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THE REFLECTIVE NATURE OF ACADEMIC TEACHING AND LEARNING

Țîru, Carmen Maria, West University of Timișoara (Romania), Teacher Training Department, Lecturer PhD, E-mail: carmen.tiru@e-uvt.ro
Țîru, Laurențiu Gabriel, West University of Timișoara (Romania), Sociology Department, Associate Professor PhD, E-mail: laurentiu.tiru@e-uvt.ro

Abstract: *The imperious goal of the actual educational system is to develop individuals which have the capacity to develop themselves in accordance to the specific social context and its characteristics. What are the modalities used to assure this goal in higher education? These are certainly related to the nature of teaching and to the learning process and how to dynamize, grow, optimize or change some of their particularities. In this way, this article offers some scientific approaches on reflective teaching and learning as theoretical framework. Also, we present an implemented practical model which sustains the relevance of reflective journal use in the academic teaching process for increasing students' reflection on their learning and the optimisation of their educational results.*

Keywords: *reflective teaching; reflective learning; reflective practitioner;*

1. Introduction

How did the accreditation of reflection in the educational process begin? The scientific literature presents Jh. Dewey as initiator of reflective teaching. He points to the fact that teachers need to be reflective practitioners and not passive recipients (Dewey, 1933) during each moment of the educational process. Using reflection implies thinking about the action while we do it (reflection in action) or after we do it (reflection on action) (Wilson, 2017). The reflective process must also be a reflexive one although it still has a highly personal note. Reflexivity is an interactional process (between teachers and learners) and a transformational one (because it determines changes both in the teaching and learning process). This means that teachers not only analyse their work but transmit students their reflection through reflexive practice. In this respect, reflection becomes a highly complex process in which thinking, interaction, knowledge and learning have a reflexive relation (Semetsky, 2008). So far, Dewey's work has been a

landmark for many studies and researches, which approached some aspects of the reflective educational practice.

1.1. Reflective teaching

The application of reflectivity in the teaching process during each stage of the lesson determines the reflective practice of the teacher (Thompson & Pascal, 2012; Schon, 1974; Thompson, 2008). Reflective practice represents the value that can be brought in practice through interventions on the teacher's analytical abilities. In this respect, the teaching process does not become a mechanical one and teachers could discover the modalities through which they can use their analytical abilities in the educational practice.

Embracing reflective practice, university teachers have the prerequisite for self-analysis of their teaching activities in order: to make the best use of the professional knowledge; to match their educational activities with the personal system of values and to generate learning and development opportunities for their students. This is a very complex and long-term process which imposes the approach of some dimensions of the teaching-learning process (Zwodiak-Myer, 2012):

- ✓ The study of personal teaching for developing it permanently (self-knowledge, reflection in action, and reflection on action).
- ✓ The use of a systematic evaluation on personal teaching through classroom research procedures.
- ✓ The assurance of the connection between theory and practice.
- ✓ The theories and personal beliefs (self-efficacy and efficiency in creating a positive climate).
- ✓ Taking into consideration the alternative perspectives and possibilities.
- ✓ The modalities of using strategies and ideas that maximize the learning potential of all students.
- ✓ Methods to continually improve the teaching activity.
- ✓ Strategies for enhancing the quality of the teaching process.

Each dimension supposes knowing and applying a set of knowledge, theories and applications which will conduct both educational actors to reach the educational objectives. Also, it is imperiously necessary to particularize the general guidelines to each group of students and its characteristics.

1.2. Reflective learning

A reflective teaching process conducts to a reflective learning process. It is not a facile process because it is a long-term process and supposes effort and constant implication of the students. Reflective learning is conceptualized as the basis of action and reflection, including the practice of questioning our own way of learning and solving problems related to the learning process or the real-life situation.

How do we give students a base for reflexive learning in the academic process? Certainly, through the teaching model which teachers offer their students, and which has the previously mentioned particularities. This could be expressed into: training reflection into action which supports students in the process of internalizing reflection by action (Bruno & Dell'Aversana, 2017) and usage of several methods of reflective learning (see Smith, 2011), such as: learning journals (Wall et al., 2004), memos (Dowling, 2006), reflective notes (Smith, 2008), the critical incident technique (Flanagan, 1954), the critical portfolio (Brockbank and McGill, 1998); tabulation or lists of reflective summaries (Alvesson, M. and Sköldberg, 2000), feedback and self-evaluation forms (Boud et al., 1995), reflective interview (Bolam et al., 2003), peer or group discussion (Brookfield, 1987) and other specific modalities. These teaching and learning techniques contribute to the development of each dimension of a reflective learning process. For university students, being reflective in the learning process, means to hear, write, read, speak, create and interact in a reflective way. In other words, students should be active participants and open to new knowledge and educational situations.

Reflective learning has the following direction: the settings of learning objectives; documentation about the existent approaches on the learning issue; identifying the reason for studying the issue; placing the new knowledge in relation to the personal approach on the issue and reframing the issue in a personal manner. This direction of action was expressed by M. Ryan (2013) in a reflective scale (adapted from Bain et al. 2002) with different levels which involve finding the response to different questions: 1. Reporting and responding – choosing the issue, pointing to its relevance, observing, expressing the personal opinion on it and asking questions; 2. Relating – making connections with the professional experience, the background or discipline knowledge; 3. Reasoning – analysing different approaches, perspectives on the issue; 4. Reconstructing – reframing the future knowledge or professional practice.

1.3. The reflective practitioner

Adapting the term primarily used by D.A. Schon (1983), we refer to the reflective practitioner in education as a professional who reflects about what he/she does while he/she does it and assures a base for students' learning in a more profound way. This term could be used in the educational process in both the teaching and learning role: in the first situation the teacher is a practitioner in action and in the second situation the student will became a reflective practitioner in a specific field. The teacher or student has some characteristics, as the following (Wilson 2017, Farrel 2008): uses reflection in action; is aware of himself/ herself: analyses the educational situations, questions, issues and finds alternative interpretations or solutions; develops decision-making skills and can become proactive and confident in the educational process or outside it; achieves a deeper understanding of teaching and learning; retrospectively analyses its own actions; identifies how his personal actions influences the educational activities; self-assess the personal professional growth. These necessities could be attended only if they have time for solitary reflection and solve all the problems that appear in the educational process (Larrivee, 1999, 2000). All the actions and issues will be analysed and a personal way to operate and to relate to the educational process' issues and practices will be assumed. In other words, teachers should have settled tools for practicing reflection in the educational process as (Farrel, 2008, 2011): short-term research projects; writing a teaching journal; joining a teacher development group; using observation, as a method of reflection on their own activity. Also, students should permanently develop their reflective learning techniques and settle up a personal reflection style which could have a dominant type of reflection (Jay & Johnson, 2000): Descriptive - describes the reason for reflection; Comparative – rebuilds the problem of reflection in the light of alternatives, other perspectives or studies; Critical - takes into account the implications of the problem and sets a renewed perspective.

The practice of reflection in action supports students in the process of internalizing reflection. Training and development as a reflective teacher (Shambaugh & Magliaro, 2001) are based on the critical investigation which must take into consideration the moral and ethical implications and the consequences of educational practice on students (eg. assessment as an ethical issue: judgment on student activity). This must be accompanied by profound examinations of personal values and beliefs embedded in the assumptions of teachers in teaching and their expectations towards students.

2. The research methodology

This research presents a proposal for a reflective teaching-learning model at university level. The *aim* of the research was to establish the influence of the reflective nature of the teaching process in which they were involved on their educational results. Our hypothesis was that using reflective learning and teaching modalities students will improve their learning and obtain better results.

The *objectives* of the research were to:

Q1. Identify the modalities used by students in a reflective learning process at university level;

Q2 Establish the impact of using the reflective journal and formative feedback on the students' obtained results;

Q2. Setting up a reflective model for teaching and learning which could be used in the academic educational process.

The *target group* of the research were 143 first year students at Teacher Training Department, from different specializations. The *method* of the research used was the content analyses of the students' learning journals, at the seminar activities of discipline Pedagogy I. We also analysed, in a qualitative and quantitative manner, the impact of using the proposed learning model on their results.

The stages of the implementation of the reflective learning model were the following:

1. The presentation of the discipline.
2. Setting up the learning journals by each student.
3. Reflection on the proposed steps and optimization of the seminar paper through the teacher' feedback and correlation with the proposed steps.
4. The comparative analyses between the proposed and the obtained mark at the seminar activities for the discipline Pedagogy I.

The analyse of the results is presented below:

1. The presentation of the discipline has been carried out at the first meeting and included a discussion with the students of the discipline syllabus and a short ice breaking session (we used techniques as The Little-Known Fact and the True or False technique).

2. The learning journal was completed by students at the second meeting and it was structured in four items which were the following: A. What will be the desired evaluation mark at discipline Pedagogy 1? Which steps will I follow for obtaining this result? How will I implement these steps concretely? How will I do my personal evaluation on the seminar activities? The students had to offer minimum 3 and maximum 5 answers on each item. We coded the answers in specific items for each dimension. The following

table presents the coded responses and their percentage at the level of the all research target group (Table 1) regarding the followed steps for obtaining the desired note:

Table 1. What will be the steps that I will follow for obtaining this result?

Steps to follow for obtaining the proposed results	**The percentage of students' responses**
Attendance in the seminar activities	90%
Knowledge and appliance of the conditions for the elaboration of the seminar paper	80%
Engaging in classroom activities	78%
Seriousness in seminar activities and work	75%
Timely delivery of the seminar paper	69%
Making a good presentation of the work	68%
Individual study	24%
Shaping the own learning style	17%
Self-assessment	15%
Review of the seminar paper	16%
Opinions on the approached topic	7%
Practical application of the learned knowledge	5%
Learning specific terminology	3%

As we could observe in Table 1, students related their steps to the current seminar activities, meaning their personal participation or teacher's support. The responses that sustain this affirmation had the highest percentage. Also, the rules and the assessment criteria of the teacher were very important (up to 60%). Other responses, more related to reflective learning than the initial ones, were mentioned but have obtained lower percentage (individual study, shaping the own learning style, self-assessment, etc.). These percentages (Table 1.) demonstrate that at the projection level, students were afraid to set up steps that will involve only individual commitment and reflection on the personal learning process. Also, we could conclude that learning the specific terminology of the discipline is not considered a very important step (3% of the responses).

Table 2. How will I concretely implement these steps?

Modalities for implementing the proposed steps	**The percentage of students' responses**
Correlation with the taught theoretical aspects	95%
Documentation by reading books	93%

Respecting the rules and conditions for elaborating the paper	85%
Organising my individual study	82%
Timely delivery of the seminar paper	80%
Establishment of concrete ways for achieving the proposed objectives	76%
Understanding the concepts used in the paper	74%
Structuring the information gathered from documentation sources	66%
Getting involved in class activities	64%
Reading the course support	63%
Persevering in accomplishing the task	45%
Systematic learning	43%
Continuous improvement of the seminar tasks	39%
Relating the work to the already acquired knowledge	38%
Analysing the group's feedback	37%
Sustaining my personal approach	27%
Using new technologies	14%
Using my competencies at maximum level	13%
Taking part in other activities which could support my work	9%
Identifying some logical connectors	7%
Self-evaluation tests	4%

Following Table 2 we observe the highest percentage of the responses show the correlation with the taught theoretical aspects (95% of responses). At the previous item students declared that learning the specific terminology meant only for 3% of them a specific step to reach the results but insisted on the correlation with the theory that was taught by their teacher at the course activities. This fact appeared because students didn't think at first that the learning process supposed also making correlations, arguing, applying and not only memorising the scientific knowledge (we observed that when we analyse the concept of learning process, a subtheme of our course). A high percentage (82%) was obtained by organising the individual study and this answer is reinforced by other responses with high percentage related to this issue: the specificity of elaborating a seminar paper (documentation in books – 93%, respecting the rules and conditions for elaborating the seminar paper – 85%, timely delivery of the seminar paper – 80%).

Also, answers were related to characteristics of the learning process which support reflective learning, but with a percentage lower than 50%: persevering in accomplishing the task (45%), continuous improvement of the seminar tasks (39%), relating the work to the already acquired knowledge (38%), arguing my personal approach (27%), using my competencies at maximum level (13%). The students also mentioned other important aspects of reflective learning, such as: analysing group' feedback (37%), sustaining

my personal approach (27%), taking part in other activities which could support my work (9%), identifying some logical connectors (7%).

Table 3. How will I do my personal evaluation on the seminar activities?

Self-evaluation modalities	**The percentage of students' responses**
Teachers' feedback	98%
Self-evaluation tests	95%
Relating the seminar paper to the teachers' evaluation criteria	91%
The comparison between the proposed and the obtained mark	90%
Colleagues' evaluation	56%
Comparison to the other colleagues' responses	46%
Continuing the optimization of the seminar paper	29%
Using the learned knowledge in concrete actions	27%
The ability to sustain an opinion using pedagogical ideas	14%
Other ways	4%
I don't know	3%

The first four mentioned modalities for self-evaluation were the classic ones and were obtained up to 90% of percentage. The other mentioned modalities were considered in the specific literature as ways to assure reflective feedback: other persons' evaluation (colleagues – 56%), continuing optimization (29%), appliance of the learned knowledge in practice (27%), constructing arguments using the learned pedagogical knowledge (14%). Only 3% of students responded that they don't know.

3. In the middle of the semester each student reanalysed the proposed steps and the ways of their implementation. The teacher requested them to approximate the percentage of their achievement of what has been proposed and to reflect on how they could obtain the proposed result concretely. Each student did this action and has improved their paper. The teacher also used formative assessment, giving feedback on each student's paper. Students had the possibility to improve the paper based on teacher's feedback and reflection on how they attend the proposed steps and modalities for implementing it and self-evaluating their work.

4. The following table (Table 4) presents a correlation between the desired results, the partial and the final evaluation mark for each group of students (specialization):

Table 4. Correlation between desired, partial and final students' marks

Specialization	**Desired mark** (mean) DM	**Partial evaluation** (mean) PE	**Final evaluation** (mean) FE	Correlation DM/FE	Correlation PE/FE	T test DM/FE	T test PE/FE
Arts	8.02	8.03	9.02	r=0.50, p=0.02	r=0.86, p<0.001	t(19)=3.10, p<0.01	t(19)=6.58, p<0.01
Chemistry/Biology	9.20	7.83	8.60	r=-0.31, p=0.60	r=0.89, p=0.01	t(4)=0.86, p=0.43	t(5)=3.95, p=0.011
Law	8.93	8.28	9.18	r=0.24, p=0.56	r=0.59, p=0.15	t(7)=0.83, p=0.43	t(6)=2.56, p=0.04
Sport	9.02	7.86	9.09	r=0.32, p=0.03	r=0.88, p<0.001	t(41)=0.41, p=0.68	t(41)=13.79, p<0.001
Physics	9.00	7.58	8.33	r=0.10, p=0.83	r=0.94, p=0.004	t(5)=0.89, p=0.41	t(5)=3.50, p=0.01
Maths/Informatics	9.54	7.90	9.18	r=-0.21, p=0.53	r=0.65, p=0.03	t(10)=1.00, p=0.34	t(10)=4.98, p=0.001
History	9.34	8.73	9.61	r=0.13, p=0.67	r=0.84 p<0.001	t(12)=1.07, p=0.30	t(12)=6.88, p<0.001
Music	9.42	7.59	9.23	r=0,72, p=0.75	r=0.72, p<0.001	t(20)=0.55, p=0.58	t(20)=10.11, p<0.001

When we look at the results of students from the Faculty of Arts we can see that there was a significant difference in the means between the desired mark (M=8.02, SD=1.60) and the final mark (M=9.02, SD=1.21); t(19)=3.10, p=0.006. There was a positive moderate relationship between those two variables (r=0.50, p=0.02). Students obtain a M=8.03 on partial evaluation which is similar with the mark that the students desired but it is lower than the final evaluation (M=9.02). There was a strong positive correlation between the partial evaluation mark and the final evaluation mark (r=0.86, p<0.001) and the considered difference was statistically significant t(19)=6.58, p<0.001.

Students from Faculty of Chemistry and Biology had a mean of M=9.20 when they proposed a target mark. At the partial evaluation they

obtained M=7.83 and for the final evaluation the mean mark was M=8.60. We chose to compare initial target mark with the final mark and we observed that, in terms of statistical significance, they are quite similar t(4)=0.86, p>0.05. When we compared M=7.83 (SD=0.68), partial evaluation, with M=8.60 (SD=1.03), final evaluation, we had a statistically significant difference, t(5)=3.95, p=0.01. Also, we found that there is a strong positive correlation between those two variables, the partial evaluation and the final evaluation, r=0.89, p=0.01.

Students from Law had proposed high marks (M=8.93, SD=0.41) and they obtained them on the partial evaluation (M=8.28, SD=0.95). The difference between those two wasn't statistically significant, t(7)=0.83, p>0.05. When we looked at the comparison between the partial evaluation and the final evaluation we discovered a bigger difference. It was a statistically significant difference, t(6)=2.56, p=0.04. On the final evaluation Law students had obtained higher marks (M=9.18, SD=0.84) than on the partial evaluation and even greater than those proposed initially.

Another comparison we made is between the desired mark, the partial evaluation and the final evaluation of Sports' students. Between the initial mark and the final evaluation mark we found a medium but significant correlation (r=0.32, p=0.03). When we considered the differences, we found that the students obtained at the final evaluation a similar mark with that they expected as an desired mark, t(41)=0.41, p=0.68. Also, the mark they obtained at the partial evaluation (M=7.86, SD=1.21) was significantly lower than the mark obtained at the final evaluation (M=9.09, SD=1.10), t(41)=13.79, p<0.001.

Physics students proposed, initially, a high mark, M=9.00 (SD=1.22) which wasn't correlated with the mark obtained at the partial evaluation (r=0.10, p=0.83). The partial evaluation (M=7.58, SD=1.65) was positively correlated with the final evaluation (M=8.33, SD=1.50), r=0.94, p<0.005. We also found that the differences between the partial and the final evaluation were statistically significant, t(5)=3.5, p=0,01

Informatics students obtained M=7.90 (SD=1.01) on the partial evaluation and on the final evaluation M=9.18 (SD=0.98). Those two evaluations were positively correlated (r=0.65, p=0.03) and the differences were also statistically significant, t(10)=4.98, p=0.001.

Students from History had a mean of 9.34 (SD=0.71) on the initial evaluation, M=8.73 (SD=0.85) on the partial evaluation and M=9.61 (SD=0.65). Analysing the differences between initial and partial evaluations we observed that the differences aren't significant, t(12)=1.07, p=0.30. When we compared the partial and final evaluations we discovered that the differences are statistically significant, t(12)=6.88, p<0.001 and also that

those two evaluations were strongly and positively correlated, $r=0.84$, $p<0.001$.

When we compared evaluations of students from the Music specialization we observed that there was a statistically significant difference between the partial evaluation ($M=7.59$, $SD=1.00$) and the final evaluation ($M=9.23$, $SD=0.99$), $t(20=10.11$, $p<0.001$. These results suggest that the students improved their mark from the partial to the final evaluation.

3. Conclusions

Analysing the investigative approach that we previously presented, we could synthesize that students are open to reflect on their learning process and to optimize their work but supported by the teacher's guidance and by objective evaluation conditions.

Reflecting on the steps which students projected to do for achieving the desired mark, we observe the dominance of the teacher's conditions and their implication in their future learning activity. The possible cause can be the fact that students were first year students and didn't have a well-defined academic learning style or, if they had it, they were not confident in its efficiency. In this respect, the mentioned modalities to achieve the desired mark were mostly the traditional well-known ones: documentation, organization of the individual study, participation in face to face activities, knowing and respecting the teacher's required evaluation conditions, correlation with the theoretical aspects of the discipline.

Even in lower percentages, students mentioned modalities that sustain their reflection on the learning process and its optimization: correlation with their background, arguing their personal approach, using their competencies at maximum level, analysing the group's feedback, taking part in other activities which could support their work, identifying some logical connectors or persevering in attending the task.

At the level of self-evaluation, the link between the teacher's feedback, the assessment criteria and the self-evaluation tests also stand out, comparing the desired mark with the final mark. Students used also reflective modalities for self-evaluation, which involved other students' feedback or their capacity to apply or to argue their work, but in a lower percentage.

Supported by the reflective journal and the formative teacher's feedback, the obtained final marks' means were higher than the partial ones for four specializations (Arts, Low, Sport). For other four specializations (Chemistry/Biology, Physics, Math/Informatics, Music) the obtained mean was lower than the desired one, but statistically not significant. It was a positive correlation between the partial evaluation mark and the final evaluation mark and the considered difference was statistically significant,

that sustained our initial hypothesis: using reflective learning and teaching modalities, students will improve their learning and obtain better results.

In this respect, we observe the importance of reflection in the educational process at university level. Building on the traditional modalities teachers must guide students to reflect and reconsider their learning process and progress through other reflective modalities and instruments. Teachers and students at university level must be aware of the difference between routine action and reflective action (Zeichner & Liston, 1987):

- ✓ Routine action is guided primarily by tradition, external authority and circumstance.
- ✓ Reflective action involves an active, persistent and careful analysis of any belief or approach to other forms of knowledge than those practiced.

It is important that both education actors assume that the mechanistic approach can affect the system of values. Often, we react to educational situations in a non-reflexive way and our actions often contradict it. Reflecting systematically and continuously, teachers and students could add to the academic teaching and learning processes the value of being updated and qualitative in the same time.

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