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Title: The influence of interactions with students for the development of new academics as teachers in higher education

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Keywords: teacher development; approaches to teaching; reflection; new teachers.

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Abstract: The aim of the current investigation was to provide an insight into how new lecturers in higher education develop as teachers over time and to identify some of the main influences upon this development. A qualitative, longitudinal design with three semi-structured interviews over a two-year period was employed with eleven new teachers from a range of higher education institutions and settings. The analysis used case studies, alongside a thematic analysis, to provide fine-grained and idiosyncratic insights into the teachers' development. The principal finding from the current study was the identification that instances of interactions with students, acted as a core influence upon the new teachers' development. These instances appeared to provide the teachers with richer and fuller feedback about their teaching. This feedback supported their reflection and influenced the way in which they thought about teaching. Based on these findings it is suggested that teacher development could be enhanced by focussing upon specific instances of interactions with students as these instances provide specific and tangible moments that allow individuals to reflect upon and discuss their conceptions of teaching.

Response to Reviewers: Thank you for the positive comments on the manuscript and the suggestions for how it can be enhanced. Based on the reviews comments I have identified the areas for revision below and indicated the nature and place of any modifications that have been made.

Reviewer #2

Comment 2.1: It needs to be clear that 'development' is referring to longitudinal development

Response: 'Over time' has been added to the first line of the Abstract.

Comment 2.2: The reason given in the opening the paragraph for why there has been an increasing focus on professional development for academics - staff needing to become better teachers to respond to a diverse student group - is only one reason for this increasing focus. There are others (increased focus on quality, accountability etc) and these should be referred to.

Response: The following sentence has been added to the opening paragraph (p.5): 'In parallel to this, increased attention has been paid to teaching and learning in higher education and a commitment to ensuring high standards (DfES 2003).'

Comment 2.3: 2nd paragraph - 'the number of broad models of teacher development' are mentioned but not stated in any way. There is a whole literature on academic development as a field of practice that has not been mentioned

Response: It would seem beyond the scope of this article to state what these models were (the reader can go to the sources if required) or review the body of literature on academic development. The article is already at the word count limit.

Comment 2.5: Typos - 3rd paragraph 'There are investigations .'
First paragraph, 2nd sentence - ' .single participant who had a developed a
Second paragraph - last sentence 'However less attentions has ..'

Response: Corrections have been made on p5 & 6

Comment 2.6: The Pickering study is dismissed (or qualified) as it only used data from one year (and a small number of participants, but not many less than this study) - however the study which is subject of this paper is only over 2 years - not sure that Pickering's work can be dismissed on these grounds.

Response: The review of the Pickering study has been re-worked which aims to better explain the critique of only collecting data over one year. Also the critique of low subject numbers has been removed (see bottom of paragraph 3 on p.6)

Comment 2.7: As you read the opening sentences describing the research design and methods, you get the impression of a large research study - 'from a range of higher education and subject areas' yet the study only involved 11 participants

Response: The statement 'from a range of higher education and subject areas' does come after that it is stated that there were 11 participants. Therefore I am not sure how you can get the impression of a large research study. The word 'range' could be change to 'variety' if it would help.

Comment 2.8: Single interview case notes being developed for nine participants (did 2 drop out?) and then more detailed case studies for only 3. It is not clear whether the analysis was across the 9 participants or only the 3 that were written up in more detail - this needs to be more explicit.

Response: Two changes have been made in relation to these comments:

a) The statement that single case notes from the first interview were created for nine participants was misleading. Only nine were completed by the time of the second interview, however they were completed for all participants eventually. Therefore I have change this to: 'Using the summaries and transcripts from the first interviews more detailed single-interview case notes were then developed for the eleven participants.' (top p.8)

b) The second stage, thematic analysis was with all the participants. Hopefully this has been clarified with the addition: 'All eleven participants were included in this phase of the analysis...' (paragraph 3, p.8)

Comment 2.9: The quotes from the interviews support the points made well - but maybe the heading of this section could highlight that - active involvement of students and a broader awareness of what they are trying to achieve as teachers - if not highlighted in the heading, the latter point (3rd paragraph) should be italicised.

Response: Broader awareness has been italicised on p.9

Comment 2.10: I would have liked a stronger recommendation of how (practically) a greater emphasis on teachers reflections of interactions with students can be integrated into academic/educational/professional development activities and programs.

Response: Three practical developmental activities were provided in the original submission, which read: 'It may be productive to use such critical moments with new teachers in their discussions with mentors, as a focus for observation of teaching or to trigger specific and relevant assessment activities on postgraduate university teacher development programmes.' However the final paragraph (p12) has been further developed and has suggested the use of table 1 as a developmental tool, based on an earlier comment from Reviewer #2 which stated; 'I really like Table 1 and the information that it contains. It very clearly and succinctly illustrates the points made in this section and would be a great 'development' tool in its own right.'

Reviewer #3

Comment 3.1: There were a few minor proof-reading errors to be corrected, eg "two years' experience" needs the apostrophe; a singular verb should follow "a number of..".

Response: Correction to 'two years' experience' has been made (p6). The use of 'a number of..' has been reduced or checked throughout the article.

Ian Sadler

The influence of interactions with students for the development of new academics as teachers in higher education

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Abstract

The aim of the current investigation was to provide an insight into how new lecturers in higher education develop as teachers over time and to identify some of the main influences upon this development. A qualitative, longitudinal design with three semi-structured interviews over a two-year period was employed with eleven new teachers from a range of higher education institutions and settings. The analysis used case studies, alongside a thematic analysis, to provide fine-grained and idiosyncratic insights into the teachers' development. The principal finding from the current study was the identification that *instances of interactions with students*, acted as a core influence upon the new teachers' development. These instances appeared to provide the teachers with richer and fuller feedback about their teaching. This feedback supported their reflection and influenced the way in which they thought about teaching. Based on these findings it is suggested that teacher development could be enhanced by focussing upon specific instances of interactions with students as these instances provide specific and tangible moments that allow individuals to reflect upon and discuss their conceptions of teaching.

Keywords: teacher development, approaches to teaching, reflection, new teachers

Introduction

Over the last two decades there has been a considerable increase in the provision of professional development for academics in higher education that specifically focuses upon the improvement of learning and teaching. This increased provision is a response to the expectation of universities for their staff to become better teachers more quickly in order to support greater numbers of students entering higher education from a diverse range of backgrounds (Clark et al. 2002). In parallel to this, increased attention has been paid to teaching and learning in higher education and a commitment to ensuring high standards (DFES 2003). Accredited training for teachers has been developed in UK higher education institutions and it is now the norm for all new staff to complete such programmes. In order to provide effective training it is important to have an understanding of how academics develop as teachers and the types of influences acting upon this development. However, there is little empirical, and in particular longitudinal, evidence on which to base our understanding of teacher development in higher education.

Despite a lack of empirical evidence, there are several models of teacher development that have been proposed (Fuller 1970; Nyquist and Wulff 1996). In addition there are theory-based contributions from non-teaching related areas (Schön 1983 and Boud et al. 1985). These consider professional development more broadly but can be applied to the context of teacher development in higher education. Although these are useful for providing an initial picture of development they are rather abstract and distant from teaching in higher education. A more established body of literature that is specific to teaching in higher education is the research into teachers' *conceptions of teaching* (Pratt 1992; Samuelowicz and Bain 1992; Gow and Kember 1993, Trigwell et al. 1994). Although this work offers an empirical starting point for research into teacher development, some caution is needed in using the categorisation model of conceptions of teaching (Kember 1997) in this way. One reason for this caution is that the conceptions of teaching categories emerged from research that used single interviews with different teachers and therefore empirically cannot represent teacher development. Research that is more relevant to teacher development in higher education has identified the different ways in which teachers described their experiences of development (Åkerlind 2003; Åkerlind 2007) or investigated the impact of teacher development programmes upon conceptual change and approaches to teaching (Hativa 2000; Ho et al. 2001; Devlin 2003; Gibbs and Coffey 2004; Posteralf et al. 2007; Light and Calkins 2008). Although these investigations act to shed light on our understanding of teacher development from a variety of angles they are not specifically concerned with monitoring teacher change over time.

There are investigations that have used the conceptions of teaching categories to more explicitly track the development of teachers in higher education over a period of time (McKenzie 2002; Martin and Ramsden 1992), however these have often found it problematic. One example of the type of problem encountered is that small changes in teachers' descriptions from one interview to the next could not always be represented by a shift from one conceptual category to another (McKenzie 1999). As a result small improvements were difficult to monitor using the conception of teaching categories and yet they were likely to be significant for the teacher and therefore our understanding of teacher development. Other reported problems related to a change in the subject area or context within which the individuals were teaching. This meant different aspects of teaching were brought into the foreground in different interviews and led to categories or fragments of categories being described at different times that did not necessarily represent development. As the conceptual categories strip away the rich descriptions from individuals to leave a limited number of qualitative differences in ways of experiencing, it is likely that what is left may not actually match with an individual's particular experience of teaching (Marton and Booth 1997). Therefore there is a need to investigate teacher development in a way that will allow for an insight into the complex and idiosyncratic aspects of teaching and teacher development.

Influences upon development and interactions with students

Although there is a general lack of research into teacher development and in particular the influences upon new teachers' development there are studies that refer to the role of teachers informal, day to day encounters as triggers for them to think about their role and the way they go about teaching. A retrospective case study provided a rich account of teacher development, however this was limited to a single participant who had developed a 'sophisticated' conception of teaching (Entwistle and Walker 2000). A key aspect from the account was the suggestion that more advanced conceptions of teaching

and knowledge of the subject area appeared to be developed through the teacher's everyday experiences with students. Other studies with larger numbers of teachers (Marton and Lueckenhausen 2005; Åkerlind 2007) have also concluded that simply being engaged in the experience of teaching was a key strategy for development as it appeared to change the teachers' understanding of teaching and learning in that subject. Finally an investigation of six exemplary professors concluded that it was reflection upon teaching experience which play a critical role in them becoming exemplary teachers (McAlpine and Weston 2000). Reflection was identified as the key vehicle for the construction of more permanent teacher knowledge from experiential and tacit knowledge gained while doing the job. Although these studies provide some indication that 'learning on the job' is a key influence upon development none of them have used a longitudinal design in order to monitor the interaction between this as an influence and development over time with new academics.

A more specific element of 'being engaged in teaching' that warrants further investigation is the role that interactions with students plays in teacher development. In the context of research into the conceptions of teaching, *student-teacher interaction* has been identified as an intermediate or transitional category that sits between the two broad orientations of the student- and teacher-centred view of teaching (Kember 1997). This finding in itself seems to indicate that interactions between the teacher and students acts as a critical point of change in the way a teacher thinks about teaching. However, this category has become a key point of contention in the conceptions of teaching research and the withdrawal of the intermediate, student-teacher interaction category has been proposed (Samuelowicz and Bain 2001). Such a proposal was based upon the premise that although interaction between the teacher and student is often present for teachers with a teacher-centred or student-centred conception of teaching, it is the purpose and nature, or *intention*, of this interaction that differentiate the categories identified. Therefore, in the context of the conceptions of teaching literature, student-teacher interaction has been considered in terms of being a dimension of the conceptual categories. However less attention has been paid to interactions between the teacher and students being a potential influence upon the way in which an individual comes to think about teaching.

There are a small number of studies that have started to indicate the role of teachers' experiences of teaching and interacting with students upon learning to teach and teacher change. For example a study used the written reflective portfolios from eight novice university geography teachers to investigate how academics learned to teach (McLean and Bullard 2000). One of the common themes in the teachers' writing was their attempt to use participatory methods of learning in that all the teachers were keen to encourage student discussion and group tasks. In addition a more recent study assessed the process of teaching change in four novice teachers (Pickering 2006). This suggested that encounters with students were powerfully influential upon the teachers' development. Both explicit student feedback and more implicit student responses within teaching contexts were outlined as being 'encounters with students'. Throughout the analysis, Pickering stressed the importance of experience as a teacher and suggested that encounters with students could have a more powerful influence than some of the other experiences such as formal development programmes. Although both of these studies contained longitudinal data collection it was only over a single academic year and they do not offer an insight into the year on year development of the teachers. Data collection over sequential academic years might prove fruitful in terms of identifying development, as this is likely to be the point that the teacher will teach particular modules and classes for the second time. The studies by McLean and Pickering do indicate that in-depth analysis with a relatively small sample may add further to our understanding of how academics learn to teach and therefore further investigation is warranted.

Research design and methods

The current study employed a qualitative, longitudinal design with three semi-structured interviews with each of the eleven participants being undertaken over a two-year period. This longitudinal design was the most distinctive and novel aspect of the current work. Although there were logistical problems with this form of investigation, such as the length of the data collection period and therefore the potential for participants to drop out, this approach was considered as being best suited to the creation of an accurate and rich picture of how new teachers in higher education developed. All participating teachers had less than two years' experience and were from a range of higher education institutions and subject areas. The institutions within which they taught included traditional research intensive universities, new universities which were teaching-led and a further education college that delivered higher education qualifications. The majority of the participants (all but two) were from what would be classified as teaching- as opposed to research-led institutions. The teachers were from a range of

subject areas which included: Sport, Physiotherapy, Psychology or History. All of the participants were engaged in their institution's postgraduate teaching programme at some point throughout the data collection period. Such a range of experiences, institutions and subject areas allowed for the influence of context upon teacher development to be a key dimension in the analysis.

Data collection

Each participant was interviewed three times in consecutive semesters of teaching. The interviews lasted between 40 and 70 minutes with the majority being about 60 minutes in duration. The interview schedule contained three main sections. Section 1 encouraged participants to describe the ways in which they thought about teaching, how they went about teaching and how these conceptions and approaches developed over time. Section 2 focussed upon trying to identify explicitly the major influences upon the new teachers' development. Section 3 asked the participants to consider how and to what extent their conceptions and approaches to teaching were influenced by the varying contexts within which they taught. A key principle in the design of the questions in each section was to ensure that the questions initially encouraged the participants to describe concrete experiences of real, everyday instances. For example, the type of question that aimed to achieve this was; 'Can you think back to the last session you taught and consider what the students were actually doing?' However, the later questions in each section shifted the focus towards a broader and more abstract reflection, such as, 'What do you think of as learning?'. In addition the opportunity for the researcher to establish a relationship with the participant, as a result of the longitudinal design, also appeared to help produce candid responses to questions.

An additional consideration in the schedule design, unique to the longitudinal interviewing, was that there was a consistent component in order to identify any shift in the response to particular questioning over time, but also a flexible component so that the interviewer could respond to aspects of the previous interview. In order to do this a new question was asked at the beginning of the second and third interview, which was; 'How has your teaching changed since we last met? Is there anything you now see differently?' As this was a broad, conceptual question it was often followed by the prompt; 'Last time we met the types of things you were mentioning in relation to your teaching were...'. This question yielded some extremely rich data concerning how the teachers had developed. All interviews were tape recorded using an analogue tape recorder and table microphone, which was subsequently transcribed verbatim. For the two follow-up interviews the participants received a copy of the transcript to remind them of particular topics explored in the previous interview and their responses to these questions. This process also acted as one of the quality checks to ensure the trustworthiness of the data by checking it with the original source (Bassey 1999).

Analysis

The analysis was based upon the principles of *building theories from case study research* (Eisenhardt 2002). There were three key elements to this form of analysis. Firstly, at its core, the analysis was an inductive process which was based upon the concepts of 'grounded theory' (Glaser and Strauss 1967). There was a focus upon the participants' accounts of experiences of phenomena and the social world, in the context of being a teacher in higher education. Emerging themes were checked with interviews at different points for the same individual and with other participants. The second element of the analysis was to consider the interplay between the data and the researcher's conceptions that had developed from the literature. In other words, the data analysis required constant movement between the data and the literature in order to support the creation of theory.

The theory-creation process in the current investigation contained two main phases. The first phase of the analysis was the development of in depth case studies for three of the participants to illustrate their experiences of development over the two-year period. This approach allowed for the generation of fine-grained and idiosyncratic insights into how new teachers in higher education typically develop. Many different types of case studies have been described in the literature (e.g. Stenhouse 1988; Yin 1993). The case studies in the current investigation are defined as *descriptive educational* case studies with the aim being to:

Provide complete description of a phenomenon within its context in order to understand educational action and develop theory through systematic and reflective documentation of evidence (Adapted from Stenhouse 1999 and Yin 1993).

The development of the case studies started with summaries being written for all of the first interviews with participants. Care was taken to maintain the essence of the participant's accounts and the specifics of the context. Using the summaries and transcripts from the first interviews more detailed single-interview case notes were then developed for the eleven participants. These case notes focussed upon the participants' understanding of teaching, their descriptions of development and the associated influences upon development. At this stage checking between participants and between the cases and the literature was avoided as far as possible to avoid the creation of common themes prematurely. Due to the longitudinal nature of the methods employed, a distinctive part of the analysis was the overlap in data analysis with data collection. Often single-interview case notes were being written while the next round was being conducted. Once the second interviews had been completed a similar process was undertaken to that after the first interview. However this time, before these summaries were developed into more detailed single-interview case notes a process of case selection was undertaken. For the second interview case notes were written for four of the participants and by the time of the third interviews this had been cut to three. These three participants were selected as they provided a range of contexts and appeared to be most theoretically useful. The end result was three sets of single interview case notes for three individuals.

The final stage of the case analysis was to create detailed case studies for each of the three participants. This process was extremely time consuming and iterative as the case notes from separate interviews for each participant had to be integrated to capture their descriptions of teaching and their development across all three interviews. There was a need to continually revisit case notes and transcripts of separate interviews and also extensive cross referencing and checking *within* participants. Such checking became an extremely important process for identification of the participants' development, but also acted as a form of authentication as the teachers' descriptions across interviews could be checked. In addition another quality check on the developing analysis was scrutiny of the case studies and transcripts by two further independent researchers.

The second phase of the analysis was a thematic analysis which aimed to identify common trends in relation to the teachers' development. All eleven participants were included in this phase of the analysis with checks *between* participants being made at this point to search for cross-case patterns. Although the case studies developed in the first phase of the analysis provided a start-point for the thematic analysis, it was important not to be overly influenced by the experience of these three individuals. This stage of the analysis required the researcher to move between the case studies, the interview transcripts and the literature. A coding sheet was developed that helped the data to be grouped into themes and sub-themes for each participant across all interviews. This aided the analysis as it allowed the researcher to see as much of the data in one place as possible (Miles and Huberman 1994). Being able to log similar themes across all three interviews became critical for the identification of development. The outcome from this phase of the analysis was that it allowed for some tentative or 'fuzzy' generalisations (Bassegy 1999) to be provided with regards to teacher development in higher education. The broad consistency of the themes in a relatively small sample would indicate that some level of application to new teachers in higher education outside of the sample is warranted.

Illustrations of teacher development

When the teachers explicitly spoke about their development since starting teaching and over the course of the three interviews, they tended to describe a greater proportion of their teaching in relation to the *active involvement of students*. Some of the descriptors associated with an increase in this approach included: tasks, engagement, interaction, facilitation, discussions, question and answer, practical, peer presentations, seminars and debate. Despite a vast range of strategies to more actively involve the students, the common aspect was that the students were required to do something with the information rather than just listening and writing the information down. The following extracts from three different participants illustrate a shift away from the teachers' simply *delivering information* and towards an approach that more actively involved the students:

The first year I ran it was the first module I'd taught and I was quite nervous and I did do a lot of just things on PowerPoint slides. And this year is much more interactive and choppy again and through all the sections, so it all seemed to work very well. (Ben, psychology, third interview).

They want to be delivered to, they want someone to stand up and deliver and not put on a show but they want to be inspired to learn. And what I've found myself doing now is that the PowerPoints have either been cut right back or I have just gone away from them and gone more to the kind of chalk and talk but with lots of interaction, a lot of probing questions, getting *them* to almost deliver the lesson. (Anne, sports science, third interview)

When I very first started I was...very much stand at the front, this is your information, write it down. And I've tried to get them involved in some way just because you can see them getting bored and you can see the glaze in their eyes, and to get them to actually physically move maybe just to another desk to write something down is enough to distract them somewhat. (Ruth, sports studies, third interview).

What is also well illustrated in the three extracts above is that although there was commonality in their development in terms of using strategies which more actively involved the students, there was stark contrast in the intentions for starting to use this activity. Ben indicated that this shift towards greater interactivity was related to feeling less nervous. Ann described a more learning-orientated intention for using more interaction, whereas Ruth's rationale was explicitly based upon the maintenance of interest and attention. Such descriptions start to indicate variation in how the individuals developed approaches which more actively involved the student.

Another aspect of the participants' development, which came through in their descriptions, was a *broader awareness* of what they were trying to achieve as teachers. An increased awareness seemed to manifest itself in different ways, including: a greater focus on the students as learners; having a clearer aim of what their sessions were intending to achieve; and a better picture of how their module or teaching fitted in with the students' programme as a whole. The extracts below provide support for the teachers developing a greater awareness of the students' progression and development on the programme as a whole.

I'm more aware of as well the whole programme structure, what they get at different points of the course and what sort of things they're going on to do. Those sorts of things contribute to your thoughts about what's essential to be in there, what's not. So I think just being more aware of the whole programme, what other the other staff teach, and also being aware of what sort of things they're going on to do, what they need to know really dictates. (Tom, Exercise Physiology, third interview)

One of the things that's changed my views since becoming head of programme is about looking at a programme overall and looking at progression of student development through the years, through the levels of the programme. So I'm now becoming more aware of doing practical things with them and having those lead through the whole programmes. (Dave, psychology, third interview)

I think I have a more global view of how my modules fit into the degree structure as a whole which I didn't used to worry, so I was too concerned about delivering my own material and working at my own material. Whereas now I'm very conscious of what other modules the students are doing with other members of staff and how my material overlaps with that or complements that, and can we draw links between the modules. So I think with the modular programmes like we run here, there is that danger that students do a module and it's very self-contained, and they do the assessment and hooray we've done that one, move onto the next one. Whereas obviously with the degree programmes they are building on those materials and the modules are all interlinked, so the material builds on material from other modules. And I think that it's quite easy to forget that, both for us and for the students. (Ben, psychology, third interview)

In all of the extracts above, it comes through quite clearly that the teachers are describing a shift in their way of thinking. The way in which they clarify this is through the use of descriptors such as, 'I'm more aware...', 'One thing that has changed my view...' and 'Now I'm very conscious of...'. With this shift in thinking the intentions behind the active involvement of students appeared to change. In their descriptions of student involvement, the focus was more upon supporting the development of the student and drawing together the more disparate aspects of the curriculum.

Interactions with students as an influence upon development

In addition to illustrating teacher development, the current investigation aimed to provide an insight into what may have influenced how the teachers developed in this way. The previous section identified that movement towards an approach that more actively involved the students was a key characteristic of development in the majority of the teachers. However, rather than simply being a *marker* of teacher development, interactions with students as a result of taking an approach that actively involves students in a session, appeared as a common and critical *influence* upon how the teachers developed. Analysis of the data from all of the participants in the current investigation suggested that a key moment, where development in their thinking or practice was most apparent, was when they were directly interacting with the students, often as a result of them introducing an activity or task. The critical feature of this type of situation was that it seemed to provide the teachers with access to new forms of feedback on their teaching that had previously been unavailable to them. Table 1 provides a range of examples where the teachers described instances of interactions with students that appeared to be pivotal moments in them coming to see teaching from a new perspective.

TABLE 1 HERE

It could be argued that these critical instances outlined in Table 1 act as an important *portal* for their development as teachers. The four instances of interactions with students described by the participants appear to align with some quite clear shifts in their descriptions about teaching. On the whole the overviews of how the teachers described their teaching prior to the 'critical interaction' were dominated by the provision of information and the use of tasks to enhance interest. However, the overviews of their descriptions after the critical moments demonstrated a much greater empathy for the students. Such empathy seems to be due to an enhanced awareness of the students' needs and gaining a better insight into the students' understanding of the subject, which resulted from the feedback provided by the critical instance of interaction. The suggestion that a teacher's development contains a threshold, which a critical moment may help to move an individual through, is not dissimilar from the concept of a 'pivotal' fifth position in the intellectual development of students (Perry 1970). Perry considered this fifth position as being a watershed and critical traverse in progress where an individual sees things from a new perspective and they become more reflective in their practice. This stage of development seems to be akin to the experience of the four participants in Table 1, and, more importantly, it appears to have been influenced directly by their interactions with students.

An important characteristic of interactions with students is that the richness of feedback provided by instances varied depending upon the type of strategy the teachers employed. For example, if the level of student involvement was low, such as a traditional lecture, the feedback that the teacher received was less tangible and based upon the teacher's perception of how well the students were learning. Although this provided some level of feedback to the teacher it was more abstract and appeared to have less impact upon an individual's development as a teacher. However, if the involvement from the students was relatively high, such as a teaching situation where a small group was undertaking a task, the feedback was richer, fuller and more explicit. Such feedback seemed to have a more profound effect upon the way in which the teacher came to see teaching. These different levels of feedback are apparent in the instances of Ruth and Tom in comparison to Ben and Ann in Table 1 above. In the cases of Ruth and Tom the feedback from interactions with students emerged as a result of asking students questions in a lecture situation, which provided them with some limited insight into the students' interest and engagement. The feedback to Ben and Ann came from conversations with small groups of students about their work or ideas and this appeared to provide much richer feedback to the teachers in terms of the students understanding and the effectiveness of the teaching strategy.

Case Study: Alice's 'groundbreaking' moment

One of the key forms of analysis in the current study was the use of case studies. The following section aims to provide a more detailed examination of the influence that *instances of interactions with students* appeared to play upon development. The case presented is Alice, who at the time of the first interview had been employed as a teaching assistant in psychology for one year and three months. By the time of the second interview, eight months later, Alice had completed a postgraduate teaching qualification and had been appointed as a full-time lecturer in Psychology. Alice was still teaching similar subjects but became responsible for a number of modules that she had taught on as an assistant.

At one point in the second interview Alice described a ‘groundbreaking’ moment where she had come to see teaching in a different way. She described that; ‘It wasn’t my responsibility to tell them the right answer, [...], but just being able to sort of guide them to find out for themselves’. At a similar time to this shift in the way she saw teaching Alice had experienced a particular instance that appeared to play a significant role in this realisation. The particular incident that Alice described was in a session that aimed to get the students to learn about observational sampling. To achieve this aim she designed a task where the students actually had to undertake their own observation of a clip from a ‘Tom and Jerry’ cartoon. Alice had taught this session on numerous previous occasions and, as a result of these previous experiences, she had adapted how she used the task. The following extended extract is Alice’s description of the particular instance, which clearly illustrates a shift in the way she thinks and goes about teaching.

We do a talk on observation. It used to be, this is what observation is, this is how you do it and then they’d watch Tom and Jerry and they had to do this observation task. And that was all very well, but they never seemed to engage with it very well. So I cut down the talking bit at the beginning and made them just watch Tom and Jerry, sort of changed the task slightly so it was more on them. It was kind of working backwards so they picked out the important bits out of this task. Before, I’d talk about time and events sampling to begin with, so I’d do them this big spiel about you know this is time sampling this is events sampling, but this time they sort of do the task and then define it themselves, so they seem to learn it a bit more, it stays. I used to talk at them and say, ‘Right you go here, you do this and you read this bit.’ Whereas now they just have that on paper and they work through it themselves and then when they get stuck, they ask and it seems to work better. [...]. The first time I ever did Tom and Jerry I thought, they’re either going to love this or hate it. I’m going to talk and they’re going to listen and then they’re going to do what I say. And it was just with confidence, and with time, you realise what works. I have no idea where the idea came from, that’s going to sound terrible, but it just sort of came in with the session one day. I think maybe we had a good group and they’d maybe picked up on things themselves and then fed back, and I thought, well maybe given the chance they can do it rather than me talking first.

On several occasions throughout the extract Alice referred to gaining feedback from the students as to the effectiveness of the activity and their understanding of observation. She described that: ‘They never seemed to engage with it very well’; ‘They seem to learn it a bit more, it stays’; and ‘It seems to work better’. Alice had changed the way she taught the topic as a result of feedback from the students and this experimentation provided further feedback as to the success of these new approaches. Such a process appeared to be central in Alice coming to see teaching in a different way. Additionally, in the third interview, there was some evidence that Alice had transferred this development as a teacher to different situations and contexts. The following extract provides an example of this shift:

We did attachment theory a couple of weeks ago, and there’s a well-known research method called the ‘strange situation’, and you have to observe the way in which a child reacts to a stranger when their mother leaves the room. And actually getting the students to do that task, before we’d even talked about the method, gave them such a great understanding of what was going on. I thought, well give them the opportunity to talk back, they can question it, they can take part and they can feel as if they’re sort of actively involved in what they’re learning because they’ve done it. Rather than being spoon fed it, they’re actually doing it if you like, and I mean I have no evidence for it, it’s based on gut instinct.

Discussion and Implications

The concept of *instances of interactions with students* has clear parallels with previous models of reflection (McAlpine et al. 1999) and reviews that have identified different types of feedback that teachers receive in order to evaluate their teaching (Hounsell 2009). However, the current investigation provides an insight into specifically what it was about reflection and feedback that supported the individuals who were new to teaching in higher education. It appeared that the *incidental feedback*, which came from their everyday interactions with students, provided the teachers with new information of which they had previously been unaware and acted as an important focus for their reflections. The nature of the incidental feedback was that it was immediate and specifically related to a particular teaching incident. Often the feedback was based on chance, unplanned or relatively informal teaching situations. The present study proposes that interactions with students is a critical

influence upon teacher development, as the feedback received can prompt a change in the purpose and nature of the teachers' future interactions with students.

The impact of interactions with students for teacher development, in both the current study and previous work (Pickering 2006) appears to be high. Experience as a teacher and encounters with students were often at the foreground of the participants' descriptions of development than some more formal initiative to support teacher development, such as mentoring and postgraduate teaching programmes. However, formal teacher development programmes were often valued and appeared to provide an important point of reference and knowledge base that supported the teachers in reflecting upon their interactions with students. Such an approach to teacher development is akin to the concept of 'practice-based' scholarship (Trigwell and Shale 2004), where encounters with students provide an important starting point for teachers to re-examine their existing beliefs and conceptions of teaching.

The proposal that engaging in teaching can shape an individual's way of thinking about teaching has implications for a significant point of contention in the approach to teaching literature. Currently there is an assumption behind the use of teaching conceptions in teacher development that, in order for an individual to improve, there is first a need to change their thinking about teaching and learning (Trigwell and Prosser 1996). Emerging from this premise, it has been proposed that a teaching-tip approach to teacher development may be of limited value (Ho et al. 2001). However, this suggestion of a unidirectional relationship between conceptions and practice would appear to be too strong and in considering some of the broader psychological literature on attitudes and behaviours it would be reasonable to suggest that a change in practice or behaviour may act as a catalyst for a shift in attitudes or conceptions (Devlin 2006). Despite this proposal there is a lack of evidence that this may be the case. Although preliminary, the data from the current study does provide some support for this view of development, as experience or practice was the major influence upon the way in which the new teachers shifted their thinking about teaching. Therefore, if an individual with a *teacher-focussed, information transmission* conception of teaching uses practices or behaviours that promote more interaction with students, there is the possibility that more student-focussed conceptions or attitudes may follow. This is not dissimilar to previous research that has indicated that more advanced conceptions of teaching could emerge through everyday experiences with students (Entwistle and Walker 2000).

What becomes clear from the current investigation is that teacher development and the influences upon development are complex. Therefore the use of methodologies that allow for more fine-grained analysis and draw out the idiosyncratic and contextual aspects is warranted. In addition teachers' interactions with students need to be used to inform teacher development in higher education. In particular, attention should be paid to how teachers can capture their critical *instances of interaction with students* and utilise them in their reflection on teaching. It may be productive to use an individual's personal reflections upon critical moments in their discussions with mentors, as a focus for observation of teaching or to trigger specific and relevant assessment activities on postgraduate university teacher development programmes. Alternatively some of the experiences of the teachers from the current study could provide a platform for a variety of academic development activities. Table 1 offers a succinct tool to communicate the critical moments of others, which could then be used to stimulate discussions and self-reflections on personal ways of developing as a teacher.

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Table 1. Participant's critical instances of interaction with students and the associated pre and post descriptions of teaching

Participant	Way of describing teaching pre-interaction	Critical instance of interaction with the students	Way of describing teaching post-interaction
Ben Psychology	Only the keen students come to the lecturers prepared, which makes seminar discussions with the students very difficult for me. This means I have to deliver the information as they are not at an appropriate level to do it themselves.	<i>In order to encourage the student to read he decided to use a formative group task. The students had to read a specific research paper and present it in the form of a poster. Ben considered the poster session to be a success. It created additional interaction with the students and it provided Ben with an insight into the students understanding of their reading.</i>	I think it is quite hard for the students to make the transition from school, where they are spoon fed, to here. We need to provide some structure and guidance otherwise it is quite daunting for them. If they do something more concrete with the information it works a lot better.
Ruth Sports Studies	My main role is to deliver the information to the students. Sometimes I ask them questions because they look bored and are not very keen to put ideas forward.	<i>In one particular session the group were asked to answer a number of questions. This questioning prompted the teacher and students to share a joke that 'the National Lottery' was the answer to all the questions in sports development. Such an interaction appeared to 'break the ice' with the students and offer Ruth an alternative insight into why the students were not responding to questions.</i>	I think communication with the students and letting them be confident enough to try and suggest things is really important. I try and use tasks to check their understanding.
Anne Sports Science	The slides I produce really help the students to take down notes. I give them gapped handouts to keep them interested and it means they cannot switch off. At times I use tasks but they need a bit more work.	<i>In a room that Anne taught in the sun was shining through the window onto the board. This made it impossible to use PowerPoint as she had originally planned. As a result Anne had to change her approach to the session. The way in which she approached the session was to draw on the students existing knowledge and 'get the students to teach themselves'. The session provided many moments of interactions with the students which provided valuable feedback on the approach and the students understanding.</i>	I can do things more spontaneously now. I have got a lesson structure and I still use my slides for that but it is much more interactive. I know where they should be by the end but I get them to take responsibility for their own learning.
Tom Exercise Physiology	The process I go through for my lectures is to tell the students how long I will be talking for and when they will get a break. What I give them is the bare minimum and the students need to do the reading to pass the exam.	<i>During the lectures there was no interaction and some students were not listening. After advice from a colleague he stopped standing on the podium and started to deliver the lectures from the floor. Interaction was much better and the students stopped chatting and started to respond to questions.</i>	The amount of content I put into lectures is far less now. I have started putting in a lot more questions onto my slides so there is definitely a lot more interaction. I often see the students' 'ears prick up' and thinking about things. Some come and ask questions at the end.