

DEVELOPING STUDENT TEACHERS' ABILITY TO EVALUATE THEIR PUPILS' LEARNING IN THE CLASSROOM

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Abstract Pre-service teachers are often required to evaluate lessons, as part of their development as reflective practitioners. The purpose of this action research was to improve student teachers' critical thinking and evaluative practice, following external comments that this aspect should be strengthened. Utilizing a qualitative method approach, a textual analysis of the quality of the lesson plan evaluations produced over one academic year revealed that, in-line with the literature (Halpern, 1999), student teachers benefited from structured training, encouragement to use critical thinking skills and clear success criteria to enable them to monitor, assess and discuss their own progress. However, it was necessary to revisit critical evaluation several times over the year to support their development as effective, reflective teachers.

Keywords: initial teacher education, student teacher, critical thinking, evaluation of learning, teacher action research

Introduction

Critical thinking skills are seen as essential to success and employability (Clarke, 2014; Wallace and Wray, 2009; Halpern, 1999) and university based programs often require students to demonstrate criticality in their academic work. However, it is not unusual to hear academics despairing about students' ability to 'think' (Birkenhead, 2009).

When external inspection feedback was shared with our university programs that student teachers' critical thinking skills and their evaluation of pupils' learning' should be improved, I was given the task of leading on the improvements. This involved carrying out a series of actions (taken in light of the following background literature) and then evaluating if they had indeed led to improvements in the quality of students' lesson evaluations, before the return of the inspectors at the end of the academic year.

Literature Review

The importance of critically evaluating pupils' learning. Initial teacher education programs often require student teachers to plan, deliver and evaluate lessons. Accurate evaluation of the extent of the learning allows the student teachers to consider the impact of their chosen pedagogies (strategies, techniques, assumptions and beliefs) on pupils' progress and achievement. Hattie (2012) stresses the importance of all teachers critically evaluating the impact of their practice on their pupils' learning. It is through thinking critically and questioning outcomes, considering whether they can be improved and examining the evidence from all sides that student teachers can decide what needs to be done in the classroom. Indeed, Richards (2001) considers that both reflection on practice and written lesson evaluations inform further lesson planning and guide further learning.

To evaluate pupils' learning, student teacher must use a range of assessment evidence skillfully and accurately so that they may gauge the extent of achievement and progress of individuals and groups against learning outcomes, national standards or levels. They can then come to judgments about the extent of the pupils' learning so that they can plan the next series of lessons to ensure further progress. Indeed, coming to judgments based on valid evaluation characterizes an expert critical thinker, as outlined in the comprehensive Delphi report into critical thinking (Facione, 1990).

However, it should be noted that there is a difference between 'simple' lesson evaluation (what went well and what needs to be improved) and a more in-depth evaluation involving critical reflection and metacognitive skills (Tibke and Poyner, 2013). The latter allows the student teacher to explore their choice of pedagogy and underlying teacher beliefs on pupils' outcomes in more depth. This can lead to rejecting actions, based on what Dewey (1933, p. 12) terms '*habit, tradition or institutional expectations*' and such thinking can lead to new ways of working or thinking which lead to further achievement and progress (Toplis, 2015). The skilled student teacher will use a range of skills (Wallace and Wray, 2009; Cottrell, 2005; Bassot, 2013) and sources of information (research, theory and classroom data) in order to take part in this metacognitive thinking process. In so doing, the student teacher may also support their transition from student to reflective practitioner.

To evaluate at this deeper level, student teachers may find it useful to apply the skills developed during their university studies to their practice at school. However, there can be an artificial divide between what takes place at university and school. The development of academic skills may be perceived as the prerogative of the university and practical teaching to be the school's role. Furlong (2015) argues against this and says that teacher education should be both practical and scholarly. According to Furlong (2015), the Organization for Economic Co-operation and Development (OECD) advocates such duality of learning and, furthermore, considers it to exemplify best practice in teacher education. It is, therefore, argued that the development of critical thinking during university studies may not only

support students' critical evaluation skills at school, but also bridge the artificial divide between academia and school, promoting such duality of learning.

Challenges and models for developing critical thinking skills. Although critical thinking skills are seen as essential to students at university, it is recognized that some struggle to demonstrate critical thinking (Halpern 1999; Braun 2004). Indeed, Wallace and Wray (2006) discuss what a shock it can be to students when they start university and realize that there is more than one way to interpret information and that different conclusions can be drawn about what should take place. Clearly, this is also true of the student teacher as they being to realize that they are several ideas and theories about what should take place in the classroom to ensure learning takes place.

Furthermore, there are other challenges to developing such critical skills. Halpern (1999, p. 72) notes that some students may be disinclined to use these skills even when they possess them because of how much effort they evoke. Student teachers may, therefore, not only require support to develop these skills but encouragement to use them. Halpern (1999) also discussed that it is essential that student teacher educators address their students' dispositions and that it is not sufficient just to teach these skills without taking these matters into consideration. Moreover, Halpern notes that students can find it difficult to transfer these skills from one context to another. This is especially pertinent to teacher education as it involves two contexts (university and school).

It would, therefore, seem prudent to support student teachers to transfer these skills from university to school. Halpern advocates the following four-part model (adapted below from Halpern, 1999, p. 73) for development and transfer of these skills:

1. Instruction in the skills.
2. Encouragement to exert the mental effort needed to apply them
3. Structured training as a means of improving the probability that students will recognize when critical thinking skills are needed in a novel context
4. Discussion and monitoring of the thinking process and progress made (metacognition).

This study planned to use Halpern's four-part model to improve the students' critical thinking skills and then to ask the following question:

Can using Halpern's model to improve students' critical thinking skills at university lead to improvements in student teachers' ability to critically evaluate pupils' learning at school?

Methodology

Context and setting. This study was conducted at a teacher education center in Wales. Wales, together with England, Scotland and Northern Ireland make up the United Kingdom. Since, devolution in 1997, educational matters in Wales have diverged from that of England and most teacher education programs in Wales still have an element of university study (Jones and Lewis, 2016).

Participants. This study was conducted with the entire center’s student teachers enrolled onto their final year of initial teacher education undergraduate program or those on the one-year postgraduate programs during 2015 – 2016.

Table 1: Total number of Student Teachers Enrolled onto Initial Teacher Education Programs in 2015 – 2016.

Program	Total Numbers	Male	Female
PGCE primary (3 – 11)	168	64	104
PGCE secondary (11 – 18)	144	56	88
Primary Education BA (3 – 11)	68	16	52

Action research was chosen as the research method for this project as it is undertaken by practitioners and is known to support the development of professional practice (Thomas, 2009; Denscombe, 2014; Cohen, Manion & Morrison, 2010). Furthermore, the faculty promotes action research with pre-service and qualified teachers and, therefore, it seemed fitting to utilize this method to explore ways of making improvements to teaching programs. Halpern’s model (1999) was used to guide the actions taken as part of the initial part of this research. Students were guided to address certain criteria in their written evaluations (see Table 2.) The students’ written evaluations (and related lesson plans) were monitored using a ‘progress RAG-rating system (see table 2). There were two review points (Christmas and Easter) (and to prompt corrective action as required) before a final review was undertaken at the end of the academic year to ascertain the summative progress achieved.

Table 2: Lesson evaluation success criteria with progress RAG-rating system

Evaluation success criteria:	Progress is RED	Progress is AMBER	Progress is GREEN
* Explanation of the learning	The criteria	The criteria	All criteria

<p>achieved against every LO (majority, all, etc.);</p> <ul style="list-style-type: none"> * Evaluation of at least one skills' based LO * Focus on the learning of <i>individuals</i> and <i>groups</i> within the class. * Explanation of how the learning of each LO was achieved – attribute or credit the learning to something; * Explanation how the literacy/numeracy/ICT aspect/element was achieved by noting clear evidence * Evaluation of the source of evidence used to assess progress and achievement e.g. peer assessment against SC, mentor feedback etc.; * Evaluation of how well the learners' responded to everyday Welsh/use of Welsh e.g. '<i>the learners used everyday Welsh naturally/ fluently/ with help/ with some encouragement/ with constant encouragement/with clear pronunciation</i>'); * Given attention to everyday Welsh in your evaluations at the start, middle and end of the file and when there is significant progress/lack of progress * Evaluation of the learning in light of pedagogy used (consider is this the most effective way to teach the knowledge/skills to this age range/ability?) * Evaluations reflect upon the influence and effect of the student 	<p>have not been addressed fully by a majority of students.</p>	<p>have been partially addressed by a majority of students (i.e. some criteria have been addressed fully but others have not yet been fully addressed.)</p>	<p>have been fully addressed by a majority of students.</p>
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teacher's pedagogy on the learners' learning including in terms of developing their literacy, numeracy ICT/DC and Everyday use of the Welsh language; * Ensured that the teaching target is linked to the Qualified Teaching Standards.			
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Results

Actions taken: Instruction in the skills and structured training. At the start of the academic year, my small team and I led a professional development event for university tutors on criticality and evaluative practice. Methods for promoting these skills were discussed. These included the use of co-operative techniques to encourage metacognition (Braun, 2004; Gohkale, 1995), teacher educators modeling evaluation of learning and encouraging reflective practice through the use of Socratic questions (Golding, 2011) and guidance on the use of reflective cycles (Bassot, 2013).

Post-CPD activities to promote criticality and evaluative skills (see Appendix 1) were shared with staff that was asked to incorporate these into their normal teaching routines. Tutors were asked to highlight and draw attention to these skills wherever possible. Furthermore, I delivered a stand-alone session at the start of the year to the students on the importance of critical thinking and critical evaluation, which outlined the commonalities and links between the two (the need to base judgments on evidence, to use data critically and to undertake deeper thinking regarding their underlying beliefs and values). A guidance booklet on how to evaluate learning and exemplar lesson plan evaluations were also shared with student teachers, university tutors and school mentors.

First review point. At Christmas 2015, students were asked to submit a portfolio of lesson plans and evaluations to their university tutors. The portfolio consisted of their best lesson and evaluation work. They were also instructed to include the lesson plan and evaluation of each observed lesson (together with the lesson plan and evaluation leading up to and following the observation.)

The students were asked to RAG-rate their portfolios (against the criteria outlined in Table 2) and then tutors were asked to check these RAG-ratings. Each tutor (28 tutors) was then asked to nominate the best portfolio out of all those they had collated and send to myself for moderation. This created a smaller sample of portfolios (28), which were then RAG-rated against the same criteria (see Table 2) by my team of tutors and myself.

Results of first review point. The evaluations were mostly rated as red by the team, as the criteria (see Table 2; Appendix 1) were not addressed in a majority of cases. Most of the evaluations were also found to be RAG-rated too highly by the tutors and students.

To address this, a workshop was arranged and all the tutors took part in a RAG-rating exercise to gain a shared understanding of how to assess the quality of the evaluations. Tutors then led a similar exercise with the student teachers so that the latter could self-assess and peer assess their own evaluations and set targets for themselves. Finally school mentors were given a similar workshop to ensure a common understanding of expectations.

To further support the students, a small group of tutors and myself examined the best evaluations (i.e. those rated as amber or green) for common themes. We independently arrived at a series of themes; we then met and agreed on the following final list of indicators of quality:

- A clear focus on the pupils' learning (less description of what was done; less focus solely on pupils' or teacher's enjoyment of taking part in activities).
- Quantified phraseology used to report on the extent of learning against each learning objective (based on the inspectors terms (Estyn, 2015) most 90% or more, many 70% or more, majority 60%, minority below 40%, few 20%, very few less than 10% etc.)
- The extent of learning of individuals *and* groups referred to.
- A range of valid assessment data referred to (scrutiny of book work, test results, mentor observations etc.) to come to conclusions about the extent of pupils' progress and achievement against each objective. Illustrative examples of pupils' work included exemplifying the extent of learning or issues with learning.
- The impact of chosen pedagogy and strategies on learning outcomes considered, including fundamental beliefs and teacher behavior.
- Challenging learning targets were set and lesson plans adjusted in light of the pupils' previous achievement and progress.

Then we also examined the evaluations RAG-rated as red. The students who had difficulty with their evaluations had superficial comments, most often related to how much the pupils had enjoyed activities (although important, enjoyment does not always signify that learning took place). These evaluations demonstrated very little evidence of a deep understanding of individuals or groups' learning. They also tended to be shorter and to be poorly written; they looked rushed and were unfinished. They were often 'cut and paste' and many were simply lesson plans with missing evaluations. There was a more prevalent tendency to say that 'All learners' had achieved the learning objectives; the better evaluations were more

nuanced and provided evidence to support their statements. Furthermore, the learning objectives were poorly defined and often there was no clear link between the evaluation and the learning objectives; the next learning targets were also poorly defined or absent.

The above activity allowed us to discuss real examples, to target advice on how to improve and to monitor thinking processes with the students during the next student workshop. This led to the production of a more user-friendly single sheet of success criteria which was devised from the aforementioned list (see Appendix 2) which was shared with the students. It allowed us to give further encouragement to use these skills and the workshop was an opportunity to remind the students of the importance of evaluating in depth as a basis for their next lesson planning and to re-focus their attention on these matters.

Second review point, results and further actions. During Easter 2016, the students' evaluations were again assessed with all tutors taking part in the formative exercise (as before). There were more examples in the amber category (see Table 2 for a description of this category). However, some areas were still weak e.g. their evaluation of the development of their pupils' literacy skills and the reference to research to back up their choice of strategies. This was targeted during the next workshop. To motivate the students, they were reminded that basing their practice on an in-depth evaluation of learning could help them to access the higher teaching grades on teaching practice. This was supported by inviting school mentors to the workshops to give their perspective on the importance of developing these skills to become employable and also schools' expectations regarding newly qualified teachers' evaluative skills and the profession in general.

All student teachers were again required to self-assess and peer-assess evaluations and set targets. However, this time the students were required to explicitly discuss the thinking processes they had used so far, the progress they had made in evaluating their pupils' learning and how they had met their targets, during tutorials with their tutors.

Final review. At the end of the year the evaluations were again reviewed. Progress RAG-rating showed there was an improvement by the end of the year (with a majority being either amber or green; although a minority was still poor and classified as red). This assessment was then externally verified by the inspection team as inspections of initial teacher education programs require '*providers to accurately evaluate their own performance*' (Estyn, 2015, p.8). The assessment of outcomes was found to be in accordance with the external judgment.

In verbal feedback, it was reported that the wide range of activities undertaken over the year were appropriate and had helped raise tutors' and student teachers' awareness of the importance of critical thinking skills. They verified that data collection via the monitoring

and RAG-rating of written evaluations had allowed the faculty to identify areas of weakness and to target these in workshops during the year. Overall, student teachers were considered to have been guided to focus more clearly on evaluating pupils' learning.

Discussion

In light of the background literature (Halpern 1999; Braun 2004; Golding 2011) and this study, student teachers do indeed require training, encouragement and support to be critical. To answer the initial question: *'can using Halpern's model to improve students' critical thinking skills at university lead to improvements in student teachers' ability to critically evaluate pupils' learning at school?'* there is some evidence from this study that improving students' critical thinking skills using Halpern's model (1999) does indeed support them to be more evaluative of pupils' learning in the classroom.

Focusing on critical thinking skills and evaluation of pupils' learning seemed to encourage the student teachers to link up their academic studies with their practical day to day teaching, as advocated by the OECD (2012). Although some student teachers may have been motivated enough to improve their evaluative skills by being made aware of the links with academic critical thinking skills' development, most students required much additional support and further encouragement to transfer these skills into the classroom setting. This seemed to work best when there was a shared understanding of expectations between the tutors, student teacher and school mentors.

Students' progress in critically evaluating pupils' learning across the year was not rapid. It was clear from the work of most students at the first review point (Christmas) that the expected improvements had not been made and that further action would be necessary. At this stage, most students needed further time to make links between the skills they possessed in one context and another. When students go to school they are often overwhelmed with information from all quarters and it can take time for them to process it all. It may be a necessary part of the students' development to periodically remind of them of key aspects, such as criticality and to re-focus on these. The focused workshops held across the year certainly appeared to be instrumental in supporting the students to make further improvements as the evaluations improved over the year following this intervention. The tutorial sessions that required the students to discuss their thinking also seemed to support the students to improve their written evaluations of learning.

The findings also suggest that sharing model examples and discussing user-friendly success criteria, as identified during this study (see Appendix 2), may further support student teachers to understand how to evaluate pupils' learning more effectively. Indeed, sharing these with students earlier in the process may have supported more rapid progress. Similarly, the progress RAG-rating exercises, undertaken by tutors, mentors and student

teachers, supported a shared understanding not only of progress but also of expectations. However, this might also be more effective when undertaken earlier in the process.

At the end of the academic year, the majority of the students were able to competently critical evaluate their pupils' learning and there was some evidence from the best evaluations to support the assertion that focusing on the extent of pupils' learning does allow students to improve their subsequent lesson planning (with their pupils' work showing progress and achievement). However, a minority of student teachers still required further support to demonstrate good evaluative skills. Possibly they would have benefited from further time on these aspects to enable them to make more improvements and/or they may have required more input from their school mentors on this aspect too.

Conclusion

The implications of this study suggest that it is essential that critical skills be embedded into the curriculum so that they can be reinforced regularly over time at university and during school placement. Program leaders should, therefore, audit provision (how the skills will be developed) and map out sessions to ensure enough attention is given to these matters throughout the program, alongside all the other aspects of becoming a qualified teacher.

Furthermore, those who work with the student teachers (both at university and at school) should ensure they have a shared understanding of expectations with regards to evaluating learning. Schools that mentor student teachers should be aware that there is an expectation that student teachers will explore and even challenge accepted pedagogy as part of their development. Although student teachers can be agents to drive forward change, this has to be undertaken in an environment where it is acceptable to be critical of the accepted institutional ways of doing things. This may be a necessary pre-requisite of schools involved in leading mentoring student teachers.

About the Author

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Appendix A: Activities to support the development of critical thinking skills and evaluation of pupils' learning

Critical Thinking Skills Development Activities

Here are examples of five strategies you should use with your classes.

1. **HELPING STUDENTS TO READ CRITICALLY.** Try to encourage a more critical approach to reading. *For example, choose an article, which is biased/one-sided, and/or one that uses spurious statistics. Encourage the students to think about what they have read and might otherwise accept at face value. Set simple questions which guide and challenge them to do more than accept the reading at face value. Set questions which ask them to note facts to show understanding (e.g. define terms), ask them to note evidence, which support various specific aspects and then ask their opinion about something specific and controversial.*

2. **HELPING STUDENTS TO CONSTRUCT AN ACADEMIC ARGUMENT ROOTED IN THE LITERATURE AND RELATED TO PRACTICE (CRITICAL ANALYSIS).** *For example, set specific reading to be done prior to the session. During the session give students a series of quotes from the reading on a particular theme and ask them to sort them purposely (e.g. if the reading discusses a theory, argument or fact, ask them to classify the quotes according to whether they support or challenge the theory/fact/argument.) Then ask them to construct a balanced argument, rooted in the quotes from the reading and tied to their practice, and present these to the class. Next ask them to work in groups with a limited number of articles to construct their own arguments on a particular theme.*

3. **HELPING STUDENTS TO OFFER CRITICALITY WHEN WRITING.** *For example, before the session give the students a directed reading task e.g. 'Read the following four articles on aspects of effective teaching and make notes on what makes an effective teacher. Bring your notes with you to the next session.'* *During the session ask the students to write an argument in response to an open question e.g. Think of an effective teacher and critically analyze what makes them so effective. List the characteristics of an effective teacher and by each characteristic note what evidence there is to back up the idea that this characteristic is effective. Also note any evidence (formal or anecdotal) which challenges this. Consider your list carefully and come to an informed conclusion about what makes an effective teacher, which goes beyond your list of evidence. Remember to refer to reading to back up your arguments. Then peer mark these against shared success criteria.*

4. **USING CRITICAL EVALUATION AND REFLECTION TO PLAN EFFECTIVE LESSONS.** *Ask students to bring in a series of 6 lesson plans and evaluations to be peer-marked against the success criteria. For example, in pairs ask them to check if the lesson plans show evidence of planning, which takes account of previous evaluations and reflections. Is there evidence that they've developed the learners' critical thinking skills? They should then analyze the evaluations/reflections for evidence of critical evaluation (ask them to check if the evaluations make it clear 'who learnt during the lesson' and 'how they know', 'why something worked and 'how they know'. They should look at the quality of the evidence used to assess learning. They should also look for emotive responses or acceptance of the status quo and try to challenge each other.)*

5. **FEEDBACK THAT ASKS FOR MORE CRITICALITY IN ASSIGNMENTS/EXAMS – when writing such feedback, explain how students can offer more criticality. For example,**
 - *Point out where they do it well and why.*
 - *Give them examples of good critical analysis (and put these on the virtual learning platform).*

- *Give them specific examples of the type of writing used when challenging a particular point of view e.g. X argues Y, others have shown more preference towards Z. In conclusion, it is likely that different individual favors different methods in different circumstances.*
- *Use Stella Cottrell's Study Skills Handbook (p232) to help them to understand the difference between descriptive and critically analytical writing.*

Appendix B: Student friendly success criteria to promote a focus on evaluating pupils' learning

