Pedagogic Competency of the Brazilian University Professor

By

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Abstract

Pedagogic competency is amongst one of the most important issues in Brazilian universities dealing with the quality of teaching of university professors. This kind of competency is the main problem related to the didactics and methodology used in classroom teaching. It means that good classroom practice needs more than specific academic discipline knowledge. This study was carried out at the Federal University of Viçosa, Brazil, where the researcher used the Delphi Forecasting method. The study involved diagnostic testing of the professors’ difficulties in their class work and the researcher described what the professors think about themselves in relation to their preparation to teach. The results highlight the main difficulties as being the lack of public support for the university, greater importance given to research than teaching, the heterogeneous mix of students, the necessity and demand to publish a lot and the complexity of the current educational system. In relation to professor preparation, the researcher found a lack of seminars and pedagogic courses, and little interdepartmental integration and support. These difficulties and preparation problems are caused by current distortions and constraints in the Brazilian educational system.

Introduction

The current major concern of the Brazilian university is the quality of undergraduate teaching, which is directly related to the pedagogical competence of the university professor. In this case, it is important to consider the pedagogical preparation given to the professor as one of the essential aspects in the teaching-learning process. Generally, the university professor is considered a specialist in his or her discipline, in his or her field of knowledge, which is an essential condition for admission to the university.

However, not all professors have the basic pedagogical knowledge for effective teaching and learning to take place in the classroom. This statement can explain the growth of the post-graduate courses especially since the Brazilian Educational Reform in 1960, to better preparation of scientific and technical professors for teaching (Oliveira, 1981). On the other
hand, Barros and Silva (1990) state that scientific capacity is not the same as pedagogic capacity. Professors and researchers make interpretations of teachers' perceptions of their current knowledge and what they think they need to know to become expert teachers.

The present study investigated one tertiary institution's attempt to improve the pedagogic competency and didactic skills of university professors. Brazil's rapidly expanding education system and largely teacher-centred mode of delivery makes this study timely because it provides potentially significant insights into how the pedagogic skills and didactic capacities of the university professor may be improved. The research was carried out in the Agriculture Science Centre of the University of Vicos, Brazil. To date, only a few studies of pedagogic competencies have been undertaken in Brazil and none have been conducted at the university level.

**Significance of the Study**

This study is important because it is one of only a handful of studies in the field of pedagogic competency of university professors in Brazil. In addition, the findings of the study provide useful and practical information to the university departments wishing to improve the pedagogic and didactic skills of professors.

The purpose of this study was to investigate the professors' difficulties in their teaching activities. Research like this can enable a professor to be more effective in the teaching-learning process. Furthermore, these results can contribute to the process of planning and decision-making of the main administration of the university.

**Objectives of the Study**

The objectives of the study were (1) to discover what difficulties university professors face at the university; (2) to find out the problems or deficiencies in the teaching and learning process; and (3) to investigate the concerns the professors have about their pedagogical formation and skills.

**Theoretical Framework for the Study**

The studies and works of Perrenoud (2000), Alarcao (1997), Cachapuz (1997), Balzan (1994), Cunha (1992), Abreu and Masetto (1990), and Menezes (1986) deal with the didactic skills and pedagogic competencies of the university professor. This group of researchers discuss the skills and qualities required for good performance in the classroom. Their works discuss the methodologies used in the classroom by a university professor, the teacher training skills imparted to a professor and the influence they have on effective student learning.

Rutter and his colleagues (1979) estimated that students spend in excess of 15,000 hours in the classroom during their school life. Therefore, the environment that students are exposed to and learn in becomes extremely important. Much research has been carried out about the relationship between student achievement and the quality of the learning and teaching process. Consistent and overwhelming evidence from these studies suggest that the pedagogic competencies of university professors strongly influence student achievement and learning, especially at the tertiary level. Lewin's (1936) seminal work in non-educational settings recognised that both the environment and its interaction with the individual are potent determinants of human behaviour.

It is important to analyse the life history and the work environment of the professor, because the formation of the professor and conception of education has evolved in several historical
stages: from the traditional stage to the modern and post-modern stages. In this case, it is important to study the professors’ background and what is happening in the classroom because that historical influence, certainly, reflects on the professor’s work (Silva, 1991).

The efficiency and capacity of the professors in carrying out tasks when transmitting knowledge in their area of specialization is often affected due to lack of pedagogic skills and students are thus not able to understand and comprehend (Menezes, 1986). Beyond the domain of the knowledge in the area of which the professor is a specialist, the professor must have such abilities and skills as to develop positive student-teacher relationships, have the capacity to transmit knowledge, to stimulate student creativity, to encourage in the student the capacity for critical thinking, students’ questioning and the students’ desire for discovery and invention. The university professor must be able to connect and apply knowledge with the reality of life and society and thereby develop and establish a relationship between education and society (Cunha, 1992).

Shulman (1987) maintains three types of knowledge as necessary constituents of the prototype of expert teaching: content knowledge (knowledge of the subject-matter to be taught), pedagogical knowledge (knowledge of how to teach) and pedagogical content knowledge (knowledge of how to teach that which is specific to what is being taught). Pedagogical content knowledge includes knowledge of how to explicate particular concepts, as, for example, what is the interpretation of the political dimension of the education by professors, and how does the form of understanding a professor's social action, affect/determine his or her characteristics, his or her competencies and his or her tasks.

Thus being an effective professor can never be properly defined, for the teaching professor needs to change daily according to the needs of the students and the situation he or she encounters. The professor has to draw links between the theoretical and the practical aspect of the knowledge he imparts, as well as the need to constantly update his knowledge.

Pedagogical skills in a transformative perspective are characterized by new and challenging situations. It is important for the student to develop skills of critical thinking, problem solving and creative imagination. Educators must rethink the content of education in such a way that educational institutions give freedom of flexibility for individuals, a search for knowledge amongst all in the institution and an increased learning through collective construction and a combination of the technical, human and political dimension of knowledge (Balzan, 1994).

Programmes that can equip educators with competencies to teach at all levels of the schooling system must be appreciated. Higher education institutions should play a far more active role in improving the knowledge and skills of educators currently in the system, as well as those of future trainees. They should develop rigorous new programmes for educator preparation, strengthening both subject matter expertise and pedagogical mastery. The quality and relevance of the training programmes should be reviewed to ensure that when trainees complete, their course, they are competent in both subject content knowledge and teaching skills and strategies (pedagogic content knowledge) - that is, knowing how to teach specific scientific, mathematical and technological concepts and principles to young people at different stages of development. The training programmes should reflect a strong 'discipline' component balanced with a good understanding of what they are teaching, as well as how to teach (Department of Education, 2001).

**Research Design and Methods**

The productive combination of qualitative and quantitative methods (Tobin & Fraser, 1998) and use of interpretative research (Erickson, 1998; Tobin, 1998) is increasing rapidly in the field of educational research.
This study draws on and contributes to the field of teacher education at the tertiary level and investigates teaching and learning of professors and students at a university in Brazil. 217 professors from seven departments at the University of Vicosa in Brazil, were involved in the study. The departments involved were: Rural Economy, Agricultural Engineering, Forest Engineering, Phytopathology, Phytotechnology, Soils, and Zootechnology.

Action Research And The Delphi Technique

According to Kemmis and McTaggart (1992, p. 16), action research is "concerned with changing individuals, on the one hand and, on the other, the culture of the group or social institution to which they belong". Action research is motivated by a quest to improve. It is participatory, involving research through which the researcher and the university professors at the University of Vicosa, who adopted this method of action research, worked towards the improvement of their practice.

The researcher used the Delphi Technique that does not require participants to meet together as a whole group. This is particularly useful in institutions where most professors are busy and it is difficult to arrange a whole group meeting. The Delphi Technique is used in Action Research and is set out in a three-stage process. The Delphi Technique brings advantages of clarity, privacy and voice and engages the issues of confidentiality and anonymity (Cohen, Manion & Morrison, 2000).

Other advantages can be cited for reaching a large number of participants; it prevents traditional discussion; it eliminates the researchers and participants from meeting face to face where external influences can happen. Furthermore, since personal opinions are not displayed they do not influence other participants. It also permits the participants to classify the opinions in order of importance. This technique is an instrument that allows the researcher to work in diverse stages with questionnaires, depending on the proposal of the researcher (Silva, 1986).

The framework for analysis emerged from this study and was shaped by the data available from the three-stage process in which both the researcher and the professors in the Agricultural Science Centre were involved in reflecting on their teaching to improve pedagogic competency and the teaching learning process. The researcher was involved in collecting, synthesizing, collating, prioritising and recirculating data. The Agricultural Science Centre’s Director and the Heads of Departments supported this action research study.

Instrument

The researcher asked each professor to list three but no more than five difficulties that hinder his daily work as a professor.

Results and Discussion

The difficulties in carrying out their professional teaching commitment, which to university infrastructure was of highest concern to the professors. The difficulties with the university infrastructure in order of priority are: lack of educational materials and literature which need to be updated in the Library; poor functioning of the laboratories; unsuitable and uncomfortable classrooms; lack of financial resources for advancement of research and technical visits for professional improvement.

In fact, the reduction of the amount of money for the development of research is affecting the quality of university education. The financial support to public universities is decreasing in the last few years. The government has not given priority to university education and has not
released money for universities. So, the Brazilian Federal Universities have not received support and incentives from the Government to improve teaching and increase research and scientific investigation (Figure 1).

The responses related to the students, pointed to a low level of the students' general knowledge. According to the professors this is a consequence of the deficient high school system, the unfamiliarity English languages, the incapacity of thinking and difficulty of writing, analysing and speaking. Therefore, from the overview of the professors, this causes delay in understanding content. Also, the lack of students' motivation to study and insecurity about professional career makes the teaching-learning process difficult (Figure 2).

Another type of difficulty by the professors is categorized as “Teachers” and highlighted difficulties in relation to themselves. They recognised that these difficulties indicated the need of pedagogical training, because they cited difficulties in utilizing different methods of teaching, to get students' participating in the class, and difficulty in assessing students. Sometimes the inadequate performance of the students is a consequence of the professors' lack of pedagogic knowledge. Difficulties of a pedagogical nature like planning, flexibility, knowledge of different methodology, abilities to stimulate students' participation, as well as encouraging deep learning through critical reading, could compromise the teaching-learning process.

In this case, the responses showed that their pedagogical competence was not enough to solve the problems and concerns identified. This fact can be explained as: first, most of the professors are professionals who graduated from Agricultural Science area, whose courses don't offer pedagogical disciplines. Second, these professors have a position more concerned with research than teaching. Third, the process of the employment and the criteria for employment give more importance to knowledge in the content area than pedagogical competence (Figure 3).

**Figure 1.** Difficulties Categories Related with the Supporting Infrastructure (n = 251).
Figure 2: Percentage of Difficulty Categories Related to the Student (n=74)

Figure 3: Percentage of Difficulty Categories Related to the Teachers (n=45).
Despite the teaching organization there is a consensus in this group of professors, for the necessity to revise the curriculum of the courses and change the system of Credit. Moreover, the class schedules of the students are inconvenient and this makes it impractical for the students to be dedicated to the course. The professors related as well, that the University lacks rules for the effective examination of students and sometimes students repeat a certain subject many times. These students, according the professors' opinion, need to be disciplined and penalised because they have damaging effect on the good students in the class (Figure 4).

The answers relating to the University Administration pointed to an excess of bureaucracy in the solving of academic and financial problems; there are a lot of internal politics in the University; each department at the university is excessively concerned about itself and does not involve itself with other departments; the professors are not important in the eyes of some of the staff administrators; and some staff administrators are poorly qualified and they consider themselves higher than the professors (Figure 5).

![Figure 4: Percentage of Difficulty Categories Related to the Teaching Organization in the University (n=78)](image-url)
Figure 5: Percentage of Difficulty Categories Related to the Administration on the University (n=72)

Conclusions

The results of this study it represents the consensus of the most important difficulties for the group of professors at the Agricultural Science Centre of the Federal University of Vicosa, Brazil, in carrying out their professional teaching duties.

The professors felt that there were problems, at the priority importance, with Infrastructure, with Teachers' pedagogic competence, with the University' Administration, with Teaching Organization, and with Students.

The professors' difficulties evidenced that the Federal University of Vicosa, Brazil, needs first of all, to search alternative solutions to questions such as financial support to the infrastructure as to allocate financial aid for the library and for the laboratories equipments support. Secondly, the institution has to review the criteria used for the promotion of professors with respect to research and classroom evaluation. The need to obtain better pedagogic instruction and improve teaching practice could also be used as incentive to teachers.

In addiction, there is a need of the institution' administrators to review promotion of the professors in their educational career, because more importance is given to their technical-scientific formation or research skills and achievement of research, in comparison to the pedagogical skills. So, the institution needs to review class professor evaluation in relation to research work as criteria for the promotion of professors. Moreover, it's necessary to review the class schedules and improve the students' basic knowledge.
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