

Research as Assessment for Learning vs Assessment of Learning at Higher Education

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Abstract

At higher education, students are terminally assessed through a research output that demonstrates their originality, creativity, innovativeness, and contribution to knowledge and problem solving in society. However, the assessment process, unlike the traditional pencil-and-paper and other performance assessments which are thoroughly proctored by the examiner, is one that is loosely structured. Depending on whether the student engrosses in undertaking research as an assessment by mastery orientation or performance orientation or both will determine whether the research process serves as an assessment for learning rather than assessment of learning. In this article it is argued using a critical review of literature that higher education students who use mastery orientation to research will pursue a deep learning of both the theoretical and practical demands of their research, in which case what is learned is enduring. Hence research as a terminal assessment will serve as an assessment for learning. On the other hand, students engaged in research through performance orientation are likely to engage in surface learning of taking ethical shortcuts in the pursuit and just wanting the work done, presented, and passed. In this case, what is learned from the research process is not enduring, and hence the process serves as assessment of learning for a short while. It is recommended among others that institutional policies and faculty practices on research conduct should engender deep learning through mastery orientation as opposed to surface learning through performance orientation so as to foster research as an assessment for learning rather than assessment of learning.

Keywords: assessment of learning, assessment for learning, deep learning, surface learning, mastery orientation, performance orientation

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Introduction

Postgraduate students are often terminally assessed using research outputs. The students are usually taught research methodology courses in preparation for research engagement. These courses are examined once off and it is assumed that the students are ready for field work once they pass the examinations. Often times, the field work experience requires continuous constructive learning, unlearning, and relearning. Drawing from the theoretical models of learning by Hodge (1990) and Kolb (2014), the best way to learn research is when the student engages actively and collaboratively in conducting research. The student should start small at foundation learning involving concrete experiences, then move through intermediate learning involving reflective observation and abstract conceptualization, to capstone learning when the student is proficient enough to conduct a research study on his or her own. The role of the faculty in the process should be one of formative intervention by meddling constructively in the activities and strategies through which the student learns to do research systematically from scratch. Here, research then serves as assessment for learning.

Previous research (*e.g.*, Stokking, Schaaf, Jaspers, & Erkens, 2004) has shown that majority of graduate students are older, engaged in working part or full time, and juggling work, financial, and family duties. The multiple stresses on these students hinders successful completion of postgraduate study. Their academic goal orientation is often biased toward achieving the ultimate end, a degree, as quickly as possible (described as a performance goal orientation) as opposed to concentrating on the academic journey to comprehend the content and process (described as a mastery goal orientation).

Performance orientation takes two forms: performance-approach and performance-avoidance orientation. In case the student is predisposed to performance-avoidance goal orientation, he or she may choose to withdraw from participation in learning activities, professional activities, and research, but rather tend towards negative coping behaviors in the face of setbacks. Students of this nature are said to be engaged in surface learning characterised by taking ethical shortcuts such as employing someone else to do the research for them; they only wait to be coached to present the work during the final *viva voce* examination. In this case, what is learned from the research process is not enduring, and hence research as assessment of learning serves the student for a short while. This strongly propounds the need to shift from pursuing research using surface learning approach to using deep learning approach in which research is undertaken as an assessment for learning.

Theoretical Framework of Goal Orientation in Postgraduate Research

The achievement goal theory of motivation, originally proposed by Dweck and Leggett (1988), is conveniently used to explain learners' cognitive, affective, and behavioral dispositions toward achievement related processes and outcomes. The theory looks at how students' goals can influence their beliefs and actions, subsequently affecting their achievement, relationships, and self-concepts (Dweck & Molden, 2000). Dweck (1996, 2000) emphasizes the importance of self-theories (also called implicit theories) in motivation. Self-theories describe how individuals view

their own personality characteristics and attributes. The theories can be domain specific, situation-sensitive, and influenced by environment and time (Soltani, 2007).

Implicit theories are also thought to be developed early in life, before most children begin formal schooling (Soltani, 2007). According to Hong, Chiu, Dweck, Lin, and Wan (1999, p. 588), “implicit theories and goals create a motivational framework that (a) guides the individual’s strivings prior to an outcome and (b) creates a meaning system within which attributions occur.” This implies that by the time a person enrolls for a postgraduate study, they are already deeply entrenched with a self-concept. However, as already noted above, this perception can get altered with experience of extrinsic moderating factors.

Dweck and Leggett (1998) distinguish between two types of goal orientation within implicit theory, that is, entity and incremental. Each type of orientation leads to a different set of beliefs, values, and resulting behaviors. Soltani (2007, p. 30), basing on the work of Dweck and Leggett, argues that students aligned to entity theory see intelligence as fixed, uncontrollable, and stable whereas those siding with incremental theory believe that intelligence is malleable, changeable, and controllable. In the former case, the students’ study skills are generally superficial, aimed at returning the information as presented without deeper probing or metacognition involved in the process. In the face of setbacks, students who emphasize entity theory adopt a helpless pattern of coping, that is, they give up rather than risk looking less intelligent if the new strategy fails to deliver success. They also display lower intrinsic motivation and self-esteem.

On the other hand, students who ascribe to incremental theory tend to focus on mastery goals. Here they emphasize effort over ability or skill and try to seek mainly negative feedback in order to invest more effort to improve. Rather than engaging in negative competition with the peers, the students will seek their peers’ support in order to gain more knowledge and skills from them. Such students will exhibit deep learning characterized by metacognition. When faced with setbacks, the students will adopt positive coping, in which case they mobilize more effort for the task at hand until they succeed. Hence incremental theory students display higher intrinsic motivation and self-esteem.

Elliot and Dweck (2005) posit that self-theories determine if an individual is focused on competence validation (performance goals) or competence acquisition (mastery goals). They define ‘competence’ as “a condition or quality of effectiveness, ability, sufficiency, or success” (p. 5). This has enabled conceptualization of achievement in terms of competence which is measurable in behavioral terms, in daily activities, and across the lifespan. In light of this, Elliott and Harackiewicz (1996) postulated the revised achievement orientation theory in which performance goals were distinguished into two categories: performance-approach and performance-avoidance goal orientations. Students positioned in performance goal orientation define success in relation to others in a normative, competitive viewpoint. Performance-approach goals aim for favorable judgment of competence while performance-avoidance goals are focused on avoiding unfavorable judgments of self. Studies by Harackiewicz, Barron, Pintrich, Elliot, and Thrash (2002) and Midgley, Kaplan, and Middleton (2001) have demonstrated that a combination of mastery and performance-approach goals facilitates increased motivation and interest as well as academic achievement.

With regard to postgraduate research, it can be argued that students who follow entity theory of intelligence and consequently performance-approach goal orientation will demonstrate a mastery orientation pattern when the research process is smooth. However, when faced with challenges, they are likely to adopt the maladaptive performance-avoidance, helpless pattern. Their self-effort will slacken, their active and collaborative participation in research activities will become wanting, their student-faculty interaction will become more of grumbling and bickering, and they will always stage complaints about the inadequacy of institutional support. Soltani (2007) avers that performance-approach goals are associated with surface learning, short-term achievement and grade point average, and persistence with positive feedback; while performance-avoidance goals are associated with lack of persistence, low achievement, self-handicapping behaviors, and cheating.

To the contrary, postgraduate students who employ mastery orientation, facilitated by incremental implicit theory, will invest energy in coping with the different challenges that inevitably arise in the research process. They will strive to engage in active and collaborative undertaking of their research, be the engineers of healthy student-faculty interaction through regular consultations with their research supervisors, and make maximum use of the available institutional resources in order to accomplish their research projects. In other words, the mastery-oriented students will see success in relation to accomplishment of their research. Such students are more likely than their performance-oriented counterparts to reap positive benefits including deep processing/learning, increased motivation and self-efficacy, and persistence in the face of challenges facing them in research (Soltani, 2007), with an aim of long term achievement.

As argued by Weiner (2005), if an individual attributes failure to progress to an unstable factor such as effort, he or she will be more likely to believe in trying again and put in more effort. If, however, failure is blamed on stable, unchangeable factors such as intelligence, then the person is more likely to give up future efforts since this will not improve their performance. Given that goal orientation is not static but changes situationally, the way research is popularly construed in the university and by the individual student (as a summative assessment – of learning, or formative assessment – for learning) is likely to reorient the student towards performance or mastery goal orientation. Summative assessment of research has its own dangers.

Dangers of Summative Assessment of Postgraduate Research

For long, educationists have hailed assessment as a vital tool in the education process. Research conducted by the Organization for Economic Cooperation and Development/Centre for Educational Research and Innovation ([OECD/CERI], 2008) indicates that the most visible assessments are summative. At postgraduate level, the students are expected to conduct research as their summative assessment which bears the same high stakes as the pencil-and-paper assessments. In the research process, students are often assessed in a stepwise manner. As argued by Hodson (1992), the stepwise assessment of progress in research imparts challenges; first, the steps are not fully differentiated, and second, they are dependent on both the subject matter and the context in which the research is carried out.

Van Tilburg and Verloop (2000) argue that many of the research supervisors have little knowledge of research, little experience of conducting research, and little experience in constructing and assessing research assignments for students. In addition, Stokking et al. (2004) observe that supervisors vary greatly in the amount and type of assistance and feedback they give students as a result of the summative assessment model of conducting research. It is not uncommon for supervisors to demand their students to tailor their research to suit the supervisors' own research interests or to be in line with what the examiners will score, thus diverting the students from pursuing their own passions. When the students meet challenges in the process, their goal orientation is likely to shift from mastery to performance-avoidance orientation. Therefore, the summative assessment model of research limits creativity and innovation, and is often a precursor of unethical research conduct among the students.

Assessment of postgraduate research is the task domain receiving the least support from textbooks, departments, and from staff (Stokking et al., 2004). In some cases, examiners are drawn from across disciplines due to lack of personnel in the student's field of specialization to examine the work. In this case the examiner will end up laying heavy emphasis on the cross-cutting issues such as research questions and the corresponding conclusions which are cross-disciplinary at the expense of developing the student's competence in the area of specialization.

Similarly, because the costs of summative examination of postgraduate research theses and dissertations are so prohibitive to higher education institutions, often only one examiner is hired to handle the works of several students at one go. The assessment thus lacks in reliability, objectivity and equality which should have been fostered through using more than one assessor (Stokking et al., 2004). In addition, a candidate may be unfairly referred to start the whole process all over afresh. This leads to frustration and anxiety even among the other students. This could have been abated if a formative assessment model was used to guide the research process.

On the other hand, another candidate may produce a substandard research output but because he or she is gifted in the art of oral presentation, will unfairly pass the examination. Ultimately, the students begin to twist their goal orientation from mastery to performance-avoidance orientation with the resultant negative coping strategies of unethical practices such as soliciting the services of someone else to do the research for them. The essence of grounding the student in research methodology and practice is thus lost.

With regard to research-based promotion of faculty in most universities where the number of candidates supervised and successfully completed as well as the number of publications are considered for ascent to the next rung of the career ladder, faculty begin to indulge in intrigue. Students will be segregated and labelled as low, moderate, or high ability. Some staff will decline to supervise students in the low and moderate categories because those will stall their career progress when they fail to complete in time. Staff who take on such students often get riddled with a large number of students who do not accomplish their research projects in time. New students assigned to such supervisors tend to relapse into performance-avoidance orientation and get entangled in negative coping strategies.

In addition, the ranking of universities and provision of research funds to faculty very much hinges on the number and quality of research outputs; grants won, publications, citation impact, and so on. As such, some faculty prefer concentrating on their own research to supervising students who will 'waste' their time that would otherwise be profitably used for writing grants and papers, and building their own *curriculum vitae* for more funding. This is a case where research as a summative assessment of staff performance undermines the research progress of postgraduate students. It must be acknowledged that supervisors also benefit from the feedback they give to students. This conversely implies that staff who refuse to participate in the research formation of the students will not understand the needs of the students and so continue to impart knowledge in ways that elicit surface learning among the students.

It can be concluded that summative assessment of research is inimical to research engagement among postgraduate students as it engenders mastery-avoidance orientation and hence surface learning. It would be better to adopt formative assessment of research so as to focus the students on mastery orientation with the hope of generating deep learning that entrenches the students in high level research engagement.

Positing Formative Assessment as Ideal for Postgraduate Research Engagement

Formative assessment (also known as assessment for learning) is argued as ideal for informing and guiding students in a desired direction (Sadler, 1998). The ultimate aim of formative assessment of research is to guide the student toward developing his or her own skills to tackle the demands of their research work. These include skills of learning to learn and deep learning within their fields of investigation – hence the reason it is termed assessment for learning. A plethora of research has shown that formative assessment is one of the most effective interventions for promoting high-performance among students chiefly because it focusses the student on mastery orientation rather than performance orientation. Some of the strategies advanced by OECD/CERI (2008) for formative assessment that elicit mastery orientation and hence deep learning enhance postgraduate students' progress in research are discussed below.

- Establishment of a culture of interactive, active, and collaborative approach to research.

In a formative assessment framework, students are encouraged to work in groups and offer critique to each other's work. The outcome is a learning community where every individual feels responsible first of all for his or her own success, but overall for the success of every other individual. Regular critiques obtained from colleagues in such a setting focus the individual towards improvement and challenge the individual to make a contribution towards the success of the other colleagues. The aversion for feedback is overcome in such a setting. In this case, instead of many students each waiting for feedback from one supervisor, which may not be forthcoming due to the heavy volume of work the supervisor has to handle, there is prompt feedback provided within the group. This way, students feel safe to take risks and reveal what they do and don't understand, and hence can be helped appropriately.

- Establishment of learning goals, and tracking of individual student progress toward those goals.

In most cases, there are virtually no overlaps in research goals and objectives among postgraduate students of the same cohort. This eliminates situations of comparison in which weaker students would absorb the idea that they lack ability, and thus lose motivation and confidence, and so turn to performance-avoidance orientation. The supervisor's role is to demonstrate to the students that he or she believes in their effort rather than in their ability. According to Ames (1992), a supervisor's belief in the importance of a student's effort, rather than ability, plays an important role in the student's beliefs about himself or herself. Appropriate reference to an individual student's progress and opportunities to improve work based on feedback can help counter the negative impact of social comparisons.

- Use of varied instructional and learning strategies to meet diverse student needs. According to Soltani (2007), formative assessment promotes professionalism among postgraduate students through provision of differentiated learning approaches such as encouraging participation in research groups, presentations, conferences, and publishing among others. As noted by Weidman and Stein (2003), formative strategies taken by departments and faculty to encourage student participation in professionalism building activities are critical for successful orientation of the students into the culture mastery rather than performance-avoidance.

- Offering psychosocial support to the students

Postgraduate students generally require more time and effort from faculty and departments because of their uniqueness of being involved in multiple roles. Support systems from cohort and collaborative groups, faculty, and peers are important to assist the graduate students in evolving into professionals in their own disciplines of specialty as well as into professional researchers. In the wake of internationalization and 'massification' of education, there is increased diversity of students and increased numbers of part-time students and distance learning programs. Oftentimes the students experience physical, proximal, professional, and psychological alienation in their new settings. Effective research engagement using a formative assessment framework would cater for their psychosocial needs by provision of financial aid, flexible schedules, and personal encouragement among other strategies.

- Effective supervisor feedback on student performance and adaptation of instruction to meet identified needs.

Acton and McCreight (2014) posit that apart from students working collaboratively in small groups and offering each other feedback, generally supervisors and faculty operating in a formative assessment framework give seminars to provide feedback to the students so that the students get a deeper understanding of some of the practical and theoretical issues raised about their work. The seminars provide an ideal opportunity for assessment for learning as there is the potential for collaborative group work where students can benefit from tutor and peer feedback.

- Provision of richer institutional support and encouraging active engagement of students in building critical research skills.

Through formative assessment, it is easy to identify gaps in students' critical research skills. Faculty can then organize workshops, seminars, and trainings to enrich the students with the critical skills. Steele and Aronson (2005) have proved that

formative use of interventions can change mind-set from entity to a more incremental pattern to successfully improve performance among minority students. Non-traditional postgraduate students who believe that they are unable to perform computer tasks can be helped to decrease anxiety and increase sense of efficacy along with displaying better skills.

- Offering apprenticeship through research assistant and research tutor positions
To facilitate mastery goal orientation, postgraduate students are offered assistance with employment opportunities and assistantships for work support and planned faculty and cohort support to address issues and promotion of their research progress. These are strategies of formative assessment. Here the student is trusted and assessed as a potential future employee of a higher education institution.

- Sequencing the research process
One of the principles of formative assessment is that the learning process should be structured sequentially from foundational through intermediate to capstone learning. Students at the foundational level are encouraged to start the research process from an external point of view as they examine and link research articles to see how different authors build and refine methods and knowledge. They then advance to gain experience of the research process by conducting a pilot study to pretest and improve on a research instrument at the intermediate level. At the capstone learning stage, the students are made to participate in assessments that allow them to develop and become aware of themselves as researchers.

Conclusion and Recommendation

It can be concluded from the discussion above that formative assessment or assessment for learning is the most effective way to help promote research engagement among postgraduate students. Students who are guided in research using formative assessment strategies will adopt mastery as opposed to performance goal orientation. Mastery orientation focusses the students on deep learning and learning to learn by way of enabling students to view research as a process rather than a series of research products.

It is recommended that the students need to be inducted stepwise into the process of research, starting from the foundational level through the intermediate level to the capstone level. The formative assessment strategies should be structured into the curriculum, incorporating support in textbooks and other instructional materials, and giving the faculty sufficient time and explicit responsibilities in the research process. The faculty need to be regularly retooled in interactive strategies for enhancing constructivist based pedagogies for assessment of research engagement among a diverse conglomerate of postgraduate students.

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