On the Job Training (OJT) Assessment for Diploma in Construction Technology

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Received: 2 Apr 2020
Reviewed: 9 May 2020
Accepted: 8 June 2020

ABSTRACT

On Job Training (OJT) is best for skill development and attitude change. Implementation of OJT which focuses on the transition of students to working life, however with little attention given to the process of assessment in OJT. Therefore, the aim of this study is to investigate the OJT assessment problems among Construction Technology students in Malaysian Vocational College. The research design for this study uses a survey that was carried out qualitatively through semi-structured interviews among Construction Technology students, lecturers and experienced construction practitioners. From the data analysis, it has been identified that there is an inadequacy of OJT assessment rubric in assessing the skill and knowledge of the construction technology students. This has been contributed with the used of holistic rubric for the OJT assessment which has been designed to be use by every course in the Vocational College. The result also revealed that allocation of marks in the assessment rubric is not commensurate with some construct assessed and need to be reviewed. This study shows that an assessment rubric should emphasizes on specific knowledge and skills in assessing students' competency during training program and in this case to produce competent site supervisor. In addition, a good assessment rubric should consider the tasks and marks thoroughly to avoid biasness among students. Therefore, it is suggested to carry out further study in investigating the validity and reliability of current industry' OJT assessment rubric for the Construction Technology students.

Key Words: *On Job Training; Construction Technology; An assessment rubric; Competency; Validity and reliability.*

INTRODUCTION

In Malaysia, construction industry can be known as a major productive sector since the construction started in the early 1990s with the development of mammoth projects (Abdul Razak et al. 2010). However, the reoccurrence incidences of defects and failures in government buildings will led to serious problems in the future upcoming construction projects in Malaysia (Ahzahar et al. 2011). This has been partly contributed by incompetent workforce. Lack of experience and competency of labours is the most significant factor that contributes to poor workmanship and can be reduced by having training and experience (Ali & Wen 2011). Therefore, construction site workers should equip themselves with sufficient competency, especially in the technical aspects (including knowledge and skills) which is one of the critical success factors in construction, and thus distinguish them from other construction practitioners (Mohammad et al. 2016; Yaman et al. 2015).

Training and education have an effect on competency (Alainati, Alshawi and Al-Karaghouli 2010). Also, several factors such as knowledge, skill, experience, and training build the level of competency in the construction supervisor (Mohamed 2002; Peterson 1999). Moreover, competency is normally achieved or demonstrated through one or more of the following; which are education, training, mentoring, experience, certification, licensing, and performance assessment (American Industrial Hygiene Association & American National Standards Institute 2005). Abdul Razak et al. (2010) quoted from Wong (1991) pointed out that the weak points in the construction sector in Malaysia are a lack of efficient training skills in the construction field and insufficient status acknowledgment of construction technologists. These construction technician training is a set of activities aimed at assisting an individual in the construction or related field to acquire knowledge, skills and the right attitude, motivations necessary for the effective performance of a specific tasks or job (Femi 2004).

Industrial training is a medium for students to empower competency level and required skills (Baharuddin 2014). Industrial training or practicality actually plays an important role in enhancing knowledge, skills, expertise as well as efficiency (Muzafar Mat Yusof & Nur Hidayah Mohiddin, 2018). One type of industrial training that is focusing on skill enhancement is On Job Training (OJT) (Alipour, Salehi and Shahnavaz 2009). On-the-job training uses the regular or existing workplace tools, machines, documents, equipment, knowledge, and skills necessary for an employee to learn to effectively perform his or her job. It took place within the regular working environment that an employee experiences on the job (Vasanthi & Rabiyathul Basariya, 2019). In Malaysia, OJT has been introduced to provide Malaysian Vocational College students to the real work situation, condition and enhancing the level of the work (MOE 2014). The purpose of OJT is also to empowering competency and opportunity to students to gain experience in the working life so they can improve their workability (MOE 2014). The purpose of OJT are (MOE 2014):

1. Students can apply knowledge and skills learned at the workplace;
2. Students can communicate effectively at all stages;
3. Students can practice teamwork;
4. Students can be professional and ethical in following the policies, procedures, and methods in the organization;
5. Students can explain the tasks given during OJT according to the format given.

Unfortunately, ways in which workers view and approach training and assessment and the effects of training and assessment on their ability to perform job-based and generic skills is barely understood (Timma 2007). Critical components of training packages are assessing workers' skills, knowledge and abilities (Smith & Keating 2003). As suggested by Galagedera (1991), the industrial training program should have an assessment of student achievement regarding working environment suitability, increase of knowledge and ability to adapt the concepts and theories they have learned either before or after industrial training. Vaughn & Cameron (2009) observed that workplace-based assessment is overlooked as a research focus yet it is an important area because it directly impacts the training and learning that can take place. It is an important issue because all teaching-learning activities and assessments have to be parallel with the objectives and learning outcomes (Biggs 2004). Therefore, assessment of OJT should be done based on the objectives of OJT. It will ensure the specific purpose of OJT is achieved by the students who performed OJT.

Assessment in OJT

Assessment can be defined as processes that identify, collect, analyze and report data that can be used to evaluate achievement (Rogers 2002). Students' achievement and ability is a benchmark which indicate the successful or effectiveness of a program or curriculum (Mat Rasid Ishak, 2014). Industrial attachment supervision and assessment should be competence-based, as misalignment of the two is detrimental to learning (Gulikers et al. 2008). Graduates which possess high technical competency as well as soft skills

are highly demanded by the employers (Aiello, 2015). This is to prove that the industry needs knowledgeable workers with multi skills (Hazwani Hasami and Nor Aishah Buang, 2018). The process of assessment in OJT takes place during four months of OJT program (MOE 2014). Marks gain through OJT determine whether a student will pass or fail the OJT program. A total of 100% marks is divided into two parts. 40 % will be given by the industry while 60 % of the total marks will be given by the lecturers (MOE 2014). For the students to pass OJT, they must score at least 60% of the total marks. OJT assessment form involves the usage of rubric in providing scores to students (MOE 2014). Rubrics are assessment structures that allow for the qualitative measurement of multiple performance components simultaneously (De Luca & Bolden 2014). Ab Rahman (2014) state that rubric is a way to improve the reliability of the evaluation and to achieve high validity in the assessment, as well as producing scores and grades that can be trusted. However, instrumentation issues also occur when scores produce are lacking of appropriate level of consistency or do not generate valid scores (Mohajan, 2017). Thus, evaluation tools that not aligned with the work of schools can cause invalid score for the student competency (OECD, 2008).

Scope of Study

In Malaysia, construction technology course has been introduced into the educational system through vocational and technical educational institution which is Vocational College (VC). A total of 79 vocational schools has been upgraded to a fully VC (MOE 2011). In VC, OJT has been introduced as a prerequisite to acquiring Malaysian Vocational Diploma (MOE 2014). There are 45 VC in Malaysia that offer Construction Technology course.

METHODOLOGY

The research adopted a survey which has been carried out quatitatively, and the data that is analyzed through qualitative analysis (thematic analysis). The instrument developed for this research is an semi-structured interview which consists three sets of interview questions (Refer Table 1). Interview are superbly suited for researcher to know the independent thoughts of each individual in a group and examining potential issues (Adams 2015). Furthermore, this study used purposive sampling technique. Purposive sampling is a non-probability sampling that allows researchers to select subjects for the study and the expectation from each participant is that they will provide information which area unique and valuable for the research (Suen et al., 2014). Participants chosen for this research comes from the Construction Technology students, lecturers, and experienced construction practitioners. It is because these three categories of participants are exposed to the assessment rubric which provide sufficient and reliable input for this study.

Table 1. Questions specification table.

Participants	Construct	Elements
Students of Construction Technology	Assessment rubric of OJT	Allocation of marks
Lecturers of Construction Technology	Assessment rubric of OJT	Job scope and skills Allocation of marks
Experienced Construction practitioners	Assessment rubric of OJT	Job scope and skills Allocation of marks

Table 1 shows assessment rubric of OJT as a construct for each participant with the elements respectively.

FINDINGS AND DISCUSSION
Interview Analysis

Table 2. Thematic result specification table.

Participants	Thematic result
Students of Construction Technology	Allocation of marks in the assessment rubric is not commensurate with the construct assessed
Lecturers of Construction Technology	Assessment rubric used is too general which is not specific to the job scope and skills in the construction technology
	Allocation of marks in the assessment rubric is not commensurate with the construct assessed
Experienced Construction practitioners	Assessment rubric used is too general which is not specific to the job scope and skills in the construction technology
	Allocation of marks in the assessment rubric is not commensurate with the construct assessed

Table 2 shows thematic result for each participant respectively.

a. Construction Technology students Interview Analysis

During the interviews, a theme surfaced regarding assessment problems during OJT (Refer Table 2). The theme is an allocation of marks is not commensurate with the construct assessed. Type of rubric used in OJT assessment rubric for the industry is holistic rubric. The use of the holistic approach to scoring is often wasteful of the information available, reducing the validity of the assessment (Crooks, Kane and Cohen 1996). Therefore, allocation of marks in the OJT assessment rubric should reviewed. It is because for a rubric to fully achieve their benefits in the context of performance assessment, careful consideration must be given to the rubric design, and specifically, the quality and focus of rubric criteria (De Luca & Bolden 2014).

Performance assessment requires candidates actively create and produce reaction products as well as demonstrate knowledge and skills in the form of portfolios, simulated workplace activities, role play, practical demonstrations, observation by a qualified assessor in the workplace, open questions, valuing the partner / self and presentations, written tests, projects, case studies, witness testimony (witness testimony), documents or products produced in the workplace, an oral test, and simulation activities in the workplace (Gillis & Bateman 1999; Jeanette 2001). Besides, competency-based assessment provides an opportunity for students to receive feedback on their performance (Blank 1982).
It is concluded that in OJT assessment, the main concern is the rubric design which refers to the allocation of marks for each element.

b. Construction Technology lecturers Interview Analysis

During the interviews, two themes emerged regarding assessment problems during OJT (Refer Table 2). Firstly, assessment rubric used is too general and not specifically assessing the job scope and skills in construction technology. Hence, training is supposed to ensure that students are equipped with working knowledge to cope with their specific job role and enables them to appreciate school-based education by relating theory to application in the workplace (Ballinger & Lalwani 2000; Mihail 2006; Osman et al. 2009; Schuetze & Sweet 2003). Therefore, assessment rubric should measure the outcomes of training and the validity of OJT assessment rubric should be one of the primary concerns in assessing students' performance. It is because, the validity of an instrument is important in measuring required competency (Rahmat 2011).

Consideration of skill transfer in the design of assessments and activities, and the use of formative assessment are needed for a successful work-integrated learning experience (Cates & Jones 1999). In response to the widely acknowledged challenges of measuring skill performance, assessments should

clearly define the precise nature of the skill, or behaviors, and the expected level of performance for higher education students (Riebe & Jackson) .

Secondly, allocation of marks in the assessment rubric is not commensurate with the construct assessed and need to reviewed. It is because rubrics are also a particularly effective assessment structure for grading student performance across a variety of performance components and about multiple quality indicators (Tierney & Simon 2004).

Therefore, an assessment rubric should be more specific in assessing job scope and students' skills while marks in the assessment rubric should be fair to all elements assessed to ensure the effectiveness of OJT.

c. Experienced construction practitioners Interview Analysis

During the interview, two themes risen regarding assessment problems during OJT (Refer Table 2). Firstly, assessment rubric used is too general which is not specific to the job scope and skills in the construction technology. Furthermore, the holistic rubric used in the OJT assessment for industry have a few disadvantages. For example, assessors do not have a specific reference to value and this way will cause the assessor will assess on their views (Ab Rahman et al. 2014). Thus, the interpretation of the individual consistency across assessor and other assessments will be different (Gillis & Griffin 2005).

Secondly, allocation of marks for each element in the assessment rubric is not commensurate with the construct assessed and need to be reviewed. The allocation of marks given should be carefully designed. It is believed, rubric is developed to explain the students' level of achievement based on marks given (Rahmat 2011). Research by De Luca & Bolden (2014) has emphasized the value of rubric in increasing score reliability by providing consistent grading criteria that are standards based.

It is concluded that a detailed assessment rubric with marks accordingly to each element is crucial in assessing students' performance during OJT.

CONCLUSION

OJT is being introduced to empower competency and improve students' workability. Therefore, OJT assessment is vital to ensure the effectiveness of OJT in Malaysian Vocational College Construction Technology course. From this study, it has been highlighted that there are disadvantages in using holistic rubric for OJT assessment rubric concerning the industry. It has resulted in the invalidity of the rubric. Furthermore, allocation of marks is not commensurate for some constructs whereas, fairness is an important criterion in an effective assessment. Therefore, it is concluded that the main problem in OJT is an inadequate assessment rubric in assessing students' performance during OJT. Lecturers and industry professional should work together in producing a reliable and valid assessment rubric to measure student's performance to ensure student quality is at par with the industry requirement. Further research is suggested to conduct a study in validity and reliability of industry' OJT assessment rubric for the Construction Technology students.

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