in Nairobi City County	Population distribution of active construction sites under registered contractors (N)	Sample size of active construction sites	Number of semi-skilled workers in every selected sub-county (3 workers per active site)
Westlands	579	30	90
Langata	511	26	78
Dagoretti North	249	13	39
Kasarani	240	12	36
Kamukunji	199	11	33
TOTAL	1778	92	276

Source: Author's Construct, (2022)

Table 3: Distribution of Semi-Skilled Workers in Active Construction Sites in Nairobi City County

Respondent Category	Targeted Number
Contractors/site supervisors in active construction sites in the selected sub-counties of Nairobi City County	92
Total Semi-skilled workers in active construction sites	276
NCA official	1
NITA official	1
Expert in Academia	1
Total target population	371

Source: Author's Construct, (2022)

Data Collection

Through the use of questionnaires and interviews, data on respondents' awareness of the programmes for on-site training and certification, as well as the level of that awareness, were gathered. Data was collected by administering the questionnaires to semi-skilled workforce working under registered contractors, site managers in-charge, in active construction sites in different sub-counties of Nairobi City County. Recorded interviews were conducted with an expert in academia, a NITA official and an NCA official to obtain authoritative information and their perspective on on-site training and certification for the semi-skilled workers. The review of pertinent literature was used to gather secondary data for the study.

Out of a total of 368 questionnaires administered to the site managers and semi-skilled workers, only 267 questionnaires were returned duly filled giving a total response rate of 73%.

Data Analysis

A pilot study was conducted during the study to check the validity and reliability of the study. The data obtained was used to measure internal consistency using Cronbach's alpha (α). According to Tavakol (2011), Cronbach alpha is used to gauge how consistently a test or scale measures a given idea across all of its elements. The permissible values for the metric, which has a scale from 0 to 1, fall between 0.7 and 0.95. The coefficient of 0.82 was calculated using Cronbach's alpha (α). Since the information was regarded as reliable, the questionnaires did not need to be changed.

The content validity of the questionnaire and interview schedules was established through reviews by the research supervisors to ensure they were in-line with the subject of the study. Also, to improve reliability during the collection of data, the time to administer the questionnaire was important to minimize the influence of external factors.

Data in the study was analyzed using the spreadsheet software programmes, Microsoft Office Excel 2010. For the collected and recorded data to be meaningful at a glance, and make ease of reference, data presentation techniques were used.

Results and Discussion

Extent of Awareness of Existing On-Site Training and Certification Programmes by Semi-Skilled Construction Workforce in Kenya.

The objective aimed at establishing the awareness of the existing on-site training and certification programmes by the semi-skilled workers and rating their extent of awareness. The findings of the study showed that majority of the semi-skilled workers were aware of the existing on-site training and certification programmes. 63%, were aware of the existing on-site training and certification programmes while 37% were not aware. This translated to 123 respondents who were aware and 72 who were not aware. However, in terms of the extent of awareness, 47% of the total 123 respondents, were moderately aware of the existing on-site training and certification programmes whereas 45% of the respondents were poorly aware. Only 8% were found to be highly aware.

The semi-skilled workers did not have adequate information concerning the on-site training and certification programmes offered by NCA and NITA and how they would go about in the application process of the programmes and the trade tests for certification purposes. The results are as presented in Figure 3 below:

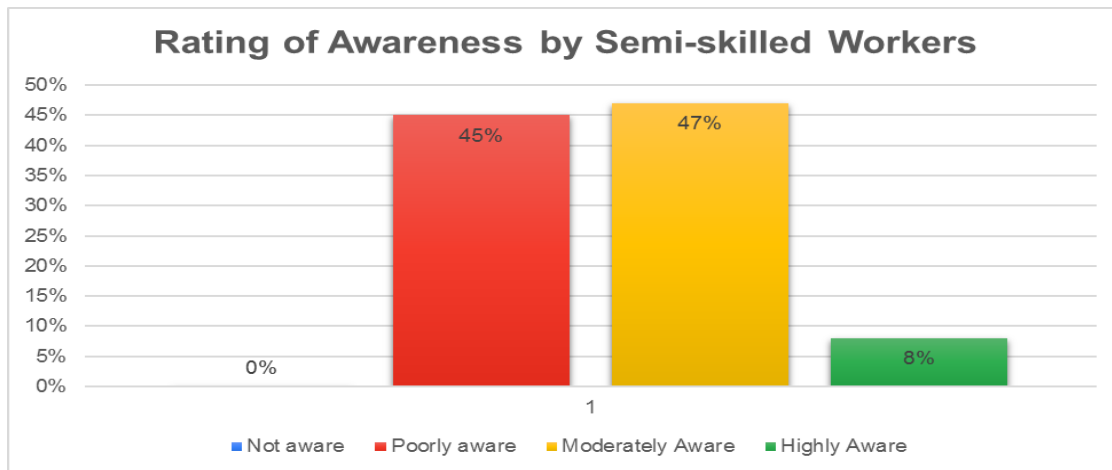


Figure 3: Rating of Awareness of Existing On-Site Training and Certification Programmes by Semi-Skilled Workers

Source: Field data, (2022)

Training Needs of Semi-Skilled Workers in Construction Sites in Kenya.

The study reveals that masonry, plumbing, and electrical (wiring) are the most popular training needs for semi-skilled workers, with communication skills being the least appealing. Masonry takes longer to complete than other trades, ensuring longer employment, making it a more appealing choice for these workers. Overall, masonry is a more appealing trade for semi-skilled workers.

The study aimed to understand the training areas covered by site managers and their effectiveness in meeting workers' training needs. Health and safety training was found to be the most popular, followed by masonry, plumbing, steel fixing, painting, welding, electrical (wiring), and carpentry. Roofing and inspection of construction materials had the lowest percentage. Health and safety training was conducted to reduce injuries and health-related cases on construction sites. Masonry had the highest number of trainees compared to electrical (wiring).

Existing On-Site Training and Certification Programmes Offered at The Construction Sites in Kenya

Most active construction sites provide on-site training and certification programmes for semi-skilled workers, but some sites decline due to contractors' perceived cost. According to the responses of the site managers and semi-skilled workers, coaching, mentoring, and apprenticeship was the main training techniques for on-site training and certification programmes, with vestibule and job rotation having the lowest percentage. NCA provides on-site sensitization and apprenticeship programmes in construction sites, with coaching being the most popular due to practicality, cost-effectiveness, and timely feedback from experienced trainers. Figure 4 summarizes the responses of the semi-skilled workers.

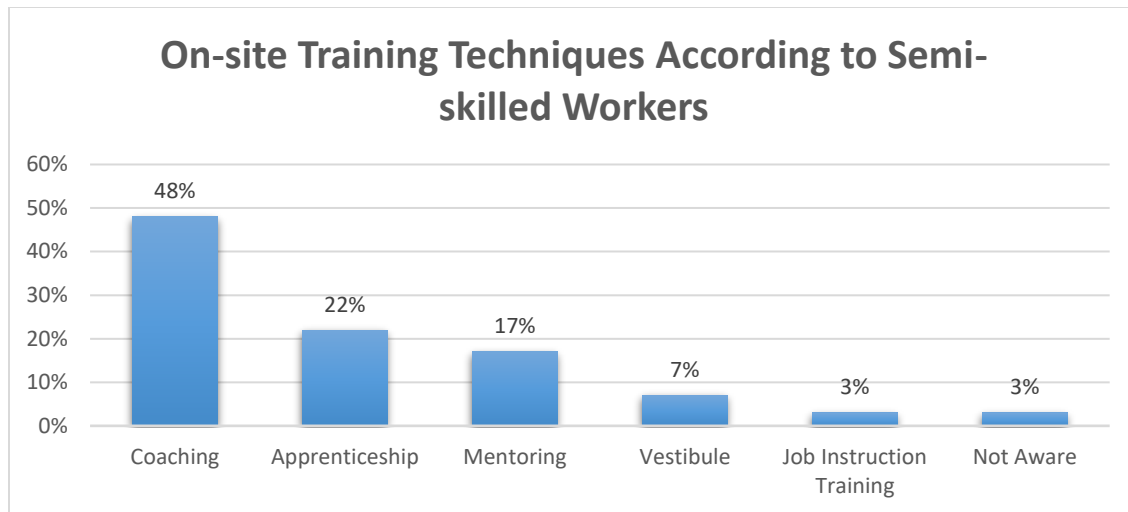


Figure 4: On-Site Training Techniques Used According to Semi-Skilled Workers

Source: Field Data, (2022)

The majority of the construction sites offered safety training, skills training and technical or technology training respectively. Quality training had the lowest percentage according to the findings. Most of the construction sites offered training on a monthly basis with some choosing to have the sessions quarterly and yearly. Weekly and intervals of more than one year, accounted for the lowest percentage. Majority that offered training on a monthly basis conducted it for a duration of 0-7 days only. This can be attributed to the difficulty involved in organizing and conducting training.

According to the findings from the interviews, NCA offered sensitization programmes for 2 hours per construction site and the apprenticeship programmes for a duration of 6 months. NITA on the other hand offered their trainees trade tests three times a year; in April for all grades, August for grades I and II and December for grade III. Most of the on-site training and certification programmes were organized by non-governmental bodies, with governmental bodies such as NITA and NCA also trying to match up by either working individually or in partnership with non-governmental bodies. According to the interviews, some training institutions and construction companies had partnered with NITA to act as training centers for semi-skilled workers.

The findings indicated a tie in percentage between the semi-skilled workers who received certification and who did not receive any certification after the training programmes.

It was noted that those who attended NCA sponsored on-site training sessions received a certificate of attendance and obtained provisional and full accreditation cards from NCA. Provisional accreditation was given to those semi-skilled workers who were yet to obtain a competency certificate while full accreditation was given to those who had obtained one. After undergoing the apprenticeship programmes by NCA or training offered by NITA accredited training centers or construction companies, the semi-skilled workers could then book a trade test with NITA. The accredited training centers offer a certificate of attendance to the semi-skilled workers after attaining the stipulated number of training hours.

Existing Communication and Awareness Tools Utilized in Awareness-Raising of Existing On-Site Training and Certification Programmes in Kenya.

Semi-skilled workers learn about on-site training and certification programmes through direct communication, with advertising and publications having the lowest percentage. Officials from NITA and NCA use site visits as the main communication tool, along with bulk SMS and social media for raising awareness. No respondent reported receiving press releases.

Site managers generally reported good attendance of semi-skilled workers in training sessions, particularly when direct communication was used as a tool of awareness. However, some site managers reported poor attendance due to cost or limited time. NCA reported good attendance for on-site sensitization trainings, while low attendance in apprenticeship programmes was attributed to the recent rollout and lack of awareness campaigns. NITA also rated attendance as good, stating that semi-skilled workers were enthusiastic about their trades. Overall, the majority of site managers reported good attendance and enthusiasm for their training programmes.

Revisiting the Study Proposition

According to the findings, 45% of the respondents were poorly aware, 47% were moderately aware and only 8% were highly aware. The high level of poor awareness can be attributed to the fact that most governmental and non-governmental bodies used direct communication as the main tool in raising awareness, therefore limiting the extent of awareness. The findings of the interview held with NCA official indicated low turnout of the semi-skilled workers, especially of the venue-based trainings. These findings fully supported the Study Proposition.

Conclusion

To enhance the awareness of on-site training and certification programmes, governmental and non-governmental bodies should diversify their communication strategies. They should consider using social media advertising and brochures to reach more semi-skilled workers. Additionally, authorities should increase the frequency of site visits and make engagements more welcoming and interactive. This will help to increase the reach of these programmes and improve the overall effectiveness of training initiatives.

On-site training programmes should introduce more training techniques and longer durations. Most construction sites offer training for 0-7 days, which is insufficient for their competency. To improve expertise, the duration should be extended with more partnerships between governmental and non-governmental bodies. This will help alleviate the financial burden of training on both parties, ultimately benefiting the workers holistically.

The trainings positively impacted the job performance of semi-skilled workers and they were willing to attend future trainings. Government and non-governmental bodies should increase awareness of on-site training and certification programmes by increasing frequency of awareness campaigns and engaging more tools to reach more semi-skilled workers.

Recommendations

The following are recommendations of the study based on the research findings and conclusions drawn:

- The Kenyan government, through NCA and NITA, should increase financial resources for on-site training programmes to enhance awareness-raising campaigns, improve program delivery, to reduce the existing skill gap.
- Government and non-governmental organizations should support skilled workers in the construction sector who have benefited from on-the-job training and certification programmes. Offering scholarships and job upgrades could encourage more semi-skilled workers to attend and promote the benefits of these programmes. This would help maintain a strong reputation in the sector.
- The government should increase contractor engagement through NITA and NCA to enhance communication on on-site training and certification programmes and delivery methods, as contractors are best positioned to articulate information directly with semi-skilled workers.
- Governmental and non-governmental bodies engaged in on-site training and certification should be keen on increasing the frequency of conducting awareness raising campaigns and also on diversifying the tools used in communication and awareness raising.
- The government should benchmark with other countries that have been successful in implementing on-site training and certification among the semi-skilled workers. These countries include Singapore, Malaysia and South Africa.

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