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Using a web-enabled video system to support student–teachers' self-reflection in teaching practice

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ABSTRACT

With the goal of promoting student–teachers to reflect on their teaching performance, a web-enabled video system was developed to permit them to record their classroom performance and then retrieve online videos of their teaching for self-reflection. This study aimed to evaluate the effectiveness of online videos in facilitating self-reflection amongst student–teachers. Eight student–teachers from four disciplines were invited to use the video system to reflect on their teaching in two lessons. A content analysis was conducted to compare the reflective notes made by the student–teachers before and after browsing the videos of their teaching. The results indicated that video browsing prompted student–teachers to generate an additional 50 per cent of reflective notes and stimulated them to significantly increase the depth of their reflective thoughts in the areas of discipline and classroom management, and professional knowledge on teaching. Building on the gains achieved in this way, student–teachers can subsequently engage in in-depth professional dialogue with their teacher supervisors.

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1. Introduction

Early studies suggest that to enhance their professional growth and personal development student–teachers need opportunities to reflect on their own performance in teaching practice (Clarke, 2009; Hatton & Smith, 1995; Kagan, 1992; Zeichner, 1983). The reflection process allows them to externalise their thoughts on their own teaching competence. This externalisation often leads them to reinternalise and recontextualise the understanding they have gained from this self-reflection. This externalisation process is thus considered helpful in facilitating student–teachers to restructure new approaches to instruction in the classroom.

Scholars find that with the support of videos of their teaching practice, student–teachers can produce evidence-based externalisations of their thoughts on their own teaching competence, in terms of deciding pedagogical contents and teaching activities; addressing learning diversity and classroom interaction; managing learning resources and classroom environment; and selecting assessment methods and pedagogical strategies (Calandra, Brantley-Dias, Lee, & Fox, 2009; Rich & Hannafin, 2009). Student–teachers are therefore urged to reflect on their teaching performance within a systematic and precise self-reflection framework such as that produced by Cook and Duquette (1999). This framework is well established for self-reflection because its balanced content covers all four dimensions of teaching: “Curriculum Planning and Evaluation”, which focuses on lesson preparation; “Pupils and Pupil–Teacher Interaction”, which relates to student–teacher relations; “Discipline and Classroom Management”, which focuses on the class management and “Professional Knowledge”, which relates to pedagogical arrangements.

Researchers have found that student–teachers show significant growth in the quality of self-reflection on their teaching after they have browsed videos of their teaching practice using web-enabled video systems (Borko, Whitcomb, & Liston, 2009; Herner-Patnode & Lee, 2009; So, Pow, & Hung, 2009). Such systems use remote access software to deliver applications that permit the production, transition and retrieval of video-recorded data over a network and the Internet. The use of these video systems is considered constructive in supporting student–teachers to externalise their reflective thoughts, based on accurate video-recorded data from their teaching practice (Borko et al., 2009; Hixon & So, 2009; Marsh, Mitchell, & Adamczyk, 2010). Janssen, de Hullu, and Tigelaar (2008), Luttenberg and Bergen (2008) and Rosaen, Lundeberg, Cooper, Fritzen, and Terpstra (2008) further note that during self-reflection with video support, student–teachers place

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most emphasis on the issue of lesson preparation. Class management comes second, followed by student–teacher relations. Pedagogical arrangements attract the least attention from them during self-reflection.

To maximise the potential of using video technology for self-reflection, So et al. (2009) suggest that a desirable web-enabled video system permits student–teachers to review their lessons during teaching practice from two viewpoints – one focusing on their own teaching performance and the other on the students’ classroom behaviour, to achieve more comprehensive self-reflection. Borko et al. (2009) further note that such systems should scaffold student–teachers to optimise the process of externalising their reflective thoughts within a systematic and precise framework. A web-enabled video system was correspondingly developed to support the self-reflection of student–teachers (Kong, Shroff, & Hung, 2009). Apart from addressing the abovementioned expectations, the system was also designed to empower student–teachers to self-monitor classroom video recording in their teaching practice without assistance from others, as well as making it possible for them to systematically externalise their reflective thoughts by bookmarking online videos of their teaching practice.

The study reported here consisted of a carefully designed content analysis to methodically investigate the impact of video browsing on the number and depth of reflective notes, from both overall and dimensional perspectives, made by the student–teachers invited to participate. The study aimed to contribute further concrete evidence to substantiate claims from early studies that using web-based video technology constructively supports student–teachers’ self-reflection.

2. The web-enabled video system

A web-enabled video system was developed to support student–teachers to self-monitor video recording of their work in the classroom and then retrieve online videos of their own teaching practice for self-reflection (Kong et al., 2009). The goal was to help student–teachers to engage in critical self-reflection on their teaching performance. The system consisted of two parts, a self-monitoring video recording system for recording in the classroom and an online video retrieval system for self-reflection.

2.1. The self-monitoring video recording system for classroom video recording

The first part of the system was a self-monitoring video recording system. It aimed to enable student–teachers to self-monitor video and audio recordings of classroom situations during their teaching practice without outside assistance. Three components of the system were set up in the classroom, two wireless Internet protocol (IP) cameras; two digital microphones and a notebook computer. The IP cameras were wall-mounted in designated classrooms in the placement school. The first camera was installed at the back of the classroom, facing the blackboard, to video record the performance of the student–teacher. The second was installed beside the blackboard, facing the students, to capture their reactions to the teaching activities of the student–teacher. One digital microphone was attached to the student–teacher’s clothing to record his/her voice and the other was installed above the blackboard to record what the students said.

The notebook computer was placed in the teaching console for student–teachers to self-monitor video recording during their teaching practice. A software system with a one–stop interface for video recording was pre-installed in the computer. Student–teachers could start

| Items | | Distinction | Credit | Pass | Fail | Reflections (Reflections can be made on one or more items) |
|--------------------------------------|--|-----------------------|-----------------------|-----------------------|-----------------------|---|
| Curriculum Planning and Evaluation | Learning Objectives | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| | Content Knowledge | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| | Choice of Content | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| | Structuring of Learning Activities | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| | Lesson Plan | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| Pupils and pupil-teacher interaction | Attitude in Teaching | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| | Relationship with Learners | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| | Catering for Learner Differences | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| Discipline and Classroom Management | Selection & Use of Resources | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| | Management of Learning Environment | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| | Implementation of Teaching & Learning Strategies | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| Professional Knowledge on Teaching | Using Assessment to Enhance Learning | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| | Providing Feedback | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| | Verbal & Non-verbal Communication | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| | Classroom Interaction | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| Overall Reflections | | | | | | |

Fig. 1. The online form designed for the self-reflection of student–teachers after teaching practice.

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