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The Impact of Formative Assessment on Students' Own Learning and Development During Practice Learning

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Abstract

Learning in the workplace allows students to acquire a range of skills that contribute towards their employability, besides making them fit for purpose and practice. Students are now being assessed for the competencies they develop during practice. In this regard, the role of mentors is important. Mentors generally perform formative assessment of students mid-way during the traineeship period. For students, formative assessment aims at providing constructive feedback which contributes to making students progress well. To date, there is enough evidence (Nicol and Owen, 2008; Nishigaki, 2008; Merrill, 2008) to indicate that formative assessment can contribute significantly to the learning experiences of University students. While this type of assessment is well adapted and applied in the school learning environment, its application within practice learning is still being researched. This is mainly due to the fact that practice learning is socially shared among the staff at the workplace and involves the use of tools with contextual reasoning making formative assessment not a straightforward task. At practice settings, knowledge and skills are blended together and cannot be separated as in the school environment. Yet, it is considered as an important activity in fostering growth in learning capabilities.

This study sought to explore the impact that formative assessment has on practice learning. For this, a survey was conducted to examine the perception of students and mentors on how formative assessment enhances the development of students' own learning and development. The study reveals that formative assessment makes a significant contribution towards the acquisition of knowledge and skills in practice learning. It helps in enhancing critical self-reflection skills and foster learners to make their own interpretation as well as provides opportunities for students to set future targets.

Keywords: Practice Learning, Formative Assessment, Knowledge, Workplace

Introduction

Learning in a workplace environment is different from learning in a University environment. One of the main differences between learning in the formal educational system and learning at work is that the former is based on formal, intentionally planned educational activities, while the latter is mostly informal in nature (Eraut, 2004; Marsick and Watkins, 1990). Many Universities including the University of Mauritius have introduced the element of Work-based Learning practices in their curriculum with the objectives that students would be acquiring professional skills and knowledge when they are exposed to the world of work. The placement of students in organisations during their studies engages the students to work alongside with professionals to develop graduate skills. Assessment in practice learning is seen to contribute positively to increase the commitment of the students in completing the training programme. Mentors (Training Supervisors) are generally called upon to make formative assessment before they come with summative assessment. In this regard, Boud and Falchikov (2005) suggest moving from summative assessment that focuses on specifics, standards and immediate outcomes to more sustainable assessment that can aid students to become active learners not only in managing their own learning but also in assessing themselves to life beyond the end of the course. Formative assessment is sees as a sustainable assessment method for helping student achievement in practice learning. This paper investigates the impact that formative assessment may have on students' own learning and performance.

Literature Review

In 1971, Scriven introduced the concept of the formative assessment, which was later improved by Bloom in 1971. According to Scallon (2007), formative assessment takes a focal place in any learning process, whose role, is not to certificate, but to provide a scholastic democratisation. Introduced since the 1960's, formative assessment highlights a concern for assessment as a process of continual verification to guide the teaching and learning demarche. According to Popham (2008, p 6) "*formative assessment is a planned process in which assessment-elicited evidence of students' status is used by teachers to adjust their ongoing instructional procedures or by students to adjust their current learning tactics."*

The formative assessment involves a cycle composed of three levels:

1) *Observation:* The role of this stage is to construct a reality of learning, conditions, modalities and their results. According to Perrenoud (2005), the observation is formative when it is used to guide and improve learning regardless of ranking, certifying or selecting the learner. It is rather to expose the state of knowledge and skills, instead of confining oneself to be on a scale and compare it to other learners.

2) *Intervention*: Intervention entails the symptoms to address the sources of difficulties. It involves analysing metacognitive knowledge that is very mysterious (Perrenoud, 2005). Perrenound (2005) believes that assessing competency only by observing the learners reaches its limits very quickly, especially in a training exercise: say "you can do better" does not help the learner to do it better. To be useful, the observer must identify, isolate mental functions or specific actions and identify their weaknesses.

3) *Regulation*: The concept of regulation entails describing the mechanisms that provide guidance, control and the adjustment of cognitive , emotional and social activities and their

relationship with a learner. (Allal *et al* 1989). Endrizzi and Rey (2008) argue that regulating learning process involves all operations of the metacognitive learning and interactions with the environment that influence learning process in the sense of a defined objective.

Struyven *et al* (2005) indicated that students' perceptions about assessment significantly influence their approaches to learning and studying. Conversely, students' approaches to study influence the ways in which they perceive evaluation and assessment. When students participate in formative assessment, there is opportunity to give feedback to students. The provision of feedback is one of the primary functions of formative assessment. A further function of the formative assessment is to provide feedback to the mentors. Concerning these, Bloxham and Boyd (2007, p 21) argued that "*for assessment to function in a formative way that supports students' future learning, the findings have to adjust teaching*". For the case of practice learning, it helps mentors to get a clearer view of where students are experiencing difficulties and they can adjust their support and guidance provided to the students. This is supported by Black and William (1998) who suggested that assessment becomes 'formative' when the evidence is actually used to adapt the teaching to meet the needs of students or by the students themselves to change the way they work at their own learning.

Research Methodology

A mixed methods research design guided the study. Two sets of questionnaires were developed. One was administered to undergraduate students from four faculties who undertook work based learning practice and the second set were slightly modified from the first set in order to extract relevant information from mentors. The survey contained three open-ended questions and thirteen Likert scaled questions (rating questions 1-4, 1 strongly disagree – 4 strongly agree.). The first set was administered to 120 undergraduate students with 30 students from each of the four Faculties of (1) Faculty of Law & Management (FLM), (2) Faculty of Science (FOS) and (3) Faculty of Social Studies & Humanities (FSSH) and (4) Faculty of Engineering (FOE). The second set of questionnaire was given to 40 mentors at various practice settings where the students were undertaking their practice learning.

For qualitative data to gain a better insight into formative evaluations in practice learning, two focus group interviews were conducted. The first one involved 12 students with 4 from each faculty and the second one involved 5 mentors.

Data Analysis and Discussion

Reality as experienced by the students and the mentors have an important additional value. It is therefore crucial to take in to account their perceptions after both groups have gone through the process. Table 1 below indicates the results compiled after data collection.

The quantitative data were analysed using SPSS version 21. Shapiro-Wilk test was performed to determine normality of the data and the test revealed that the data is not normal generating p-values < 0.05 for each case. At 95% confidence interval, the p-values being less than 0.05, confirms that the normality test failed. The ANOVA test therefore could not be applied to the independent variables. A non –parametric test was therefore expected to lead to better concrete results. The Kruskal Wallis test is preferred for each case under the analysis.

Table 1: Results Analysis - students and mentors

Formative Assessment	Groups	Mean	SD	Median	Kruskal Wallis Test
enhances the student-mentor relationship	FLM	2.73	0.45	3	Asymp Sig = 0.059
	FOS	2.69	0.471	3	
	FOE	2.93	0.258	3	
	FSSH	2.61	0.495	3	
	Mentors	2.78	0.424	3	
provides better understanding of the placement environment	FLM	2.20	0.484	2	Asymp Sig = 0.155
	FOS	2.24	0.636	2	
	FOE	2.34	0.484	2	
	FSSH	2.52	0.508	3	
	Mentors	2.41	0.572	2	
allows students to develop critical self-reflection skills	FLM	2	0.263	2	Asymp Sig = 0.08
	FOS	2.07	0.530	2	
	FOE	2.14	0.351	2	
	FSSH	2.39	0.558	2	
	Mentors	2.19	0.483	2	
provides opportunities for developing creativity	FLM	2.20	0.551	2	Asymp Sig = 0.136
	FOS	2.14	0.351	2	
	FOE	2.00	0.535	2	
	FSSH	2.32	0.475	2	
	Mentors	2.26	0.447	2	
facilitates the handling of complex tools & technologies in the work setting	FLM	2.00	0.455	2	Asymp Sig = 0.160
	FOS	2.07	0.530	2	
	FOE	2.07	0.593	2	
	FSSH	2.26	0.445	2	
	Mentors	2.26	0.526	2	
fosters learners how to make their own interpretations	FLM	2.63	0.669	2	Asymp Sig = 0.340
	FOS	2.69	0.471	2	
	FOE	2.93	0.258	3	
	FSSH	2.52	0.667	3	
	Mentors	2.70	0.661	3	
facilitates the development of self-assessment in learning targets	FLM	1.80	0.847	2	Asymp Sig = 0.058
	FOS	2.07	0.371	2	
	FOE	2.00	0.707	2	
	FSSH	2.06	0.680	2	
	Mentors	2.26	0.984	3	
provides opportunities to set future learning targets	FLM	2.10	0.712	2	Asymp Sig = 0.126
	FOS	2.24	1.786	2	
	FOE	2.00	0.598	2	
	FSSH	2.32	0.748	2	
	Mentors	2.15	0.818	2	
enhances self-confidence in learning	FLM	1.97	0.490	2	Asymp Sig = 0.140
	FOS	1.97	0.626	2	
	FOE	2.28	0.528	2	
	FSSH	2.26	0.514	2	
	Mentors	2.33	0.877	3	
helps to identify weaknesses in skills	FLM	1.97	0.805	2	Asymp Sig = 0.191
	FOS	1.62	0.903	2	
	FOE	2.03	0.566	2	

acquisition	FSSH	1.61	0.989	2	
	Mentors	2.00	1.000	2	
facilitates the learning process to complete the achievement of the learning outcomes for the remaining weeks of the training	FLM	1.40	1.163	2	Asymp Sig = 0.054
	FOS	1.62	0.942	2	
	FOE	1.93	0.852	2	
	FSSH	2.58	0.672	3	
	Mentors	2.19	0.786	2	
is more appropriate for practice learning than classroom learning	FLM	2.07	1.143	2	Asymp Sig = 0.140
	FOS	2.28	1.064	2	
	FOE	2.17	0.468	2	
	FSSH	1.71	1.213	2	
	Mentors	2.11	1.121	2	
is less stressful than formative assessment used for classroom learning	FLM	1.83	1.020	2	Asymp Sig = 0.055
	FOS	1.90	0.817	2	
	FOE	2.52	0.574	3	
	FSSH	2.39	0.919	3	
	Mentors	2.59	0.572	3	

The results depicted in table 1 show that the mean and median values among the five groups for each of the items relating to the impact of formative assessment on student's own learning and development were found to be very similar. Kruskal Wallis test reveals that there is consistency among the groups concerning to all the questions set about formative assessment as described above ($p > 0.05$ at 5% significance level). The evidence suggests that FLM, FOS, FOE, FSSH students and mentors shared similar views and agreed with the positive impact of formative assessment on student's own learning and development.

During the interviews, respondents shared their opinions on formative assessments and their contribution towards student's own learning and development. They were also requested to list the problems faced when performing the formative assessment at practice settings. They were also expected to highlight whether the assessment activity was appropriate to facilitate acquisition of knowledge and skills. Interview session with the students highlighted that formative assessment was highly beneficial as it promotes further learning. Most students confirmed that the feedback obtained really helped them in developing confidence in the work that they were handling. 45% of the students stated that the formative assessment helped them in identifying areas where they were not aware that their performance was low. This greatly helped them in improving their summative assessment at a later stage during the training. One student from FOE emphasized that "we all would appreciate if our mentors can provide us more consultation time so that we can improve our skills". Another echoed, "The mentors are very busy people and sometimes the consultation time and feedback provided are too little for us to do our best". They felt that increased interactive sessions were required between mentors and students. Students further commented anecdotally that the process of formative assessment was better planned in practice learning, as compared to classroom learning. They indicated that the assessment process facilitated them for further skills development and helped them in developing creativity to achieve the stipulated learning outcomes.

Concerning mentors, all of them confirmed that formative assessment allowed them to monitor student. Mentors were of the view that formative assessment allowed them to interact effectively with their students, clarifying their doubts and removing their apprehensions in the practice settings. However, one mentor stated that formative assessment was time consuming and that he would prefer performing summative assessment straight away. None of the other mentors found that the provision of formative assessment during the practice learning affected their workload. All the five mentors stated that formative assessment enabled the students to reflect upon their learning. One mentor suggested that formative assessment need not only be performed individually, but may also take place in groups where the tasks assigned involved higher order thinking skills like getting students to analyze, synthesize, evaluate and apply information.

Mentors viewed continuous feedback as supporting students to be actively involved in collaborative and reflective learning, in encouraging self-reflection and putting them on the path to become autonomous learners. Mentors felt they had a major role to play in helping students develop self-confidence in knowledge and skills acquisitions during practice settings. The study in fact confirms Black and William's (1998, p 16) findings, who state "*What students need is a variety of living examples of implementation, by instructors with whom they can both derive conviction and confidence that they can do better, and see concrete examples of what doing better means in practice".*

Conclusion

This study demonstrates that formative assessment has a positive impact on students' practice learning. The findings have shown that formative assessment provides students with constructive feedback that largely facilitate them in acquiring the necessary practical knowledge and skills. In fact, formative assessment should be viewed as a catalyst in practice learning as it encourages students' self-reflection, which contributes towards the development of learner autonomy. With the many benefits of formative assessment procedures, it is recommended that universities make provision for formative assessment during practice learning. This will positively engage students and help mentors in facilitating learners in the acquisition of knowledge and skills in practice settings.

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