Valuing the principles in academic teaching

Popescu-Mitroi Maria-Monica a, Mazilescu Crisanta Alina b, Dragomir Gabriel Mugurel c, Todorescu Liliana-Lumințiă d, Dinu Ionela Adela e, Vrgovici Svetlana Maria f

Abstract

Teachers should respect each teaching principles (seven) including academic teaching: The principle of active and conscious learning (P1), The intuition principle (the correlation between sensory - rational, concrete - abstract) (P2), The principle of accessibility and respect for age and individual peculiarities (P3), The principle of linking theory to practice (P4), The principle of sustainable knowledge, skills and abilities (P5), The principle of systematic and continuity learning (P6), The principle of feedback (P7). Which of these principles have a higher weight in academic teaching in the technical field? For this we used a questionnaire and a representative sample of students from nine faculties of the ”Politehnica” University of Timisoara. Their answers indicate how students perceive teaching in relation to the dimensions stated. We can also see the variability of teaching principles within each nine field of study and the regularity of some principles.

Keywords: teaching principles, academic teaching, teaching quality.

1. Introduction

The academic teaching has as purpose the facilitation of teaching at the students so that the competences created at the students should correspond with the ones stipulated in the discipline syllabus and with the general competences of the educative program. Teaching principles is a prerequisite for success in achieving objectives (Cucuș, 2006, p. 347). The teachers need to respect in their teaching, inclusive at academic level, indifferent of the discipline studied to the following didactic principles: The principle of active and conscious learning (P1), The intuition principle (the correlation between sensory - rational, concrete - abstract) (P2), The principle of accessibility and respect for age and individual peculiarities (P3), The principle of linking theory to practice (P4), The principle of sustainable knowledge, skills and abilities (P5), The principle of systematic and continuity learning (P6), The principle of feedback (P7).

What relevance have these principles in the academic teaching?

Some authors mention that „respecting a principle invite to respect all of them, in weight that hold on the learning circumstances” and others appreciate even that „violating one of them annulates the positive effect of the others” (Oprescu, 1988, p. 122 cited by Diaconu, 2004).
We present in continuation the essence of every teaching principle, from the 7 mentioned by almost all the authors, as it results from the speciality literature. (Nicola, 1996; Jinga & Istrate, 2001; Diaconu, 2004; Cucuș, 2006).

<table>
<thead>
<tr>
<th>The teaching principle</th>
<th>Abbreviation</th>
<th>Main characteristics</th>
<th>The evaluated dimension through the items of the questionnaire applied to the students</th>
</tr>
</thead>
<tbody>
<tr>
<td>The principle of active and conscious learning (P1),</td>
<td>P1</td>
<td>The teaching-learning is centered on: intellectual and physical effort (voluntary) of the students; learning through personal experience; responsible attitude for learning; intellectual awakening and active reflection.</td>
<td>Teaching is based on the students participation.</td>
</tr>
<tr>
<td>The intuition principle (the correlation between sensory - rational, concrete - abstract)</td>
<td>P2</td>
<td>The teaching-learning values the direct experience in knowledge, the direct knowledge through senses or with the help of some substitutes of reality (teaching middles).</td>
<td>Teaching is based on an efficient utilization of teaching middles.</td>
</tr>
<tr>
<td>The principle of accessibility and respect for age and individual peculiarities (P3),</td>
<td>P3</td>
<td>Teaching-learning values the psychological relation between development and learning (methods that should enter as difficulty in the „zone of proximal development”) cumulated with the individualization need of teaching-learning (training personalization).</td>
<td>The teaching is based on accessibility of contents on the students level</td>
</tr>
<tr>
<td>The principle of linking theory to practice</td>
<td>P4</td>
<td>The teaching-learning is based on valorization in practice of theoretic knowledge, of elements from the daily life. The teaching-learning is based on creating a connection between information – action, information – applicability, on living some real realities/situations.</td>
<td>The teaching is based on applicability and a concrete use of the contents.</td>
</tr>
<tr>
<td>The principle of sustainable knowledge, skills and abilities</td>
<td>P5</td>
<td>The teaching-learning is based on effects characterized on: time persistence and fidelity assimilated by pupils, as well profoundness.</td>
<td>The teaching is based on correlation of the content drive – seminar – laboratory – project</td>
</tr>
<tr>
<td>The principle of systematic and continuity learning</td>
<td>P6</td>
<td>The teaching-learning is based on a teaching transpose of the scientific knowledge and of organizing the learning tasks, so that these generate a cumulative study (from simple to complex), a progressive learning (inside a logical, systematic and coherent order).</td>
<td>The teaching is based on a facile taking of the notes and a of useful supply of documents for learning.</td>
</tr>
<tr>
<td>The principle of feedback</td>
<td>P7</td>
<td>The teaching-learning is based on collecting the information received through the feedback which need to be converted in reactions with effects: improvement/ increase of the teaching effects through following the dynamic system teaching – learning – evaluating, of the variations approach – away between outsides and insides: the achieved results – the results wanted initially, the results - resources</td>
<td>The teaching is based on verification of understanding of the taught content.</td>
</tr>
</tbody>
</table>

In the occidental pedagogic literature the problem of the teaching principles has stoped since a long time to be accepted in these terms, as it has been replaced with the problem of the „learning conditions”, of the school learning laws, as it results from the study of Michael M. Van Wyk (2010): Principle of totality; Principle of assessment; Principle of activity; Principle of creditability; Principle of learner centredness; Principle of differentiations; Principle of integration; Principle of progression; Principle of critical thinking and creativity, etc.

N. Vințanu (2001) in the Academic Education mentions that „when a principle of the students education is realised in facts it becomes a value” (p. 156), so that the principle is a wish, a goal, a rule, a prescription. The mentioned principles overlap with some nuances with the clasical ones, like for example: the students learning is multidimensional (cognitive, affective, social, motor, etc.), the interes in learning is increasing on the measure of the students value, etc.

In this study we wanted to identify how much the classical teaching principles are respected in the academic teaching, how much from the desideratum became a value, based on the students perception.
2. Methodology

**Research Question.** We started from the premise that the learning process principles have a general, dynamic and systematic character. Thus, on the academic teaching level we ask ourselves: How much are these principles (diagnosis of the teaching quality) respected?; Are there differences in applying the teaching principles between the various field of studies/ faculties from the technical field?; Can we surprise some constants, regularities regarding the presence of these principles in the academic teaching from the technical field?

**Research Instrument.** The Study has been made on a questionnaire, created and applied from the members of the DPPD (Department for Teaching Training). One of the questions referred to a general appreciation on the teaching quality, and the dates pointed out a positive general appreciation on the teaching: good (55%) and very good (5.1), medium (35%). The small percents registered at the negative categories, bad (3.2) and very bad (1.1%) means that just rarely the students are not satisfied regarding the teaching conduct. The items of the questionnaire aimed the mentioned dimensions in relation to which students have made an assessment on a Likert scale from 1-5, where 1 means strongly disagree and 5 strongly agree.

**Sample.** The questionnaire has been applied to a representative sample of students from the study years I – IV, from nine faculties of the „Politehnica” University of Timisoara.

Table 2. Legend and the sample structure created by the students from the nine faculties:
Faculty of Computer Sciences (AC): 15% students involved in the study;
Faculty of Architecture (ARH): 4.1% students involved in the study;
Faculty of Chemical Industry and Environmental Engineering (CHI): 7.1% students involved in the study;
Faculty of Constructions Engineering (CTI): 11.8% students involved in the study;
Faculty of Electrical and Power Engineering (ET): 7.1% students involved in the study;
Faculty of Electronics and Telecommunications Engineering (ETC): 10.7% students involved in the study;
Faculty of Hydrotechnical Engineering (H): 4.6% students involved in the study;
Faculty of Mechanics (MEC): 32.8% students involved in the study;
Faculty of Management in Production and Transportation (MPT): 6.7% students involved in the study.

3. Results

First of all we wish to play the values obtained after the statistical processing (we used SPSS13) for every faculty regarding the presence perceived by the students of every teaching principle.

<table>
<thead>
<tr>
<th>Principles</th>
<th>Faculty</th>
<th>AC</th>
<th>ARH</th>
<th>CHI</th>
<th>CTI</th>
<th>ET</th>
<th>ETC</th>
<th>H</th>
<th>MEC</th>
<th>MPT</th>
<th>Average</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td></td>
<td>3.4</td>
<td>3.3</td>
<td>3.7</td>
<td>3.5</td>
<td>3.7</td>
<td>3.5</td>
<td>3.7</td>
<td>3.6</td>
<td>3.3</td>
<td>3.53</td>
<td>1</td>
</tr>
<tr>
<td>P2</td>
<td></td>
<td>3.3</td>
<td>3.3</td>
<td>3.2</td>
<td>2.9</td>
<td>3.1</td>
<td>3.2</td>
<td>2.3</td>
<td>2.8</td>
<td>3.3</td>
<td>3.04</td>
<td>5</td>
</tr>
<tr>
<td>P3</td>
<td></td>
<td>3.0</td>
<td>2.8</td>
<td>3.7</td>
<td>3.1</td>
<td>3.3</td>
<td>3.1</td>
<td>3.2</td>
<td>3.2</td>
<td>3.0</td>
<td>3.15</td>
<td>4</td>
</tr>
<tr>
<td>P4</td>
<td></td>
<td>1.3</td>
<td>2.2</td>
<td>2.5</td>
<td>1.8</td>
<td>1.9</td>
<td>0.9</td>
<td>1.6</td>
<td>1.6</td>
<td>1.3</td>
<td>1.67</td>
<td>7</td>
</tr>
<tr>
<td>P5</td>
<td></td>
<td>2.7</td>
<td>0.7</td>
<td>3.5</td>
<td>3.2</td>
<td>3.2</td>
<td>2.2</td>
<td>2.8</td>
<td>2.8</td>
<td>3.0</td>
<td>2.67</td>
<td>6</td>
</tr>
<tr>
<td>P6</td>
<td></td>
<td>3.5</td>
<td>3.3</td>
<td>3.7</td>
<td>3.4</td>
<td>3.6</td>
<td>3.5</td>
<td>3.6</td>
<td>3.3</td>
<td>3.4</td>
<td>3.47</td>
<td>2</td>
</tr>
<tr>
<td>P7</td>
<td></td>
<td>3.1</td>
<td>3.4</td>
<td>3.5</td>
<td>3.1</td>
<td>3.1</td>
<td>3.0</td>
<td>3.8</td>
<td>3.4</td>
<td>3.0</td>
<td>3.26</td>
<td>3</td>
</tr>
<tr>
<td>Average</td>
<td></td>
<td>2.9</td>
<td>2.85</td>
<td>3.4</td>
<td>2.91</td>
<td>3.12</td>
<td>2.77</td>
<td>3</td>
<td>2.95</td>
<td>2.9</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In order to surprise the variations recorded by every principle on the general of the technical field, but also depending on the faculty, we resorted to the following graphic representations:
Figure 1. Variability of the teaching principles in the academic teaching of the technical field

From the graph we can see the direction of the principles in the academic teaching is the following one: P1, P6, P7, P3, P2, P5 and P4. The most attendant ones in the teaching process are the principles P1 (The principle of active and conscious learning) and P6 (The principle of systematic and continuity learning) and the least perceived in the teaching principles are P4 (The principle of linking theory to practice), P5 (The principle of sustainable knowledge, skills and abilities) and P2 (The intuition principle).

A special evolution we remark in the case of principle P5 (The principle of sustainable knowledge, skills and abilities) less used in the teaching in the case of the Architecture and the Electronics and Telecommunications Engineering Faculties.

Figure 2. The variability of teaching principles depending on the study/faculty field

The review on studying fields (faculties) indicates the following aspects:

Analyzing the tendency of respecting the teaching principles between all the study fields on the basis of the students perception, the order is the following one: Chemistry, Faculty of Electrical and Power Engineering (ET), Faculty of Hydrotechnical Engineering (H), Faculty of Mechanics (MEC), Faculty of Constructions Engineering (CTI), Faculty of Computer Sciences (AC), Faculty of Management in Production and Transportation (Mpt), Faculty of Architecture (ARH), Faculty of Electronics and Telecommunications Engineering (ETC), with the mention that the Architecture faculty has an inside specific from the other study fields with a technical profiles. Between all faculties there is a trends to appear some peaks, with the most valued teaching principles (P1, P3 and P6), but also the trend of underestimation in all the fields of the teaching principles (P4 and P2).

There are also study fields with a special use of teaching principles, in the following cases:
Faculty of Chemistry where the principles maintain the appreciation trend of the principles from the other study fields, on a superior level.

The Architecture Faculty where P7 (The principle of feedback), P6 (The principle of systematic and continuity learning), P2 (The intuition principle), P1 (The principle of active and conscious learning) are improved and P5 (The principle of sustainable knowledge, skills and abilities), P4 (The principle of linking theory to practice), P3 (The principle of accessibility and respect for age and individual peculiarities) are underestimated.

The Electronics and Telecommunications Engineering Faculty (ETC) where the principles P4 (The principle of linking theory to practice) and P5 (The principle of sustainable knowledge, skills and abilities) are appreciated as being present on a minimum level compared with the other faculties.

4. Conclusions

By this study we could identify the following relevant aspects for the quality of the academic teaching regarding the application of the teaching principles: The principle of linking theory to practice (4) is law-valued in the academic teaching in the cases of all faculties, especially at the Computer Sciences Faculty and Telecommunications Engineering Faculty, which can be explicated just on an application that does not meet the expectations of the students or as a reality that must be corrected in the future.

The principle of active and conscious learning (P1) and The principle of systematic and continuity learning (P6) - are the most present ones in the academic teaching of the technical field. We need to see if this identified aspect is a characteristic of the field and it can be assimilated to the teaching field and to the technological curricular area.

The principle of accessibility and respect for age and individual peculiarities (P3) placed in the middle of the hierarchy indicates a need to differentiated approach and personalized approach of the learning-teaching, including on the academic level.

Generally the appreciations indicate a teaching that center upon using the same teaching principles with small variations between the analyzed domains of studies. We identified also atypical aspects in case of the Architecture faculty in relation with the other faculties, where we meet an apart evolution in case of the principle of sustainable knowledge, skills and abilities (P5) and also in case of the principle of feedback (P7), the last one being largely present than at the other faculties. This can represent a requirement of the domain, but also an exaggeration in the practice learning-evaluating. The Architecture studying field has specific characteristics, which indicates the need of a study that should explicate why some principles are or should be present more.

References: