A cognitive behavioral approach of university staff didactic expertise

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Abstract

Didactic expertise has become a key priority for many contemporary universities. The present study sets out to provide a comparative analysis between expert and veteran (at least 5 years of professional experience and low performance) university teachers. Three research questions guided the present study and two case studies (expert/veteran) were conducted in multilevel analyses: behavioural, cognitive and metacognitive. The qualitative methods were mixed with quantitative ones. The outputs revealed that didactic expertise is conditioned by the acquisition of efficient teaching strategies associated with combatting erroneous personal theories of teaching and accompanied by constant reflection over one’s own teaching activity.

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1. Introduction

Recent studies have drawn attention upon the importance which needs to be dedicated to the interpretation given by the teacher to the act of teaching. That is to say, to the need to become aware of the fact that, besides the formal, scientific, theoretical and procedural teaching knowledge, a teacher also has a series of personal theories about teaching, learning, about the students and, last but not least, about himself as a teacher. Regardless of his previous experience or training, any teacher comes up in practice with a personal theory about teaching, learning and students (Buehl & Fives, 2009). These theories are partly made conscious and most of the times operate at an implicit level. With all these, they are the ones that influence to a great extent the decisions made by the teacher relative to the planning of his activity and his actual behaviour in class (Yadav & Koehler, 2007). The theories and personal knowledge about

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teaching have a strong influence upon the teaching strategies employed in practice by the teacher as well as upon the learning strategies used by his own students. The current study examines the teaching strategies, knowledge and personal theories about learning of an expert teacher in comparison with those of a veteran (teachers who have a teaching experience of more than 5 years, but low didactic performance), in their university teaching practice. In the expert literature, we can mention few studies that examined the problem of deficient teaching, as it is perceived by the students – namely, the studies conducted by Hativa in 1998, respectively, 2001. Perhaps one of the reasons for the lack of these studies lies in the fact that veterans are more sensitive to the aspects of their teaching activity and, as such, more reticent about participating in studies that examine their teaching (Hativa, 2001).

2. The objectives of the study

The present study aims at providing answers to the following questions: Are there differences regarding the teaching strategies employed by the expert, as compared to those used by the veteran, and if so, what do the differences consist in? (Q1); What is the connection between the teaching strategies of the expert and the veteran and the psycho-pedagogical knowledge they have, respectively, their theories about teaching? (Q2); Are there verifiable differences between the expert and the veteran regarding the content of their reflections upon the courses they teach? (Q3)

3. Method

3.1. Participants

The teachers who participated in the study teach similar courses (in terms of content) in two different faculties of a Romanian university. They were selected on the basis of the following criteria: the results obtained on the student course evaluations (very good results – the expert, very poor ones – the veteran), the subject they teach (statistics, a mandatory course for 1st and 2nd year students; approximately the same number of students), their accumulated teaching experience (over 5 years in both cases), the psycho-pedagogical module they completed.

3.2. Instruments

In order to reach the goals of our study, we made use of several methods of investigation. The individual interview provided the participants with the opportunity to speak about their own teaching activity and about teaching in general. The interview questions were varied, ranging from general ones about the participant’s backgrounds, their teaching experience, to more specific aspects linked with the study (e.g., “What do you think is the role of the students in the teaching activity?”). The question-grid was devised starting from the analysis of the results of the studies conducted by Hativa (1998, 2001). The video recordings of the classes consisted in recording five course activities with each participant, and all were part of the same logical unit. The stimulated recall consisted in the participants’ analysis of the video recordings of two of the courses taught, a technique used to access the teacher’s cognitions, as they emerge during the act of teaching (Kane et.al, 2004). The students’ course evaluations (Opre, 2010) required from the students to evaluate the teacher from the perspective of the three dimensions of efficient teaching: organisation, clarity in communicating ideas and their relating with the students. The self-evaluation questionnaire addressed to the teachers (Opre, 2010) has a structure similar to that addressed to the students.
3.3. Procedure

The data was collected through investigations conducted in a Romanian university over a period of five months. Each method used followed a standard application procedure. The individual interviews were semi-structured and were conducted during the initial stage of the study. The video recordings of the courses captured four consecutive class activities that were interconnected. They were conducted over a period of one and a half month, given that in the veteran’s case the observing and recording of the course started two weeks after it had started in the case of the expert. The students’ course evaluations were applied two weeks prior to the beginning of the final exam session, they were anonymous, and the teachers were not present in the classroom while they were being filled out by the students. The self-evaluation questionnaire addressed to the teachers was applied at the end of the teaching and of the researcher’s observation stage. The interviews based on stimulated recall were conducted 48 hours after the recording of the course and were organised in such a way as to allow for both the participant’s and the researcher’s intervention in the analysis of the recordings. The entire process was video-taped, transcribed and analysed.

4. Research questions

4.1. Question 1

We answered the first question of our study by using the results of the analysis of the video recordings and of the students’ course evaluations of the two participants in the study.

Results. The processing and analysis of the collected data incorporated several stages: (1) Devising the grid of didactic strategies, used by the participants in the study; this was achieved on the basis of the deductive and inductive analysis of the content of the video recordings and of the students’ course evaluation questionnaires. (2) Converting the raw data obtained from the students’ evaluations and the video recordings into a numeric, respectively, verbal code, so as to enable us to make comparisons between the results obtained from the two sources. Thus, the didactic strategies employed at a high and very high rate are those between a value of 3 to 5 (video recordings), respectively, c, d, or e (students’ evaluations). The strategies coded between the values 1 – 2, respectively, a and b, are strategies employed at a low rate by the participants. A teaching act becomes more successful as the use of efficient strategies increases, and the occurrence of inefficient strategies decreases or is absent. (3) The synthetic integration of the results obtained from the two sources (an example is presented in the table 1).

Table 1. Efficient and inefficient didactic strategies used by expert and veteran

<table>
<thead>
<tr>
<th>Strategy code</th>
<th>Efficient &amp; Inefficient didactic strategies</th>
<th>Video recordings</th>
<th>Students’ evaluations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Teaching dimension assessed: Interaction</td>
<td>Expert</td>
<td>Veteran</td>
</tr>
<tr>
<td>Ic1</td>
<td>Offers feedback to students regarding their performance</td>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>

Discussions and conclusions. The differences between the expert and the veteran consist both in the number of efficient/inefficient strategies involved in teaching and in the intensity (frequency) at which these strategies are employed. Thus, the expert, unlike the veteran, uses a large number of efficient strategies, but he also uses them with high frequency. There are certain efficient strategies in whose case he is appreciated at a medium level. By contrast, the veteran usually employs very few efficient strategies,
which he uses with medium frequency, resorting in exchange to inefficient strategies. You may not excel in using all efficient strategies, but you can still be regarded an expert in your field, just as it is possible that on the whole your teaching may be considered deficient while you may nevertheless be good at using certain efficient strategies. It is possible, however, that in the case of the veteran the number and strength of these strategies are not significant enough to ensure receiving a favorable overall appreciation. The studies conducted solely on expert teachers (Lowman, 2000; Hativa, 2002) indicated that these can be regarded average or even below in using certain efficient teaching strategies, but they can attain excellence by the extremely refined use of other efficient strategies. As we have seen, in the expert’s case our results are consistent with those of these studies.

4.2. Question 2.

In order to answer question 2 of our study we corroborated the results of the analysis of the interviews (audio and stimulated recall) with those of the video recordings, respectively, of the students’ evaluations (the results of question 1).

**Results.** We hereby present part of the results obtained. These include both the participants’ personal theories about teaching and their university psychopedagogical knowledge, as reflected by the quotes from the interviews conducted with them. The expert relates to teaching as to a continual exchange of information between the teacher and the students. Teaching means the students’ understanding of the knowledge transmitted, while the emphasis lies on the usefulness of this knowledge for the students: “transmitting some knowledge that you consider useful for those targeted by the teaching act. Not everything having to do with the subject is actually useful for those attending the respective class”. In other words, the expert has a view of teaching aimed at the learning and comprehending of the information by the students. He has significant knowledge about the management of the course, about how to ensure clarity in presentation and about interacting with the students. The veteran teacher regards teaching as a means of transmitting in a structured way some knowledge, a process in which the role of the student is entirely neglected: “transmitting some knowledge, by all means in a systematic, organised, ordered manner... I believe that he (the student) cannot interfere in the act of teaching.” Thus, in the act of teaching he has no role, only a responsibility as concerns the assimilation of knowledge. The veteran knows a number of methods of organising and structuring his course, certain minimal strategies of ensuring clarity in presentation, but he can not describe means of involving the students in the course.

**Discussions and conclusions.** Our research approach revealed that the presence of certain erroneous theories about teaching and about the students, in conjunction with meager knowledge of general pedagogy leads, in the case of the veteran, to the use of inefficient teaching strategies but also to the deficient application of the teaching strategies he is familiarised with. By contrast, possessing solid knowledge of the efficient teaching strategies, complemented by healthy theories and convictions regarding teaching, increase our efficiency in the teaching act. We may conclude that efficiently solving problems in a field presupposes mastering a great deal of declarative and procedural knowledge specific to the respective field, acquired through intentional learning or by implicit, unintentional learning.

4.3. Question 3.

The answer to question 3 of our study is based on the analysis of the content of the interviews of stimulated recall upon 3 courses taught by the expert, respectively, the veteran.

**Results.** By analysing the content of the interview with the expert we observed that, generally, his reflections focus on the students. The largest part of these reflections (85 %, that is, 18 out of 22 interventions) have to do with the strategies he implied in order to facilitate the students’ comprehension
of the course and to stimulate their participation to the course. Furthermore, the expert constantly reflects upon the students’ reactions during the course and adjusts the strategies he uses on the basis of these reactions. He makes use of a variety of criteria to classify the students he works with, according to how they are seated in their desks, how they respond to his questions, how they take notes. Another type of knowledge present in the expert’s reflections is that of general pedagogy (principles of group management, objective formulation) that are not related to some precise content; knowledge pertaining to discipline content (information, structures, rules or means of organising and using this information). As concerns the veteran, his reflections are focused on his own actions, and less on those of the students; he prevalingly reflects upon the knowledge pertaining to the content taught.

**Discussions and conclusions.** By analysing the results, we observe that the veteran’s reflections, in comparison with those of the expert, are more infrequent and are poorer in content. Indeed, the studies on the subject (McAlpine & Weston, 2000) show that the experts have more frequent reflections and are more capable than the non-experts in articulating these reflections. It is well-known that constant reflection over one’s own practice is essential for developing expertise in any field. Furthermore, the reflections of the two participants are dependent on the knowledge and theories they have about teaching. The fewer their knowledge of teaching and more erroneous their personal theories, the poorer their reflections over teaching.

5. **General conclusions**

The main conclusion we can derive from our results is that teaching expertise is conditioned by developing knowledge of efficient teaching strategies, but also by combating erroneous theories about teaching and about students. The knowledge and practical implementation of efficient teaching strategies should be corroborated by constant reflection upon one’s own teaching activity. Therefore, reflective practice, rather than repetitive one, represents the sign of expertise in a field. We believe that our results will be especially useful for devising consultation programs which focus on developing the teaching competencies of teachers.

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