Complexity of teachers’ knowledge: a synthesis between personal goals, collective culture and conceptual knowledge

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Symposium “Measuring the future: teacher education quality, partnerships and lifelong learning”.

Paper presented at Network 10 - Teacher education research
European Conference on Educational Research (ECER) – 2008 Gothenburg

This paper aims to understand the processes which underpin teaching and which could facilitate understanding of professional attitudes, commitments and practices. My main goal is to contribute to the elaboration of methodologies for identifying knowledge used by teachers, and specifically that which is constructed through their lived experiences. In this paper, teaching is viewed as a set of professional activities, and not as an art or personal talent; thus the study focuses more on teachers than on teaching.

The nexus between teachers’ conceptions and practices

Studies on teachers’ practices identify generally two broad and opposite categories: the teacher-centred and the learner-centred approaches. The former is seen as a way of teaching in which students are more or less passive and the latter as a way which aims to facilitate student’s learning processes. Nevertheless, numerous researchers have showed variations within these broad categories and they have conceived them as two poles of a continuum (Jenkins, Healey, and Zetter, 2007).

With the purpose of testing this hypothesis Hudson (2007) conducted interviews with 71 university teachers. He had showed that some aspects of the teachers’ practices are common to both approaches (e.g. familiarising students with the course content; using varying teaching methods). Nevertheless, beneath this similarity of practices, he found deep differences in teachers’ conceptions and specifically between their purposes of teaching. For instance, the use of varying teaching methods exists within the two approaches but the underlying aim that steers teachers’ action differentiates the two categories. When the approach was teacher-centred, the use of varying teaching methods was steered by what was more comfortable for the teacher. Conversely, in the case of a learning-focused approach, the aim was to support students’ deep approach of learning. The author concludes firstly that practices and conceptions are linked and that conceptions include several components (e.g. teaching goals). Secondly, he founded that the learning-focused approach includes the content-focused: the former is more sophisticated and complex than the latter. Thus, he suggests that there is a continuum between the two broad approaches of teaching as a process of development from content and teacher-centred approaches to learning processes and learner-centred strategies. He thinks that teachers’ practices could be improved through pedagogical training focusing on the transformation of teachers’ conceptions of teaching and the purpose of teaching.

This issue is powerful but it could be difficult to investigate the link between teacher’s practices, goals and conceptions without an adequate and strong theoretical and methodological frameworks. This paper aims to contribute to the elaboration of such methodology.

The nature of professional knowledge

Such theoretical and methodological frameworks are available within vocational studies and I will adapt them to the study of teachers’ activities.

Vocational studies show, firstly, that professional knowledge is a synthesis between knowledge which results from education and that which follows lived experiences. This synthesis results from the resolution by the actors of the contradictions between what standards and instructions imply, what theoretical knowledge indicates, and what professional reality shows. Authors refer frequently to the Boshuizen’s studies which reveal that most of the time, physicians use their experiential know-how and that they integrate relevant theoretical knowledge with experience to deal with specific cases (Boshuizen, Schmidt, Custer, et al. 1995). These studies also show that professional knowledge occurs when there is extensive communication – both laterally and horizontally, by means of the intranet and the holding of frequent meetings – amongst the actors in the work process and amongst them and their partners (Fisher, & Boreham, 2004). These studies show, finally, that professional
knowledge is built collectively, through exchanges and discussions, and then is integrated into the professional collective culture: it is maintained as concept over time, which actors continue to bring up in their conversation and thinking (Boreham, 2004). Such knowledge concerns not only current actions but also the work process itself: it is work process knowledge.

Others studies, within a similar framework, focus on the organization of the professional knowledge. Researchers show that this knowledge is not fragmented but linked in a cognitive model which allowed actors to act rapidly, relevantly, and efficiently (Pastré, Mayen & Vergnaud, 2006). This operative model gathers professional knowledge on few critical dimensions of the situation and steer the professional practices. For instance, teachers have to manage simultaneously at least two broad dimensions of the situation: firstly, conducting the whole group and secondly, ensuring the individual learning.

Furthermore, the resolution of contradictions and the elaboration of process knowledge depends on two kinds of factors: 1/ the actors, through their personal history, their individual goals and the competencies which they bring to collective activities; 2/ the organisation of the work situation, throughout resources allowing collaboration between professionals from different sectors, sharing of information and elaboration of new knowledge (Fuller, Hodkinson, Hodkinson, & Unwin, 2005).

To sum up, professional knowledge:
- articulates outcomes from lived-experience at work and from formal education;
- concerns the work process itself and not only the current action;
- results from the exchanges amongst actors and objects,
- products a collective culture;
- is organized according to the critical dimensions of the situation;
- constitutes an operative model which underpins practices;
- depends both on actors commitments and work organization.

**Specific aspects of teachers’ activities**

Obviously teaching is not an industrial activity! Thus we have to be careful in using the findings of vocational studies. Nevertheless, these findings are powerful since they are verified within different contexts and are useful for understanding teaching strategies (Grangeat & Gray, 2008). Consequently, I will propose a methodological framework to understand teachers’ conceptions and practices.

Firstly, I propose to identify elements of teaching professional knowledge based on four components:
1- Goal: the teachers’ purpose which is held individually or collectively (e.g. to maintain the learners’ attention...).
2- Clue: the piece of information picked out from the teaching situation, which is seen as relevant by teachers, and which activates a specific teaching strategy (e.g. when some students begin to chat...)
3- Action rules: the teaching strategy triggered by the clue and orientated by the goal (e.g. so I organised a peer-work session...)
4- Reference knowledge: the set of individual or collective knowledge which enable one situation to be matched to another, taking into account similarities and singularities, in order to define and justify a teaching strategy (e.g. since varying teaching often renews students’ attention, thus I accustom students to learn by themselves through peer-work).

Secondly, I propose to assemble this set of process-knowledge elements within an operative model. This operative model is a kind of repertoire of action. But beneath the concept of ‘model’ we find the process of conceptualisation which is a part of the core of the reflective practitioner (Schön, 1983).

This model could be extended according to the amount of process-knowledge elements gathered by each dimension. It could be deepened according to the scale of the context which is covered by the set of process-knowledge elements. The scale of context concerns:
1- the adaptability since the process-knowledge could articulate several rules of action in order to achieve the same goal;
2- the multi-temporality since the rule of action could apply to the unique current course, to the whole year, or to the students’ career;
3- the collegiality, the social interactions since the rule of action may concern the actor only or the teacher team.

Consequently, a combination of observation and interview could allow researchers to understand the processes underpinning the teaching strategies.

**Empirical study**

These conclusions were tested within the French educational context through two case studies. Two female teachers were observed during a 20 minutes sequence and interviewed about this videotaped lesson. The first teacher Lara is a beginner with two years of experience and the second, Sandrine, is more experienced (16 years) but she is new to her school. They teach in urban schools whose students have high level of social and cultural difficulty. The observed sequence concerns the assessment of the learners. The comments about the videotaped lesson concern the congruence between the choice of teaching strategy and the nature of the learners’ diversity.

From the observation and the audiotaped comments by the teachers the set of process-knowledge elements used by the teachers was identified. The operative model which underlies their practices was then elaborated.

**Lara, a beginner teacher who has worked for two years in the same school**

Concerning Lara, a set of seven process-knowledge elements was identified which sums up twenty action rules. Most of the process-knowledge elements gathers several action rules. The operative model is organized around four critical dimensions of the teaching situation: varying the strategies for the whole class; adapting the strategies for a specific student; creating learning points of reference; considering personal practices with awareness. It is rather deep since: four process-knowledge elements articulate several action rules (e.g. seven action rules available for attaining the same goal); five action rules apply to whole year; two concern the teacher team.

**Sandrine, an experienced teacher who has just start in her school**

Concerning Sandrine, a set of twelve process-knowledge elements was identified which sums up twenty-three action-rules. The operative model is organized in a similar way to Lara’s. It is deep since: seven process-knowledge articulate several action rules; seven apply to the whole year and two concern learner career; but none of them concerns the teacher team.

**Findings**

The comparison between the two teachers is not very significant since this study is only based on a 20 minutes sequence. Nevertheless, it enables some learning factors to be identified.

Firstly: the operative model of the experienced teacher is more extended than the beginner’s. It is also deeper, specifically with regards of the time scale taken into account by the teacher. Thus, this finding is in line with the assumption of a linear progression in professional development.

Secondly, teachers’ learning results from: 1/ the reflective practices of these actors about their own professional activities; 2/ the actions and dialogues they conduct with colleagues and other professionals. In-depth interviews with these two teachers and others, which are not taken into account within this paper, point out that those interactions seem to be fostered by the involvement of these teachers in specific trans-professional workshops aimed at stimulating the reflection of actors engaged in collective educational projects (Grangeat & Gray, 2007).

This study indicates the relevance of the methodology. It allows the identification of process-knowledge elements and operative model which can be used to compare teachers and their approaches to teaching. Thus, further studies could use this methodological framework to investigate wider samples.

**Conclusion**

These findings demonstrate the complexity of teachers’ knowledge is open to investigation. They confirm the coordination between conceptualisation and practices and the reality of the development of teachers’ approaches to teaching. They highlight the centrality of individual and collective actions and reflections to teachers’ professional development. Moreover, they do not diminish the role of theoretical knowledge which is required in order to avoid the use of outmoded methods. Thus, it seems that continuing professional development programs should follow four principles: understanding teacher activities as widely unpredictable, as are all human actions; linking experiences, task awareness and knowledge in order to enhance teachers’ agency; supporting lifelong
professional development processes; blurring the boundaries between professional and personal learning (Stevenson, 2000). Further studies are necessary to explore these conclusions.

We hope that the S-TEAM will provide some opportunities for dialogue with teachers using these methodological principles.

References


*This document was added to the Education-Line database on 20 November 2008*