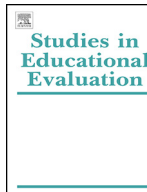




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Studies in Educational Evaluation

journal homepage: www.elsevier.com/stueduc



Can student-generated test materials support learning?

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ARTICLE INFO

Article history:

Received 5 September 2013
Received in revised form 6 February 2014
Accepted 7 February 2014

Keywords:

Formative assessment
Summative assessment
Student generation of test materials
Dialogic feedback
Higher education

ABSTRACT

This paper aims to investigate students' perspectives on the interplay between the formative and summative functions of assessment. More specifically, it explores whether their learning can be supported by a classroom activity informed by a formative strategy (i.e., student generation of test materials) in a teacher education programme. Research methods included focus-group interviews, classroom observations, student reflective journals, and text analysis of student-generated test papers, and tutor feedback to these papers. Findings indicated that the formative strategy was generally well-received as a practice to support learning for the summative evaluation, despite concerns about the overall quality of some mock papers. Implications for building a positive link between formative and summative assessment and promoting dialogic feedback processes in wider higher education classroom contexts are discussed.

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Introduction

While there has been research on the benefits of formative assessment, its broader application in close relation to summative assessment at the university setting appears to be less documented. Students are typically expected to have midterm tests, oral presentations, and term papers as their coursework. Apart from these graded assessments, students have limited opportunity to receive formative feedback from their tutors, let alone active engagement in the assessment process which may help improve learning. Ineffective use of formative assessment practices (e.g., formative feedback) in higher education (HE) has been evident in the assessment literature although tutors are cognizant of their virtues on student learning (cf. Taras, 2006; Nicol, 2010). Disproportionate focus on summative rather than formative assessment also exacerbates the likelihood of adopting formative assessment practices at the classroom level, since students tend to consider formative assessment “less important” and onerous (White, 2007). Keeping this in mind, more has to be done to understand how undergraduates can benefit from the learning potential of formative assessment in the HE context. Indeed, it is imperative to have further investigations of the relationship between formative and summative assessment in an educational setting where the primacy of grade is predominant.

The paper describes a case study where a formative strategy – student-generated tests (hereafter “SGT”) – was piloted and then implemented in one Hong Kong teacher training institution. SGT originated from an idea of “formative use of summative tests”, which refers to using either pre-test preparation or post-test follow-up to support student learning as exemplified in the works of Black, Harrison, Lee, Marshall, and Wiliam (2003) and Carless (2011). The aim of this study is to inform the research community about the role of SGT as a formative strategy to support learning in the course under study, and how the findings illuminate the relationship between formative and summative assessment. The rationale for SGT is threefold. First, it promotes active participation in the assessment process through frequent revision of the test content. Second, this strategy can be integrated as part of the summative assessment, since in reality, implementing formative assessment alone seems to be challenging. Third, as argued by Carless (2007), SGT can provide students with timely and informational feedback before they form a wrong conception of the subject knowledge learnt in the course. Although the application of SGT has been reported in previous studies (Foote, 1998), the theoretical significance of this paper sheds new light on how the tension between the functions of formative and summative assessment can be resolved via its implementation within an undergraduate education programme where dialogic feedback processes are supported. The implications of the findings also suggest that the overall course assessment practices especially those selected-response items (e.g., multiple-choice questions) need to be redesigned in order to promote effective learning.

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Framework for the study

Bridging the formative–summative assessment gap

The conceptual basis of SGT arises from one of the thorny issues in the assessment literature – tensions between formative and summative functions of assessment. The formative function of assessment is to improve student learning, whereas its summative counterpart performs the functions of certification and validation. Besides function, formative and summative assessment differs in their nature, processes and task types. Formative assessment is normally informal, continuous, interactive, small-scale, and classroom-based (Torrance & Pryor, 1998). Its task types could be any learning tasks such as self- and peer assessment. Summative assessment is usually formal, high-stakes, and one-off by nature. It takes the form of tests, examinations, and graded performance assessments. Stobart (2008) argues that “The image is still that formative assessment is ‘a good thing’, but once preparation for examinations starts, we need to get on with ‘the real thing’” (p. 159). In Sadler’s (1989) seminal work, he contends that formative and summative assessments are two distinctive processes, namely, to support learning versus to judge learning and have different roles to play despite the fact that one inextricably leads to the other. Echoing Sadler’s view, Black (1998) reveals that the summative function of assessment may inhibit the growth of the formative function, as preparing students for high-stakes assessments becomes a priority and leaves no room for formative assessment. Wiliam and Thompson (2008) also underscores that the uses of assessment to serve both learning and grading functions concurrently are essentially in tension, given that the same assessment cannot serve both purposes sufficiently, especially in an examination-oriented culture where teacher, student, parent attentions are primarily drawn to high-stakes examinations and assessment outcomes.

Nonetheless, based upon extensive collaboration with school teachers in the UK, Black et al. (2003) reconceptualized the importance of using formative and summative assessment to support each other in the classroom context (e.g., formative feedback that improves learning and results in summative assessment), because in teachers’ hectic reality, it is not practical for them to use formative and summative assessment separately, and from the evidence gathered from the teachers, they found the advantages of using summative assessment for formative purposes, e.g., student self-evaluation of learning progress in relation to the summative assessment (Black et al., 2003; Brookhart, 2010; Harlen, 2005; Taras, 2001, 2003, 2005). As contended by Biggs (1998), it is recognized that “sensible educational models make effective use of both formative and summative assessment” (p. 105). Harlen (2006) also points out that for formative assessment to flourish, a productive link, which develops fruitful relationship between formative and summative assessment, needs to be sought. Hence, the call for adjusting summative assessment to make it more compatible with formative assessment is needed, provided that effective integration of formative and summative assessment is considered extremely challenging, especially in examination-oriented contexts where the benefits of formative assessment is usually neglected at the expense of summative assessment (Black & Wiliam, 2005; Carless, 2011).

Using student-generated test questions to facilitate learning

In this paper, SGT is characterized as a formative strategy intended to enhance student learning before the summative assessment (e.g., the midterm test). This strategy is one of the potential realizations of integrating formative and summative functions of assessment productively, as summative assessment is no longer considered impeding formative assessment as in most test-driven educational settings. The theoretical rationale for this

strategy includes active student engagement in the assessment process and promotion of deep learning through dynamic use of peer feedback that facilitates comprehensive understanding and internalizing of specific test contents (Harlen & James, 1997; Havnes, Smith, Dysthe, & Ludvigsen, 2012). Similar to tutor feedback that seeks clarifications and gives suggestions, interactions among test-writers’ (i.e., students who generated the test paper) provision of answers and explanations and test-takers’ (i.e., students who attempted the paper) questions for clarifications and their suggestions during SGT are considered a form of peer feedback that promulgates deep learning and productive knowledge-building (Hawe & Dixon, 2014; Roscoe & Chi, 2007). Other research in support of this test-paper construction strategy argues that students have more positive perceptions of assessment through active participation; more chances to enhance their understanding of subject knowledge learnt in the course; and more possibilities to develop stronger self-regulatory cognitive strategies (Baerheim & Meland, 2003; Lam, 2013; Nicol, 2009; Papinczak, Babri, Peterson, Kippers, & Wilkinson, 2011; Wiliam, 2011).

In Foos, Mora, and Tkacz’s (1994) study, student participants in one US university showed the highest performance on the materials being assessed while generating similar questions and answers in preparation for the upcoming examination. More recently, Berry and Chew (2008) found that the use of student-generated questions and concept maps before the examination benefited the lowest performing students most in terms of improved examination performance although it was high-performing students who could construct conceptually deeper questions in the study. Despite the benefits of this formative strategy, Foote (1998) revealed that in her study, student generation of higher order questions as a study strategy failed to show any positive effect on comprehension. Additionally, Papinczak et al. (2011) warned of student rote memorizing those self-generated questions and answers without engaging in understanding and reflecting upon them in advance of summative assessment. The above studies were mainly conducted in an experimental setting following psychometric research paradigm; however, it is equally significant to explore how students perceive the learning and grading properties of assessment, and how SGT may support learning in a naturalistic classroom environment.

Affording dialogic feedback through student-generated test questions

The other theoretical construct, underpinning how SGT may promote effective learning for the summative evaluation, is the dynamic interplay between tutors’ and students’ engagement in the feedback dialogue. It has been argued that in the traditional paradigm of feedback process, one-way communication – tutors giving feedback and students receiving it – tends to become an educational norm and such a process assumes that the latter would automatically uptake and understand the feedback and take remedial actions on their written work (Yang & Carless, 2012). Nonetheless, based upon research evidence, there is always a mismatch between how tutors and students interpret what effective feedback is and how it could be productively integrated into the subsequent works for learning enhancement (Carless, 2006; Havnes et al., 2012; Price, Handley, Millar, & O’Donovan, 2010). Because of students’ and university tutors’ dissatisfaction with the monologic characteristics of feedback mechanism in HE (Nicol, 2010), there is a pressing need to develop new conceptualization of how the feedback process could help students promote effective and efficient uptake of tutor feedback for their future learning.

Research on feedback in HE points to a fact that students need to become active agents in the assessment processes in order to generate feedback information from themselves and/or from other resources including peers and the tutor for co-construction of new

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