RESEARCH

COMPARISON OF A UNIVERSITY INSTRUCTIONAL PROPOSAL WITH DAILY CLASSROOM PRACTICES

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Abstract:
This article presents part of the results of a qualitative study focused on describing the teaching methods used in a sample of university courses, in order to compare them with the methods advocated by the university. After observing and analyzing 102 class hours, variations were found in the courses analyzed, in eight aspects of the pedagogical method: course goal, type of content, class structure, types of classroom interaction, use and transfer of knowledge, student involvement and interest during class, academic standards and the use of constructivist and transmissionist methods. Of the sixteen cases studied, five were using a method close to the university's proposal, four had intermediate methods and seven were employing a method far from the institutional proposal.

Key words: teaching practice, teaching methods, constructivism, educational models, higher education, Mexico.

Introduction

Universities, to a greater or lesser degree, have a set of prescriptions about the way professors should approach the teaching of academic content. In other words, universities have an instructional proposal. Teachers, on the other hand, based on their previous experience and knowledge, have constructed a vision of education and have their own ideas about how to carry out their activity in the classroom. Once a teacher begins to work at an institution, does he adopt the institution's instructional proposal? Does he join an institution because he has affinity for the proposed instruction? Or does he use a teaching method that disagrees with that indicated by the institution?

Questions like these were the motivation for the current research project. Its objective was to compare the instruction proposed by a private institution of higher education with that used in a sample of sixteen courses taught at the institution. A study of the relation between the instructional proposal and the pedagogy in use is relevant: if educational institutions have more knowledge about the relationship, they will be able to adapt their actions to attain greater congruence between discourse and action.

This article presents the theoretical framework, including a synthesis of the university's instructional proposal. An explanation is given of its basis in the science of education, particularly in constructivism and theories of moral development. Another section describes the methodology, which was qualitative because of the nature of the questions. The results follow, and the document closes with the conclusions and implications of the findings.

Theoretical Framework

Pedagogical Vision of the University

The university where the study was carried out conceives education as a process of dialogue and interaction through which students restructure their cognitive systems, and transform objects of knowledge. This process is aimed at developing specific skills for a profession, a set of basic common skills, and a set of skills related to values. There is interest in students' integral formation as an educational priority (ITESO, 1974). Such preparation should help them to be free, critical, integrated individuals who are open to self-improvement and committed to attaining a more fair social configuration.

In its document of Fundamental Orientations, the institution pronounces against the mere memorization of what others think, and the mechanical repetition of information, and proposes dialogue as a central part of the learning process (ITESO, 1974).

The university wants its students to build knowledge, while professors provide help in this process. It believes there should be greater social commitment, based on an analysis of reality; and that contents should be related not only to a discipline, but also to values.

In an attempt to reach agreement between what happens in the classroom and the pedagogical ideas of its educational philosophy, the university stipulates that the new profiles of socio-professional plans of study will be based on skills, which are defined as "reflexive and transferable knowledge; knowledge or ability to confront situations and problems of diverse types (technological, cognitive, values)" (Comisión de Planeación Institucional, 1999:21). The university has explicitly declared its educational vision and defines learning as:

> The process of appropriation/construction of objects of knowledge by an individual in relation to his surroundings. The result is a restructuring of the individual's cognitive systems (perception, evaluation and action) and a transformation of the object (Vásquez, 1995:67).

Teaching is understood to be:

> The set of actions carried out by individuals (teachers) in an educational institution with the intention of mediating (facilitating, orienting) the learning processes (appropriation/construction of specific objects of knowledge by concrete individuals) (Vásquez, 1995:67).

The university, in its definitions of teaching and learning, reveals its constructivist orientation. Its goal is for students to construct knowledge and for professors to help in the process; for greater social commitment to exist, based on an analysis of reality, and for educational contents to be related to values as well as to the discipline itself.

Basis of University Pedagogy

The modern sciences of education provide a solid base for the university's pedagogical ideas. In its constructivist epistemological vision, the institution finds support in the work of Piaget (1986). Piaget believed, based on his research of genetic epistemology, that the empirical position has no basis and that knowledge is not a copy of reality, but an apprehension of reality based on the individual's cognitive structures. Such apprehension will be different for every individual. Dialogue will be important for constructing the inter-subjectivity necessary for approaching the truth—that elusive truth constructed by each individual, based on his experience and dialogue with others.

One of the main assumptions of the constructivist paradigm is that learners create and reconstruct knowledge actively and in a very personal manner. Another assumption is that higher psychological functions are generated by the "cognitive conflict" that occurs when the individual is involved in a problematic situation that requires the use of the learner's assimilation and arrangement (Flavell, 1983).

Constructivist pedagogy attempts to form autonomous, rational thinkers by encouraging the general development of students and emphasizing their intellectual autonomy and formulation of moral judgment—reasoned opinions of duty—since the capacity for moral reasoning is derived from intellectual capacity, as indicated by Kohlberg (1998). Although Piaget claimed not to have sufficient elements to talk about what should be done in education, he mentioned the following:

> We admit that aiming at the full development of the human personality and a reinforcement of people's rights and individual freedoms, consists of educating individuals capable of intellectual and moral autonomy, with respect for their fellow man, precisely due to the rule of reciprocity that makes it legitimate for them (Piaget, 1974:43).

From this perspective, learning cannot be the memorization of data. Rather, it is the incorporation of data into systems that have information organized in patterns, through cognitive functions that operate both new and acquired information. The pedagogy that results from this epistemological focus is called constructivist because it is based on the principle that information is not transmitted from the professor to the student, but is constructed by each individual.

According to Learner, from a constructivist focus, a professor would present problematic situations that demand and encourage students to reconstruct educational content. This process assumes cognitive distance between the problem and students' ability, in order to provoke slight maladjustment that encourages students to elaborate new and more complete interpretations. In addition, the process would promote dialogues to exchange points of view on academic or moral problems; it would provide the information students require to reconstruct scholastic content; and it would research student opinions throughout the educational process (Hernández, 2000).

The university's educational project is also based on the idea of human perfectibility in all its dimensions—moral, intellectual, behavioral and emotional. To encourage personal development and solidarity, involvement is necessary in the settings of reasoning, moral development and emotional education. In this aspect, the university's ideas are also based on constructivism. Piaget affirmed, with his Kantian vision, that autonomous morality can be differentiated from regulation based on custom and authority, and postulated a series of stages of maturity through which an individual passes (Peters, 1981).

Kohlberg, a disciple of Piaget, continued his work by assuming that only structure—reasoning—can be universal, and not the specific content. The development of morality implies an increase in the ability to distinguish between good and bad, and between fair and unfair; to develop a personal value system, and as a consequence, to select and act (Barba, 1997). The construction of moral values, however, does not guarantee that people will behave according to those values; there is no automatic translation into behavior although values are the closest determining factors.

The university pedagogy of the institution under study attempts to promote moral development, i.e., the structural ability of individuals to reason about situations in which others' well-being is involved. The promotion of moral development tries to influence students' abilities to reason and make decisions. In no way does it attempt to indoctrinate or impose specific values.

As indicated, the university is based on a constructivist epistemology, and its goal is for students to generate systems of meaning, and to be capable of moral discernment; to become critical, integrated individuals open to self-improvement and committed to attaining a more fair social configuration. The university's epistemological vision makes it opt for pedagogy in agreement with such a vision.

The research presented in this article was focused on determining if the professors use a pedagogical method that agrees with the university's educational vision.

Methodology

To determine if the pedagogical method used in the classroom followed the institution's prescriptions, a qualitative study was completed. Such studies are particularly useful for studying classroom activities and processes. This methodology was chosen because the nature of the questions formulated does not permit response solely through the observation and quantification of predefined behaviors. In addition, the phenomenon is closely linked to a specific context. According to Tashakkori and Teddlie (1998), the question being researched must have predominance over the paradigm; therefore, the nature of the question determined the focus.

The qualitative method emphasizes participants' personal perspectives, is centered on the concrete and the individual, and has a certain idea of verification and generalization, as well as a comparative orientation (Shulman, 1989).

The research was conducted with a sample of sixteen groups from 22 of the university's programs of study. At least one course was included from each academic department, and two from the Centro de Formación Humana. The sampling was not random, and therefore required the use of criteria to select the most representative sample for the phenomenon under study (Maxwell, 1996; Tashakkori and Teddlie, 1998).

In this case, the criteria of selection were to include: at least one course from each academic department; classes considered central in each major selected; at least two courses considered formative; equal representation of full-time professors and professors of individual subjects (variable-time); teachers who had completed the diploma course in "Academic Skills" ("Habilidades académicas") and others who had not; and male as well as female professors. Chart 1 lists the names of the courses observed, the type of professor contract (full-time or by the subject), their completion or non-completion of the diploma course in Academic Skills offered by the university, the educational level completed, and their gender.

CHART 1

Courses Observed and Professor Data

Subject	Type of Contract	Diploma Course	Academic Level	Gender
Developmental	Full time	No	Master's	F

Psychology				
Computer Networks I	Full time	No	Master's	M
Introduction to Individual Problems	By subject	No	Doctorate in process	F
Introduction to Social Problems	By subject	Yes	Specialty	M
Administrative Accounting	Full time	Yes	Specialty	F
Introduction to Administration	By subject	Yes	Bachelor's	F
Instrumentation I	By subject	No	Bachelor's	M
Theory of Communication I	Full time	No	Bachelor's	M
Construction I	Full time	Yes	Master's	M
Concrete I	Full time	Yes	Bachelor's	M
Basic Mathematics	By subject	Yes	Diploma course	F
Evaluation of Commercial Projects II	By subject	No	Master's	M
International Law	Full time	Yes	Bachelor's	M
Agrarian Law	Full time	Yes	Bachelor's	M
Child Development	By subject	No	Master's in process	M
Industrial Engineering I	Full time	No	Bachelor's	F

Consent was requested from the selected professors to videotape some of their classes and conduct an interview afterwards. They were promised a copy of the study's results on completion of the research.

Since the class sessions were videotaped, the students and professors could be expected to perform for the camera. However, as affirmed by Mario Rueda Beltrán,[1] individuals become accustomed to filming in a very short time period. In any case, the recorded classes would serve as photographs of classroom events, and would be interpreted as the professors' best efforts to perform before the camera: they would be showing their best side, while following the educational model they consider appropriate and most often use in their classes.

Fifty-two classes having a two-hour duration were observed and videotaped, resulting in six to eight videotaped hours per course. Diverse authors promote the use of videotaping to increase a study's validity and reliability (Erickson, 1989; Marshal and Rossman, 1995). Videotapes were made of one class at the beginning of the semester, another in the middle, and yet another near the end. Care was taken not to include initial class meetings or class time used for examinations. In addition to the professional cameraman, the researcher was present to compile contextual data that could permit an understanding of the videotape.

To discover each professor's perspective, a type of interview Seidman (1998) called focused in-depth interviewing, was used. Professors were asked about their conceptions of the teaching and learning process, their knowledge of the institution's educational

philosophy, the support they had received in training, and the reasons they taught as they did. Some materials, such as study programs and examinations, were also analyzed.

Based on the theoretical framework, including a revision of the university's documents of formulated pedagogical systems and underlying theories of education, a list was made of relevant pedagogical aspects for the institution. Then classroom observations were carried out, professors were interviewed, and materials collected. Based on these data, a description was made of the pedagogical method followed in each course. Once described, the educational practices were compared with the instructional proposal.

The aspects analyzed in the professors' practices were: course goals, the handling of content, class structure, the types of classroom interaction, the use and transfer of knowledge, student involvement and interest in the class, academic rigor and the use of constructivist, transmissionist methods in the classroom.

As stated previously, all classes were videotaped and the study was carried out by two persons, for reasons of reliability. The purpose of the analysis was to find evidence that would permit determining if the university's pedagogical systems were evident in the professors' daily practice.

Results

To discover if the pedagogy used in the classroom is similar to that declared by the institution, diverse aspects indicated in the preceding paragraphs were analyzed. Presented below is the analysis of each aspect.

Course Goals

As part of its constructivist vision of education, the educational institution where the study was completed indicates that students must play a central role in the construction of knowledge, and that learning must include application and transfer. During classroom observation, an effort was made to determine if the professors included the application and transfer of knowledge in the general course goals, and if the objective was explained in each session. If so, the professors would be giving their students an active role to participate in reaching the objective.

The analysis of the course programs showed that seven cases included the application and/or transfer of knowledge. In nine cases, these aspects were not included. The goal's inclusion of application or transfer does not imply that these operations are really carried out in the classroom; however, the declaration of their inclusion could increase the possibility of real inclusion.

An example of the application and transfer of knowledge was Case 4, in which the professor set the goal "that students should be able to develop or improve the distribution of a process or of a plant, as a function of having developed skills for interpreting processes, product characteristics and spaces" (EC4:5). This example shows how the established goal includes the application of knowledge to solving problems; in addition, knowledge is transferred from classroom practice to the analysis of processes and spaces in real processes, in a productive operation.

In the nine cases of course goals that did not include application and transfer, the professors simply stated goals of a declaratory type, as in Case 1, with the defined goal of "students should see the importance of companies' having good cost systems" (EC1:3), or

Case 16, "they should understand what international law is" (EC15:7). In these cases, the goal presents only conceptual understanding and not the use of information or its transfer.

In five cases, the professors declared the objective to be attained in at least some of the classes, and goals were easy to infer in others. In seven cases, at least the topic to be covered was stated. In another four, the professor presented information without even announcing the topic, placing the students at the mercy of his momentary plans or decisions.

Since the individual class objective was not stated in most cases, the professors' pedagogical orientation was revealed in part. In a constructivist position, the student must have a clear goal to enable him to construct knowledge with the material and symbolic means provided by the professor, the situation and his classmates; in contrast with a transmissionist orientation, in which the professor organizes, places in order and presents the information the student must acquire.

In summary: in seven cases, the goal declared by the professor did not include the application or transfer of knowledge; in only five, the professors placed students in a position to contribute something to attaining goals, by making these goals explicit.

Course Content

Mention is made in the university's document of Fundamental Orientations, that all courses should address human problems, the current social reality, and the historical aspects that permit an understanding of the present. Students are expected not only to repeat information about what others think, but also to know how to use information to analyze social situations, to generate new information and to be able to take a position with regard to controversial situations in which justice, equality or personal dignity is in play.

The observations revealed that the two courses taught at the Centro de Formación Humana address social and value-related issues, not unexpected since such issues are part of the Centro's duties. In each course, the social and value-related content was addressed differently. For example, Case 2 presented information about electoral processes in Mexico and the system of government, with little student analysis. Yet in Case 16, continual and rigorous analysis of a sociocultural and value-based type, in which students played a leading role, could be observed.

In the fourteen remaining cases (the courses taught by various academic departments), the content was almost exclusively discipline-related. In only five, the professor or students made a value-related comment, of less than one minute, except in Cases 9 and 15, in which the professors spoke 18 and 30 minutes, respectively, about value-related matters. In Case 9, the professor read a text about neo-liberalism for 18 minutes and commented on its implications for society: voiced reflection for students. In Case 15, the teacher spoke for 30 minutes about religious matters in the form of an exhortation; that is, as indoctrination, contrary to the institution's expectations. Mentions of value-related or social issues in the other four cases totaled only six minutes: an extremely brief comment from the professor about an aspect of disciplinary content.

To give a more precise idea: out of the fourteen courses, 4,583 minutes were dedicated to disciplinary content and only 53 to value-related or social content. A large part of this time was used by two professors in long interventions, and in neither case were students asked to analyze content from a perspective of values. In seven cases, not a single comment of this type was made.

The university indicates values and social aspects as very important issues to be covered in all courses, provided they are pertinent to course content and are not additional or parallel discourse. It is necessary to clarify that values can be included in any course since professional activity has implications for the well-being of others, in immediate or mediated form, and these implications can be analyzed along with course content. For example, the way a company or its accounting is managed has implications for the well-being of its employees in the first place, and for tax authorities in second place.

The conclusion can be made that the courses taught in the academic departments show disassociation between the contents of the discipline and the social implications and values that the knowledge or disciplinary practices have for individuals. The relation exists in the university's official documents and in officials' discourse as a *duty*, but the relation does not appear in daily classroom practice. Although the subjects taught at the Centro de Formación Humana emphasize the dimension of values, the cases analyzed as a whole do not cover values adequately: no attempt is made in most classes to explain the relationship with disciplinary content.

Class Structure

The professors' pedagogical actions were generally structured by one of the following class formats: exposition, workshop or laboratory, with variations.

The predominant class format was exposition, as expected, given its versatility. Exposition was used at some time in all the courses, and in seven cases was the only class structure. Scholars of teaching methods and strategies affirm that the format of exposition is similar in structure to the essay, in which the following can be identified: affirmation, argumentation and closure or conclusions; however, in the courses observed, information was presented about one topic after another, without structure for argumentation. In three cases, the professor spoke in monologues, with occasional questions; in three cases, the professor's questions required memorized information, and in two courses, unsupported opinions were requested.

In Case 3, the class format was exclusively a workshop, and in Case 16, a seminar. The other five had a mixed structure: two used expositions and workshops, and the other three, expositions and laboratory time.

Two cases were totally atypical, and could not be classified into common class formats. The first case included student expositions and activities that the professor designed on the spot, with no continuity from one class to the next. In the second case, the students took turns reading paragraphs from a manual, for most of the class time; during another part of the class a seminar with little academic rigor was held, in which completely unsupported opinions were given.

The cases closest to the university pedagogy sustained by the institution were those that had a workshop or seminar format and used a variety of systems. All of them had greater student participation and involvement, except the two atypical cases. Although the exposition format is also compatible with the university's goals, the way it was carried out ~~a~~ professor monologue and little student attention~~m~~ ade it lack agreement with the proposed institutional pedagogy.

Types of Classroom Interaction

Within the university's pedagogical vision, interaction as a means for constructing knowledge plays a central role. As a result, interaction was expected to be of a high level in the classes.

Although all the classes showed some sort of interaction between the professor and students, interaction varied widely in frequency as well as in quality. In this analysis, interaction was classified in three categories:

1) Questions and answers, which consist of a question asked by the student or professor, either open or closed, simple or complex, and a verbal reaction to the question from the other person
2) Dialogue, which is defined by modifying the idea of Nystrand, quoted by Brown, Bakhtarand and Youngman (1984), as the free exchange of information between at least the teacher and one learner, for a length of time longer than thirty seconds, and on more than one occasion, from at least one of them during a class episode
3) Joint construction of knowledge, which consists of partial contribution from both to the formulation of a response or idea, usually data contributed by the student and structured by the professor

Chart 2 shows the different types of interaction that occurred in each one of the 52 observed classes. The information is grouped by cases; in each case, three or four classes are observed. In the case of the questions and answers, frequency is indicated: little, to refer to one hundred or less; average, to more than one hundred and up to 200; and many, to more than 200. In the case of dialogue and joint construction, only presence or absence is noted. Other student participation was not included on the chart because it was not due to interactions.

CHART 2

Types of Professor/Student Interaction

Case	Questions and Answers			Dialogue	Joint Construction
	Few	Average	Many	Did Occur	Did Occur
1			✓	✓	✓
2	✓				
3			✓	✓	✓
4			✓	✓	✓
5	✓				
6		✓			
7	✓				
8	✓			✓	
9			✓		
10		✓			
11	✓				

12	✓				
13			✓		
14	✓			✓	✓
15	✓				
16			✓	✓	✓

The interactions that appear on this chart served different purposes. The students answered questions about data in the text and contributed other data from their experience; doubts were clarified; the learning process was evaluated; and students were motivated to carry out complex thinking or to construct knowledge jointly. Most common were questions and answers, in all cases; and in 62.5% of the cases, were the only type of interaction.

In one-half of the cases, the number of questions and answers was low; in two cases, the number was average, and in six cases, high. The frequency is relative, however, since some reported a high frequency; the questions involved memorized data, however, and the responses lasted less than two seconds. On the other hand, although the number of questions was sometimes average and even low, the questions stimulated processes of reflection and participation by several students.

An indicator of the use of the proposed pedagogy is the presence of dialogue, rather than the number of questions. Dialogue occurred on six occasions; all except one was between students and did not involve the professor. The joint construction of knowledge was the result.

An example of dialogue is provided by the second session of Case 16. The professor asked the students what they would do about an undesired pregnancy, as a way of clarifying the concept of soul. After listening to opinions against abortion, the professor affirmed, "But it's only a piece of flesh" (C16, 2:2). In response, many students began to participate, and the teacher took charge of managing the conditions to maintain the dialogue.

In contrast with this professor, who stimulated dialogue, the professor in Case 11 showed fear that the students would not learn, and would not pass the course if dialogue occurred. He commented that "there are students who did not learn, yet because of the grading of activities, passed" (EC11:7). He explained that this sort of situation had happened before, that he had allowed the students to participate at length, and that they had covered topics he had not expected.

In five of the analyzed cases, joint construction was evident. This process, more than dialogue, may approach the university's ideal educational actions.

Joint construction occurs when the professor helps students by providing the structure and a guide so that students can form knowledge based on the information they possess. The process is similar to what Bruner calls scaffolding, and consists of helping learners to carry out activities they are not familiar with, or that are beyond their current abilities (Wood, Bruner and Ross, 1976). The professor must identify the student's next zone of development; i.e., according to Vygotsky (1979), the zone in which the student cannot carry out an activity in independent form, but is able to do so with the help of someone more skilled.

An example of joint construction occurred in Case 3, in which the mathematics teacher, based on student contributions, prepared a table of data and a diagram. To complete the table, the professor asked the students to determine how moments are measured. The students responded that through time, and made the corresponding calculation. Then the professor asked them how to determine the variable, and once defined, what they would do with it. In this manner, the students inferred and provided the remaining data. The students made contributions, the teacher organized the process, and together they constructed knowledge (c3,3:6).

Case 4 also showed joint construction between the professor and student when the professor formulated questions in response to a student demand for help. While the students were working individually, elaborating a flow chart, one asked if the operation formed part of the main process. The teacher answered with a rule: "For it to form part of the main sequence, it must be conditioned." Then he asked, "What does conditioned mean?" When the student shook his head, the professor asked, "What is it, then?" and the student answered, "an assembly" (c4,2:5).

Such cases of dialogue and joint construction showed classes that were well organized; the professors exercised leadership but gave the floor to the students, required order and respect, and were critical of their own actions.

Simply counting the frequency of interaction does not permit an understanding of the quality of the educational process. Dialogue and joint construction are more appropriate indicators than the frequency of questions and appear in only six of the sixteen cases analyzed.

Use and Transfer of Knowledge

As part of university pedagogy, the institution declares its interest in the use and transfer of knowledge (Comisión de Planeación Institucional, 1999). This interest is shared by various researchers and thinkers in the educational field (Schank and Cleary 1995; Gardner, 1991; Marzano, 1992).

In five of the observed cases, the students were asked to apply the knowledge they acquired, either to solve a problem or as a tool of analysis; the observation was also made that the professors provided students with a learning system that allowed them to transfer knowledge to new situations. For example, in Case 1, the professor asked the students to solve a problem and then organize and systematize the following process. This method is transferable and students can use it in various situations. In Case 3, the math course, the teacher provided a guide for solving problems: *1)* Read the sentence as many times necessary until you understand it. *2)* Name the unknown quantity by using a letter. *3)* List the data you have. *4)* Translate the data into the mathematical language of data. *5)* Solve the equation and interpret the data. The professor asked the students to use the guide in the class and in the third class (c3,3:3). The system can be applicable to various situations.

Another example was Case 14, in which the professor helped the students use the Piagetan concept of centering to explain children's intellectual development, manifest in the ability to complete certain tasks. He thus helped the students to use knowledge to explain diverse behaviors, a form of transferal. In Case 16, the professor helped the students to discover the reiteration of topics and occurrences at different historical

moments. The discovering of patterns is a skill that permits taking knowledge out of context and transferring it.

Since only one-third of the teachers in the sample used knowledge and taught transferable systems, the university needs to implement forms of attaining this goal. It was not reached in various cases because of the professors' lack of knowledge of how to do so, in spite of their diligence in carrying out their work. Other professors only transmit information, which corresponds to their idea of teaching.

Student Involvement and Interest

An interesting aspect of the classes analyzed was the level of student involvement and related factors. In some courses, the students became involved in all the classes, while in others, the students were distracted by other activities. Becoming involved or distracted was a constant factor of some courses, except in one, in which the students paid attention in one segment of the class, but not in the other.

This variable was detected in seven cases. Five had an evident pattern: the professors assigned complex tasks or formulated high-level questions, set clear rules and gave individual follow-up to students. For example, in Case 3, the teacher presented complex mathematical questions, for which the students had to solve problems of mixtures or mobiles. The teacher commented that he was interested in discipline, along with a pleasant atmosphere: "What is hard for me is having good discipline in the classroom and a pleasant atmosphere, which is my goal" (EC3:7).

Case 4 also showed student involvement in complex tasks. In one of the classes, one-half of the group had to mount a production line in the classroom, while the remaining students logged the activity. At the end of the class, all of the students prepared a flow chart.

The following examples of complex questions were heard in Case 14: "What relation is there between reversibility and centering? What relation does cognitive development have with symbolic play?"

Nine cases, on the other hand, showed a lack of student attention. These classes were characterized as expositive, due to the lack of individual follow-up on learning, simple activities and few work demands. In some classes, students did the homework from other courses, talked, checked their E-mail or even slept. Professors were passive to the lack of respect.

The conclusion can be made that student involvement is positively related to high-level questions, complex activities and clear time limits, as well as to individual follow-up and standards that must be met. A lack of attention, in contrast, is related to lax standards, simple tasks and flexible time, as well as to expositive classes and questions that require only the memorization of data. Students showed interest in 43.75% of the courses.

Academic Rigor

Academic rigor is an element of the instructional method the institution proposes. It is verified when the professor uses the entire assigned time for giving class, when he asks students to support their opinions with data, precision and higher-level thinking (inferences, identification of assumptions or evaluations) to establish their position on a topic, and when he corrects information or erroneous conclusions. Five cases showed academic rigor, while eleven did not.

In classes where there is academic rigor, the professors correct the students, reformulate what the students say, paraphrase their statements and question them in order for students to produce responses beyond the mere repetition of information. In contrast, in classes where no academic rigor exists, professors generally present information, and in the event of questions, have a known response; it is sufficient for students to remember the data they have read.

Chart 3 shows the types of professor interventions that encourage high-level thought in students.

CHART 3
Academic Rigor in the Pedagogical Method

Pedagogical Actions	**Cases**				
	C.1	C. 3	C. 4	C.14	C.16
Corrects	11	26	113	3	
Paraphrases	13	5		1	2
Reformulates	4	2	2		4
Provides feedback			6		
Asks for precision	7			3	22
Asks for implications	7		1		8
Asks for conceptualization	6	15	2	4	18
Asks for examples	6			1	
Asks for clarification	5			17	12
Asks for comparison	2		1		
Asks for support	2	4	2		28
Asks for inference		26	3	6	
Asks for classification					3
Asks for personal posture					3

Case 1 is presented to illustrate academic rigor: the teacher refused unsupported comments as a response, and requested the presentation of supported data or opinions. In the first class, a student who had not read the text wanted to talk about the reading. The professor told her he wanted her to be familiar with the information before forming an opinion, and directed the question to another student (c1,1:4). On occasions, the professor required the use of knowledge for solving a problem, and asked students to explain the procedure followed: "In the second class, he reviewed a student's work and said it was fine, and then asked him to describe the proceeding he had followed, step by step" (c1,2:2).

Another example of rigor was the discussion that occurred among the students in Case 16. One student stated that women became masculine on filling management positions, but various classmates refuted the idea. The debate addressed the topic of authority, and one student concluded that order should be the rule, regardless of the person who had imposed it (c16,4:2).

Counterexamples of academic rigor were abundant. In Case 11, for example, the students only listened. Many went in and out of the classroom, and one even slept. During the interview, the professor complained about the students' inactivity: "Some take advantage to sit in class and do nothing. They don't even need to take notes because they have another mechanism for acquiring the information" (EC11:6).

The reduced rigor and consistency seen in teaching could be appreciated in the evaluation method. The questions asked required memorized responses, such as: "What is noise and what are the types of noise? What is attenuation?" (from first partial examination)

The cases not showing academic rigor have expository classes and student intervention to ask for or offer data. Teachers promote student participation in the form of unjustified opinions.

The above seems to indicate that rigor is related more to constructivist classes than to classes mainly interested in presenting information. This affirmation is not a criticism of conferences as a didactic strategy; rather, it is a criticism of professors who reduce teaching to presenting data, and of students who listen passively.

Constructivism and Transmission in University Classrooms

The literature on education refers frequently to the traditional focus, recitative or transmissionist, as the opposite of constructivist focuses, which come in a wide variety and are often divided or described with a qualifier (social constructivism, for example). Some authors (Kember and Gow, 1994; Ravitz Becker and Wong, 2000; Putnam and Borko, 2000), however, prefer to distinguish only between traditional and constructivist focuses. The first group includes those interested in presenting information under the assumption that knowledge is transmitted; and the second group includes pedagogical methods that involve students in generating, analyzing, reformulating and evaluating information, based on the assumption that learners construct knowledge by interacting with objects and interacting verbally with their schoolmates and experts.

The dichotomy of educational methods can be employed to classify the observed cases. Use is made of the terms, *transmissionist focus,* to refer to courses in which professors' actions consist almost exclusively of presenting information, and *constructivism*, interpreted in accordance with the authors cited in the previous paragraph.

In seven of the courses, classes consisted of presenting information, and the participation required by professors was aimed at asking students to repeat the content of texts or formulate questions about content. The teachers believed that having information was very important, and that their function was to provide information efficiently, in the shortest amount of time possible, and with least student effort. Therefore, information was projected on a screen, some had notes posted on an Internet site for printing, and in one case, definitions were dictated to the students from the book, "to avoid making life complicated for students".

Teachers' expositions were not within the parameters of good expository classes (introduction, argumentation, conclusion or closure) since they consisted of presenting a topic, followed immediately by the next topic until the end of the class time. One professor (Case 11) indicated that the class would be looking next at "small tedious topics" (C11, 1:1).

Evaluation was in agreement with this focus in all the cases except one. Teachers prepared examinations that requested reproduction of the information read. In some

cases, the students had to match columns; in other cases, questions with known answers were asked. The first partial examination of Case 6, for example, asked for a listing of the tools used for personnel selection, with six lines marked on the side for writing the responses (first partial examination).

In contrast, six cases had a constructivist orientation. The professors of these courses asked students to participate in activities the professors had prepared; the students were to emit and support their opinions; they were to solve problems and look for information to be brought to class at a later date. In these cases, after the teachers' expositions, the learners use the knowledge either to solve a problem or analyze an issue. In addition, these classes showed a greater tendency for active participation from students, such as in Case 3, in which a student asked the teacher for another problem of mixtures.

The questions the teachers formulated often had no known or immediate response, and students were required to carry out a thought process to reach a solution; they could not depend solely on memory. For example, in the second class of group 3, the following questions were posed: "How are you going to interpret the solution? What did I do when I translated the data to mathematical language? Does anyone have another alternative for solving it?" The professor of Case 16 asked: "Why do you think gender means? What is masculine? How important have women been in history?"

Professors with this orientation modeled procedures and/or took students to places where the phenomenon under study occurred, in order for them to have direct experience. In this respect, the professor in Case 1 stated:

> As the semester continues, they are doing a team project. They go to a company, and I ask them to write a report about what the company does [...] I have a catalogue of accounts, and there I want them to separate out the fixed costs, the variables costs and the mixed costs. So if they aren't familiar with the company, they won't be able to do it (EC1:4).

Evidence that the visit was made was provided during the first class observed. The students made a twenty-minute presentation about a company's cost system (C1,1:2).

The teachers with a constructivist orientation wanted to have small groups, while some with a transmissionist focus commented that small groups represented a waste. Three atypical cases could not be included in either one of the two focuses: these three left class conduction in the hands of the students, experiences not related to the topic were discussed, or information was presented in random fashion, and precise answers to ambiguous questions were required.

According to the pedagogical orientation, the observed classes were divided into transmissionist (46.6%), constructivist (37.5%) and atypical (18.75%). The above data show that the educational institution has not attained classroom use of the pedagogical model it supports.

Conclusions and Implications

The analysis of the written goals in course syllabi and the goals teachers declare verbally, showed that in 43.75% of the cases, the declared goal does not include the application or transfer of knowledge.

In other aspects, in contrast with the institution's proposed educational philosophy, broad handling of value-oriented content appears in only two courses. In the majority of

the cases, the class format used most often was exposition, but without the construction of a solid argument.

All the courses had questions and answers, although the amount and quality varied. Only five cases showed dialogue and joint construction. In these same cases, transferable systems were taught, academic rigor existed and a pedagogical method close to constructivism was used. The constructivist conception of some professors seemed to allow them to set goals that included using and transferring knowledge, promoting dialogue and student participation, maintaining academic rigor and involving students in learning, as well as generating interest in contents.

Since only one-third of the teachers in the sample used a pedagogical method in agreement with the institution's indications, it is important for the institution to implement ways of helping teachers to use strategies and methods in agreement with their purposes. Some professors, due to a lack of educational goals and pedagogical means in agreement with the university, present information based on their idea that teaching is helping students to be well informed.

Some professors work in the university where the study was made because they have affinity for its educational philosophy, but others are there simply because they want a teaching job. All the teachers declared during the interviews that they make an effort to achieve a high-quality educational process, yet their conceptions of quality, and therefore their teaching practice, are often different from the institution's educational objective. The evidence indicates that the university has not been able to help the teachers in the sample to learn about the institution's educational proposal in depth; nor has it helped teachers to acquire the means for managing the proposal.

The university has an educational methodology with a firm basis in philosophy, anthropology and the science of education. However, the university needs to take effective action so that its instructional proposal is put into practice by professors who otherwise would continue on the discrepant path between what the institution declares and what happens in many of the courses it offers.

Notes

[1] Personal communication, January 31, 2000, course on qualitative techniques.

[2] The initials refer to the source of the data: E = interview; C = case. The first number is the case number, from 1 to 16, and the following number indicates the page where the information is found. Therefore, EC4:5 means an interview with the professor in Case 4, and information that is found on page 5 of the transcription.

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