

## **The camera in the classroom: video-recording as a tool for professional development of student teachers**

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### **Abstract**

Conventionally, school-based mentors have supported student teachers through the processes of training, observing, feedback and discussion. Quality assurance evidence demonstrates that despite good documentation and university-based guidance there remains inconsistency in the calibre and outcomes of these collaborative relationships and their ability to promote reflection. The transition of the initial teacher education PGCE to a Masters level course provided an opportunity to use new tools to develop the working relationships between student teachers and their mentors. One such change was the development of a portfolio assignment which involved student teachers in videoing their own lessons. This paper outlines the findings of the first year of research relating to the video intervention. Its focus is the student teachers' responses to both recording lessons and using footage to support the processes of analysis, mentoring and reflective writing. In addition, the views of mentors and PGCE tutors are considered. The results of questionnaires show that the outcomes of the video intervention are seen as positive and substantial by the majority of participants.

**Keywords:** initial teacher education; video-recording of lessons; mentoring; reflection; tools

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## **The camera in the classroom; video-recording as a tool for professional development of student teachers**

### **Introduction**

A fundamental objective of student teachers' professional learning is development of their ability to analyse and evaluate their own pedagogic practice. Multiple mechanisms to support the development of this capacity are typically employed in initial teacher education programmes. These opportunities frequently overlap or are related to each other. For example observation of students' teaching is used as the trigger for discussion with mentors and tutors with the aim to stimulate student teachers' personal review of the lesson. Anecdotal evidence suggests that in the early stages student teachers tend to be either self-critical or overly dependent on the observer for feedback. For some student teachers a significant transition occurs when they begin to critique their teaching with enhanced autonomy and with a more realistic perspective. It is at this point that discussions between mentors or tutors and their student teachers begin to take on the broader characteristics of collaborative professional dialogue.

This paper considers video intervention, through which student teachers video-record their own lessons, as a means of enabling them and their mentors to integrate work processes, learning activities and learning processes in an authentic context. The degree to which this tool supports the development of the reflective practitioner will be considered.

### **Context**

Video's potential to enhance the reflective component of initial teacher education has been recognised, especially in the United States. Its advocacy among teacher educators gathered momentum, as illustrated by the 2002 US National Science Foundation award to Miriam Sherin to fund the *Professional Vision: the role of video in teacher learning* Project. A year later, Sherin (2003) contributed to one publication in particular, notable for having for the first time collected together insightful reports from more than a dozen teacher educators on their own uses of video in their ITE courses and programs (Brophy, 2003). In some English schools video-recording of

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lessons has also found a role in coaching practices. In research on improving coaching in secondary schools Lofthouse, Leat, Towler, Hall and Cummings (2010, p.5) found that coaching had the potential to secure a desirable outcome for school development by 'improving teaching through providing feedback to teachers and allowing them to reflect intensively on classroom evidence generated by video..' However the research also demonstrated that video was generally under-used in support of coaching dialogue, even when it had been watched by both participants in the coaching conversation.

While the focus of this paper is the role of video-recording teaching in supporting student teachers to develop reflective practice, it is situated in the wider context of professional learning and the tools that facilitate that. The context is therefore not narrowly defined as the use of video per se. The research is situated in the development of a Masters level PGCE. Bridge (2010) writes that 'Trainee teachers undertaking M level work as part of their PGCE programme had been able to engage in deeper critical reflection and evaluation of theory and practice as a result of taking the M level work'. It is in this context of deeper critical reflection through M level study that the PGCE students discussed in this paper use video to support the development of their assessed portfolios; these portfolios demonstrate the ways that they have engaged with evidence from their own classrooms. The videos recorded by student teachers are not submitted as part of the assessed portfolio and are only viewed by the student teacher and their mentor. As such they are permitted within existing codes of practice established in each of the partnership schools. Pupils may appear on the video of the lesson, but as the video is not shared beyond the mentoring process they are never identifiable by a third party and neither they, the school or teachers in it are named in the resulting assessed portfolios. Tutors thus assess the written outcomes of the experience as expressed through the M level portfolios and not the video evidence itself.

Video is one of the mediating tools and processes underpinning student teachers' professional learning and sits alongside other activities such as mentoring, peer review and action enquiry. This paper straddles the practice/research divide. One author acts as tutor, programme designer and assessor. It is amongst these roles

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that this enquiry initially evolved, informing practice development on the PGCE. Both the course itself and the related enquiry are strongly informed by a broadly socio-cultural view, in as much as we regard the use of tools (which include language and ideas as well as physical artefacts) as a critical process in shared knowledge development (Boreham & Morgan, 2004). The use of a tool and the talk about practice that it can generate helps create knowledge and develop practice. The video recording can be recognised as a technical tool, while the discussion, reflection and analysis of practice that result allow it to act as a psychological tool. Kozulin (1998, p.13) quotes an important distinction made by Vygotsky:

‘The most essential feature distinguishing the psychological tool from the technical tool, is that it directs the mind and behaviour whereas the technical tool ... is directed towards producing one or other set of changes in the object itself’.

In the wider context Eraut (2007) suggests a typology of early career learning which differentiates between Work Processes with learning as a by-product, Learning Activities located within work or learning processes and Learning Processes at or near the workplace. In terms of initial teacher education these may be exemplified as follows:

- Work processes such as the practice of teaching lessons
- Learning activities such as asking teachers questions or observation
- Learning processes such as engaging with mentoring.

Of interest is the extent to which the use of video can help to create more integrated professional learning experiences, which productively draw Eraut’s dimensions of early career learning together.

## **Research Questions and Methods**

The approach taken to this enquiry was that of research and development, in which the principle researcher was also a course tutor with responsibility for the development of student teachers’ learning opportunities and assessment. This paper discusses the first phase of this research. Development focussed on the experiences of student teachers and their mentors during the first year of the new M level Post-graduate Certificate in Education (PGCE) course at the University. All secondary PGCE students completed common assignments which on two occasions

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necessitated recording video footage of themselves teaching. The details are provided in Table 1. overleaf.

**Table 1. Student teachers' uses of video recording as part of their assessed work (at time of research)**

<b>Date and context</b>	<b>November During first teaching placement</b>	<b>February During serial visits prior to second teaching placement</b>
<b>Focus of video recording</b>	A lesson in which the student teacher focuses on one of: <ul style="list-style-type: none"> <li>• Whole class question / answer episode</li> <li>• Teacher explanation</li> <li>• Lesson plenary</li> <li>• Use of target language (MFL)</li> </ul>	A full lesson (usually with a new class)
<b>Student teacher's analysis of video footage</b>	Transcription of the focus extract (5 min); annotation of the transcription to identify key characteristics of early teaching experience (after mentoring session)	Critical incident analysis (Tripp, 1993) of the lesson to support student teacher's lesson planning for placement
<b>Role of school-based subject mentor</b>	Observation of lesson and use of the video and transcription as the basis of discussion with the student teacher	Observation of lesson and use of video and the outcomes of the critical incident analysis basis of discussion with the student teacher

Student teachers are introduced to the use of video in their classrooms through an introductory lecture. A key element of this session is the discussion of the ethics of videoing pupils, and the fact that it this activity is covered by the Data Protection Act 1998, and as such the video footage is classed as 'personal data'.

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The questions underpinning this research were pragmatic. The intention was to support the ongoing development of the Masters level PGCE to enhance student teachers' learning opportunities and outcomes. The research questions were thus framed as a means to both explore and evaluate the video intervention:

1. How can the use of video support the student teacher in developing as a reflective practitioner?
2. How can the video intervention change the activity of mentoring?

The research methods were selected to allow as many student teachers, mentors and tutors as possible to reflect on and report on their experiences of using video. Questionnaires of each of these constituent groups were employed. As these were based on voluntary self-reporting their efficacy was enhanced by using them iteratively in sequence, and by gaining multiple perspectives on the intervention and its impact. The data collection sequence was as follows:

1. Towards the end of the PGCE year 73 student teachers (43% of cohort) completed a questionnaire reporting on their use of video. This asked them to reflect on their use of video recording in both their short diagnostic school placement, and second longer placement.
2. The outcomes of students' questionnaires were used as the basis of a questionnaire completed by 70 subject mentors based in schools (approximately 38% of mentors). This self-selecting sample included mentors working with student teachers on either one or both of the PGCE placements.
3. Seven secondary PGCE tutors who assessed students' written reflections on the use of video and discussed its impact during school visits were also surveyed through written reflection.

All of the data (except from PGCE tutors) was gathered anonymously and was drawn from across all seven subject areas. While the sample was not exactly

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proportionate to the cohort sizes of each subject, it was felt that there was sufficient response for it to be representative.

## Results

### **Research question 1:**

#### **How can the use of video support the student teacher in developing as a reflective practitioner?**

Learning to teach is a highly charged endeavour, and it requires student teachers to have a level of self-confidence to overcome the inevitable exposure they feel in front of classes and more experienced teachers. Given this context, concern about self-exposure via video seems somewhat trivial but it remained important to the tutors that by imposing the use of video on student teachers they did not compromise the student teachers' levels of self-confidence.

The post-intervention questionnaire revealed that 89% of student teachers considered the use of video to have had a positive impact on the way they reflected on their teaching. This seems to be related to the level of detail available for review using the video. 80% of student teachers indicated that video had 'very much' improved their ability to identify the characteristics of their teaching practice, with the remaining 20% stating that this outcome had been enhanced to 'some extent'. In addition 78% of students reported that the video had 'very much' allowed them to view their own teaching from an alternative perspective, such as that of pupils. In written comments student teachers commented that the video held a mirror up to their teaching, in a way that written observation records could not, and mentors tended to agree;

*'It's one thing knowing what you're supposed to do but another knowing whether you do it! I noticed so many tiny things I couldn't have done otherwise' [Student teacher 1].*

*'It made me more aware of the physical aspect of teaching – that planning is important but you must also focus on delivery' [Student teacher 2].*

*'Video helped us to see how clearly the student [teacher] had explained topics, concepts and tasks' [Geography Mentor 1.]*

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Their personal recognition of teaching style and habits seems valuable in the student teachers' growing ability to set themselves targets, as did the role of video in helping them to see their lessons as pupils or observers did;

*'I could tell what I needed to do straight away' [Student teacher 3].*

*'It highlighted things which I could then evaluate in future lessons' [Student teacher 4].*

*'The student [teacher] identified issues for himself, so he was more motivated to correct them' [MFL Mentor 1].*

*'It allowed me to see what the students see and more importantly hear during my teaching' [Student teacher 5].*

One student teacher referred to it as providing a 'critical eye on my own teaching' (student teacher 4) adding that it enabled her to 'observe myself as an observer from outside' [her emphasis]. Beyond being simply interesting, student teachers recognised that this observer perspective had real currency in the process of learning to teach;

*'I could see things from another perspective, giving me some insight into the causes of some pupils' behaviour. It also let me see things that I didn't feel were effective when viewed from the perspective of an outsider, which caused me to be more aware of them, and hence change them..' [Student teacher 6].*

The perspective that the camera gave was also viewed as objective, and student teachers, mentors and tutors alike appreciated this quality. Indeed one mentor noted that video was used as 'evidence if we disagreed [when discussing the lesson]'. 68% of mentors agreed with the selected student teacher comment; *"It was the most objective observation and I could draw my own judgements from it"*, although they, like the student teachers, recognised the often partial nature of the recording. One student teacher noted that;

*'Watching yourself is more powerful than being told about your performance. Sometimes it is good to see things for yourself' [Student teacher 7].*

Tutors responding to their cohort's experiences of using video reported in assessed work and discussed tutorials and school visits confirmed how valuable video was in this respect;

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*'Sometimes areas of a student teachers' practice that they seem to falter on, despite feedback from mentors and myself, become transparent when they witness the same problems on video; it's as if the 'penny drops' as they can actually see [her emphasis] and therefore fully appreciate the problem. Reading the same [in an observation record] is not always as productive' [Tutor 1].*

The main objective when including the use of video as an integral part of the assessed portfolios was to provide another tool to promote the student teachers' abilities to reflect on their teaching.

*'The video can act as an objective narrator for the student teacher to learn from and hence, being uninvolved, the 'story' presented by a video may be more obvious and thus persuasive than feedback from tutors / mentors' [Tutor 1].*

It was hoped that this 'persuasive' audio-visual record, the use of associated analytical tools of transcription and critical incident analysis, and the requirement to write about the processes and outcomes would trigger effective reflection and professional dialogue. It is hard to judge the true extent to which this happened as so many other factors influence the degree to which student teachers successfully develop these habits; however it is clear that many student teachers, mentors and tutors saw this as one outcome of the process.

Table 2. overleaf, shows the extent to which student teachers and mentors recognised that student teachers showed heightened reflection on recorded lessons. Student teachers routinely reported that watching the reality of the lesson on video revealed different features than those they recalled through memory, and thus provided a more reliable platform for reflection. They also referred to the alternative perspective provided by the camera which as one mentor stated *'allowed a different type of reflection; an additional angle'* (Science mentor 1).

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**Table 2: Questionnaire responses on the impact of video evidence in heightening reflection**

The degree to which videoing enabled student teachers to heighten reflection on recorded lessons for diagnostic purposes	% of respondents [mentors & student teachers]		
	Not at all	To some extent	Very much
Student teachers' views	1.5	27.5	71
Mentors' views	4	32	64

Both mentors and student teachers linked heightened reflection to the objective nature of the video footage in supporting mentoring sessions. It seems likely that the video enabled the student teacher, and perhaps the mentor, to detach themselves from their personal feelings about the observed lesson and interrogate the recording as evidence of pedagogic practice. The video, transcript and critical incident analysis of the lesson (see Table 1. p.6) discussed was thus data in an enquiry which the mentor and student teacher jointly engaged in;

*'It helped us to really hone in on the areas that needed attention' [MFL Mentor 2].*

*'(Video) produces empirical evidence' [History Mentor].*

*'It allowed us to contextualise our (mentoring) session and focus on particular aspects of our teaching' [Student teacher 8].*

The immediate value of the reflection was extended as student teachers used video as a tool for planning subsequent lessons and their evaluations of them. One student teacher (student teacher 9) stated that; 'video highlighted things which I could then evaluate in future lessons', and when this statement was included in the mentor questionnaire 49% of mentors agreed, while 40% strongly agreed. Video recording appears to provide momentum in novice teachers' professional learning.

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In addition some of both parties perceived that even limited use of video-recording (usually just two occasions) improved student teachers' abilities to reflect overall. Many of the mentors were able to informally compare the progress in reflection made by this cohort of student teachers with those they had mentored in previous years. One mentor (Geography mentor 2) suggested that the use of video was '*the most powerful way of fostering [student teachers'] self-reflection*', and another referred to the ability of the student teachers to '*watch the video and coach themselves*' (MFL Mentor 3).

The increased self-awareness and confidence felt by some student teachers as a result of watching themselves also seems relevant in their development of a constructive reflective attitude. In written comments several student teachers linked video to their feeling of self-determination and willingness to take risks in subsequent lessons.

*'Because being videoed made me more aware of how I can influence the behaviour of my students it allowed me a different perspective on my reflections overall' [Student teacher 10]*

*'Video made it easier to think about what I was doing while teaching. I was more conscious of my actions' [Student teacher 1.]*

Another student teacher (student teacher 7) realised from watching the video that he was able to 'manufacture' his teaching style, which was an important transition in his departure from adopting safe and repetitive modes of teaching.

### **Research question 2:**

#### **How can the video intervention change the activity of mentoring?**

Discussion between mentor and student teacher is a significant component of initial teacher education. The quality of the mentoring process varies within partnerships and considerable effort is expended in schools and universities to even out imbalances. Mentors considered that the use of video aided or complemented the mentoring process (on those specific occasions) to a larger degree than their student teachers did, as shown in Table 3 (overleaf). Where student teachers and mentors recognised benefits of adding the video to the mentoring process it was often the result of being able to accept the relevance of each others' comments about the

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lesson by comparing them with the video evidence. One student teacher noted that the video *'gave us something more concrete to talk about'* (student teacher 8), and another stated that it provided *'a clear picture of what my mentor talked about'* (student teacher 11). Tutors wrote about the video *'scaffolding'* and *'focussing'* dialogue.

**Table 3: Questionnaire responses on the impact of using video on mentoring**

The degree to which adding video aided or complemented the mentoring process	% of respondents [mentors & student teachers]		
	Not at all	To some extent	Very much
Student teachers' views	26	55	19
Mentors' views	9	48	43

Using the video footage and resulting transcripts (see table 1) as evidence or triggers for informal enquiry also appears to have been valuable;

*'I suddenly saw the points my mentor had highlighted as areas to work on. It wasn't until the video, that her comments made any real impact'.*  
[Student teacher 12].

*'Video gave student teachers opportunities to ask themselves questions which then became the focus of the mentoring session' [English Mentor 1].*

Questionnaire respondents (both mentors and student teachers) also suggested that using video alongside mentoring strengthened the professional nature of some mentoring relationships. Student teachers considered that they were more likely to trust their mentor's views by *'understanding how teaching was evaluated'* (student teacher 11) and *'believing encouraging comments'* (student teacher 13). Mentors commented on engagement with the process engendering *'mutual support'* (Geography mentor 3), and *'building up trust between us'* (English mentor 2). One mentor stated that she felt it had increased her confidence as a mentor (Geography mentor 4). The video footage sometimes helped mentors and their student teachers relax in their relationship;

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*‘... we were able to laugh at some of the silly things I had done, and she complimented me on my good practice’ [Student teacher 5].*

*“We were able to laugh a great deal about all sorts of events which then led to a more serious consideration of events. This in turn allowed a more open and confident relationship’ [English Mentor 3].*

### **Drawbacks and pitfalls of the video intervention**

While the data provided by student teachers and their mentors alike suggests that the majority favour the use of video, there are some who reported problems that arose and a small proportion (less than 10%) of respondents were not positive about the experience. The three key issues are:

- the need to gain parental permission to video-record pupils;
- the increased anxiety about their teaching felt by some student teachers when they were being recorded;
- the concern for weaker student teachers who felt more vulnerable as a result of watching themselves perform poorly on video (as reported by two mentors).

Two other problems were recorded in the questionnaires which were related to logistics and participants’ attitude:

- the time required to source, set up, watch and analyse the video;
- the student teacher and / or their mentor failing to integrate the use of video into their overall evaluative and mentoring processes.

It is possible that these two problems are linked and that the demands on mentors’ and student teachers’ time may impact on their willingness to fully invest in the process. However as the difficulty of finding time in busy schedules is inevitable, it is interesting that these problems were not reported more often.

### **Limitations of the research**

The validity of this research rests on how representative of all student teachers and mentors the questionnaire sample is. The response rate for PGCE students was 43% and for mentors was 38%. Participants understood that the principle researcher was a PGCE tutor, who had been jointly responsible for the PGCE programme and the assessment of portfolios. They knew that the university’s relationship with colleagues in partnership schools would be on-going once they had

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completed the course. Therefore to encourage honest reflection all questionnaires were anonymous. It is possible however that this self-selected sample of student teachers and mentors does not wholly represent the wider groups.

It is also possible that recollections of the use of video during the second long placement dominated the opinions of the participants, as questionnaires were only used at the end of the year. Collecting research data after each placement may have improved the return rate and possibly the reliability of the data. One advantage to the use of video in this respect however seems to be student teachers' abilities to recall details captured on tape and the associated discussions. This may increase the reliability of the methods used. As one student teacher wrote;

*'I do still think back to what I saw on the videos and would like to repeat the experience as I go through my career' [Student teacher 14].*

## **Discussion**

The natural reservations student teachers have about using video-recording should be seen in the context of the benefits it can offer them. There is evidence that when it works well, video enables the student teachers to more readily engage in reflective practice and knowledge construction, supported by mentors who behave as co-enquirers. Each student teacher and their mentor participate in a personal learning journey and need opportunities to make sense of theory and research in relation to their own practice. The video intervention described appears to provide such an opportunity as student teachers engage in evidence-based studies of their own classroom practice. Video allows a greater density of data from classrooms to be collected, enabling student teachers' own practice to be explored. When student teachers add to this the testing of their own and others' theories in relation to their practice they are developing habits of the reflective practitioner. As such video intervention offers opportunities for personal knowledge construction which become a platform on which future professional learning rests.

As the video intervention encourages some student teachers to take a more proactive approach to reflection on their practice, they become more informed and critical participants in the mentoring process. In some cases video also helped student teachers feel more confident in the mentoring relationship, able to identify

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their own pedagogic behaviours and more readily take calculated risks during their teaching placement. As such it may provide a vehicle to avoid the 'plateauing' effect common in final placements. Video intervention also has the potential to impact on the ways that student teachers and their mentors work together. It is possible that video interventions have the potential to change the balance of power in mentoring relationships and the styles of interaction that mentors and student teachers adopt. This may create what Young, Bullough, Draper, Smith and Erickson (2005), discussing novice teacher growth and personal models of mentoring, describe as 'interactive mentors'. The results suggest that the use of video footage during mentoring sessions can facilitate the engagement of mentors with their student teachers in a genuine enquiry about the development of practice, to which each participant brought distinctive and valuable contributions.

The video intervention can also be considered as the *instrument or tool* influencing the outcome of the *object* of learning to teach. In this way it can be understood as part of the dynamic system described by Engestrom (2001) as Activity Theory. The *community* is made up of student teachers, their mentors, and to some extent university tutors, who find themselves 'crossing boundaries and taking on new roles and responsibilities' (Cordingley, Baumfield, Butterworth, McNamara and Elkins, 2002) as a result of using the video. In some cases this causes 'disturbances and conflicts', but may also lead to 'innovative attempts to change the activity' (Engestrom, 2001) of learning to teach. While the video tool has technological limitations, and may sometimes constrain the process of teaching, it also allows alternative or enhanced perspectives. These altered perspectives are fundamental in enabling the subject of the video (student teachers) to acquire personalised professional knowledge. Student teachers' analysis of the video footage, effective mentoring and subsequent changed practice can provide a critical and reflective edge leading to enhanced professional understanding.

Eraut (Eraut et al., 2000 in Eraut, 2007) explores the relationship between challenge, support and confidence in workplace learning. He articulates confidence as a two fold emotion. In early teacher education these may be conceived as confidence in one's ability to perform the role of teacher, and also confidence in the support offered

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to achieve this. Evidence from our enquiry suggests that for many student teachers the use of video-recording does create a challenge, but also allows them to build the necessary confidence to make the required progress. Thus video footage can be seen as not purely a technical tool but rather as something which has the potential to act as a psychological tool (Kozulin, 1998). One of the ways that it achieves this is as a powerful learning activity within the M level PGCE.

## Conclusions

The experiences of our student teachers and mentors suggest that the use of video in the initial stages of learning to teach could be adopted more widely with beneficial outcomes. Video interventions provide objective evidence that can be used in a positive and proactive way by student teachers and their mentors. Student teachers' recognition of their emerging professional identities can be reinforced through video intervention. Video intervention may foster a more critically reflective approach enabling student teachers to gain more from the mentoring process and opportunities that teaching placements offer. Professional mentoring relationships and the associated dialogue, which are enhanced by confidence and trust, may also benefit from student teachers and mentors engaging in the use of the video intervention.

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