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## REFLECTIVE JOURNAL WRITING AS A METACOGNITIVE TOOL

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### **Abstract:**

*Metacognition, the ability to think about your own thinking process, becomes an essential ability for teaching in nowadays schools, where pupils no longer need just information (seen today as perishable goods), but need to be taught how to use the information they get. As students need a more personal approach, a specific feedback according to their own personality traits, both teachers and students are moving towards more formative assessment, new strategies of achieving this are required, one of these being the reflective journal. We aimed to teach subject matter specific information along with metacognitive methods and techniques, as a basis for the cognitive development of freshmen in educational sciences, as they will be the teachers that will face the future generations that may be very different from today's pupils. We chose the reflective journal as the metacognitive technique to be discussed in this article. In a reflective diary, students record their thoughts on their awareness involved in cognitive labour, comment on their learning decisions explore the ways of using learning strategies consciously and of adapting the learning process to the concrete situations. Such a learning journal can offer the stimulus for the student to start thinking about his cognitive processes. We analysed students' learning diaries in order to identify the extent to which metacognitive training can improve learning and to gain insight on the process of learning new strategies for academic study.*

**Key words:** *metacognition, reflective journal, formative assessment, academic performance*

### **1. INTRODUCTION**

Teaching and learning have been evolving along with the changes in our society. Not the gathering of information is important nowadays, but the way one can use the information in order to progress. For this purpose, strategies of taking control over one's knowledge have been developed, many starting from Flavel's metacognitive theory. Recalibration of educational objectives has been also called for by modern teaching theories [15, 2], the accent being set on students' engagement in the learning process.

At the same time, simple grades are not enough anymore for assessing students'

performance; they need a more personal approach, a specific feedback. As teachers and students are moving towards more formative assessment, new strategies of achieving this are required, one of these being the reflective journal. Although the usefulness of learning diaries was recognized as early as the 80's [14,18,19], in Romanian schools this method is rarely used (or at least there are no reports on such activities). This is why we wanted to include the learning diary in our teaching methodology in order to raise students' metacognitive awareness as means to improve learning performance.

## 2. THEORETICAL FRAMEWORK

Learning strategies are seen as part of the cognitive skills necessary for the practice of various tasks leading to fluent performance, that is to automaticity when performing a skill. For cognitive psychology, learning is a shift from controlled to automatic processing [12], meaning that conscious attention to the task is necessary before the automatic stage is reached. The more consciousness allotted in the first stage, including metacognitive monitoring, the more profound the learning is. Metacognition here can be seen as a process that enables the learners to make their mental representation become explicit in order to analyse knowledge effectively [12].

Metacognition, defined by the *Great dictionary of psychology* as "all the activities in which the subject gets to know its own knowledge tools or manages their functioning" [1], has been introduced by John Flavell in 1976 to define awareness of thought process, as well as the ability to monitor this process. Metacognition represents what people know about cognition in general and about their own cognitive processes, in particular, as well as how they use this knowledge to adjust their information processes and behaviour.

Metacognition may be „the missing link in school learning” [11], the thing that differentiates individuals with similar innate potential as concerning their performance. Thinking about what we think, how we think when we face a certain task or situation and why we think in a certain way are levels of metacognitive awareness; metacognition also covers the ability to monitor these processes. Papaleontiou-Louca [13] underlines the fact that metacognition, on one hand, and learning and development, on the other hand, are not equal, metacognition meaning the process of regulating learning and development.

Metacognition takes the form of metacognitive experiences, knowledge, objectives or goals and activities or strategies. Flavell [apud 5] presents metacognitive experience as the conscious feelings that we have about our own cognition during an activity, feelings like we do not understand something or that we are completely cognitively engaged in that

activity. They may appear before, during and after the actual activity. Metacognitive knowledge and beliefs can be divided into those related to the person, task and strategy categories [apud 5,13] The person category covers everything a person thinks about nature and people around seen as cognitive agents, as individuals who think and learn. It also covers awareness of one's own abilities. The task category contains all the information on what the individual has done, the problem solving management and the degree of probability of success in completing the task. The strategy variable refers to the identification of objectives and sub-objectives and selecting the cognitive processes and strategies likely to be effective in achieving these goals. The third category, the objectives, covers the desired results of a cognitive enterprise. The last category of factors is represented by the strategies used to monitor the cognitive progress and they are used by learners to achieve both cognitive and metacognitive goals.

The research raised by Flavell's model of metacognition revealed the existence of two dimensions of metacognition: knowledge of cognition and regulation of cognition [apud 7]. Knowledge of cognition is composed of three factors: declarative knowledge ("knowing that"), procedural knowledge ("knowing how", including the learning strategies), and conditional knowledge (knowing where, when and why a person uses a certain strategy). Regulation of cognition includes: planning (which involves selecting appropriate strategies and allocation of resources necessary to perform the task), monitoring (aimed at awareness about the level of understanding and degree of solving the task during its performance), testing (implementation of strategies), review and evaluation of strategies (including the evaluation of the methods used, of the objectives and of the results) [17].

Research has revealed that academic achievements is associated with higher levels of metacognitive awareness and that metacognitively aware learners use more efficiently specific learning strategies, and attain higher performances [8,4]. Also, the



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level of performance and degree of effective strategy use are stronger related to metacognitive abilities than to differences in intellectual abilities [17].

Metacognition can be taught, that is metacognitive strategies can be clearly defined and presented to students and by teaching students metacognitive methods we empower them, we make them overtake their own learning process. Some may already use such strategies, intuitively, but even they benefit from metacognitive trainings through consciously planning and monitoring the learning process. Among the metacognitive strategies that can be used in academic learning we mention: questioning the thought process generating questions [13], walking among images [3,7], semantic maps [3,7], reflective journals [6,13].

Reflective journals can be used to monitor both metacognitive dimensions (knowledge of cognition and regulation of cognition), as the writer has to reflect on his own strengths or weaknesses during performing an activity, but also on other aspects related to self-management or resource management, such as time-management (the ability to develop efficient learning schedules and adhere to them), the management of efficient learning environments depending one's own characteristics (e.g., right place, lighting, temperature, management of distractors), peer learning, help seeking when needed, etc. [3,8,10,16]. The reflective journal is a technique that combines metacognitive processing with learning. It can provide students with descriptive feedback on a regular basis so that they will gain greater confidence and experience greater success in class [9,10]. Besides fostering cognitive learning strategies, writing learning journals

is further intended to elicit metacognitive learning strategies [8].

In a reflective diary students record their thoughts on the level of awareness involved in their cognitive labour and comment on their learning decisions [13,6]. Through a reflective journal one can explore the ways of using learning strategies consciously and of adapting the learning process to the concrete situations. Such a log can offer the stimulus for the student to start thinking about his cognitive processes. The student writes down his learning experience, focusing on the success or failure of using a certain technique or on the important data achieved, the feelings developed, the attitudes created during the learning process. Students can improve future learning by filling in a learning journal, by discovering less successful strategies or by starting to think about aspects not identified before (like setting objectives, describing feeling arisen during learning, extrapolation of data, etc.).

Providing descriptive feedback to students was proved to be helpful in motivating them to continue writing in their journals, as well as in seeing the correlation between writing about their thinking and academic success [Bain apud 9]. Writing and thinking offers students the opportunity to make new connections and start making meaning of what they are learning and understanding the importance of why they are learning it [9].

Reflective journals have the potential to make major contributions to learning as students are encouraged to express and reflect upon their feelings, beliefs, knowledge and skills and teachers receive information about their students' thinking and their instructional techniques, which consequently could improve teaching [9]. As a result,

instruction becomes more personalized, which is one of nowadays educational system's demands. Previous research [9] has also proven the utility of learning logs, in terms of improving students' achievement but also motivation.

### **3. STUDY DESIGN AND METHODOLOGY**

#### **3.1. Study design**

We recorded students' journal entries for the five compulsory questions, then we performed a frequency analysis on the data obtained. We also recorded students' grades (ranging from 1- the lowest to 10 – the highest) at the Developmental Psychology subject matter, as they kept the logs during classes allotted for this subject.

We aimed to assess the impact of journal writing on learning performance. Our hypothesis was that using reflective journals will increase students' metacognitive awareness and it will improve their academic results for the subject matter where they used the journals.

#### **3.2. Sample**

The participants of this research study included students from the Faculty of Psychology and Educational Sciences, in the first year of study, who were studying Developmental Psychology. The division into the experimental group and the control group was done according to their major: students majoring in special psycho-pedagogy and pedagogy were allotted to the experimental group (consisting of 55 students, 21.3 average age) and students majoring in teaching at preschool and primary school level were allotted to the control group (the first group of the year, of 35 students, 21.6 average age). Both groups were formed by girls only. Selection was completed in this manner to avoid any bias: all students had Developmental Psychology in their compulsory curriculum and they were taught by the same teachers, using the same teaching methodology.

#### **3.3. Data Collection and Analysis**

Students in the experimental group were asked to record their reflections on their learning content and process. They were asked

to answer the following questions, but they were instructed to add any other thoughts they had about their learning:

1. Which were my goals for this class?
2. What did I learn/understand or did not learn/understand?
3. How will I use what I learned today?
4. What do I have to learn connected with today's topic? And how will I do that?
5. How would you grade your activity today? (On a range from 1 – the lowest to 10 – the highest).

Students were given instructions on how to keep a learning journal, they were given examples and the teacher modelled writing the journal on the first assignment because research showed that students do not sufficiently engage in cognitive and metacognitive strategy use in writing their learning journals if there is no instructional support [16].

They were encouraged to write their own thoughts, reassuring them that there is no correct or wrong way of keeping a diary and that their answers are important for their own learning process. The focus was on the metacognitive strategies used by each student, as the cognitive strategies were explicitly chosen by the teacher (the same teaching method was used with all students, including those in the control group). However, students in the experimental group were asked how they would keep on learning for that topic, so they had to think about other possible teaching methods or about (metacognitive) strategies they could use for further learning at home.

They were asked to fill in the learning journal during the last minutes of each class, over one semester. Group feedback was given at the beginning of next class, without personal nomination. Completing learning journals provided students with the opportunity to reflect on their own cognitive processes involved in studying developmental psychology.

### **4. FINDINGS**

The purpose of this research study was to determine if student achievement could be improved by using reflective journals as a metacognitive technique. All the students involved are freshmen, as we thought they



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would benefit the most of a metacognitive training.

The control group's average grade was 8.09 whereas the experimental group's average point was 8.48. Although there is no statistically significant difference, we consider that this difference makes a point in terms of actual results obtained by the students. The experimental group proved to be more effective. This may be due to the students' personal characteristics or effort, too, but entries in the journals make us believe that writing a log may have had an influence on their grades.

The analysis of the journal entries was done separately for each question and for each participant. We took into account five journal entries for each participant, written at a 2 or 3-week distance so that the differences would be more obvious.

The first question concerned setting objectives for that class. At the beginning of the semester, in the first journal entries, most of the students had general expectations, such as "being active in class" (T.I., 21), "learning new things" (P.I., 21). But probably being a freshman implies all these. The answers evolved towards statements like: "be more involved in team work" (B.C., 22), "pay more attention to the topic" (A.I., 21), "do my part of team work the best I can" (B.A., 24). In the last class, the objectives concerned more detailed involvement ("give personal opinion" (B.C., 22), "share knowledge" (S.A.M., 21), "conscious attendance" (U.A., 21), "awareness in class" (T.I., 21), all these showing more phases of metacognitive awareness than in the beginning of the semester.

The next questions were aimed at monitoring the cognitive processes involved in learning during the lesson. Students seems to have been mastering this metacognitive

dimension, as most of them could explain very well what they have learned or what was not very clear about the topic discussed (87% at the beginning of the semester), still this number reached 93% at the end of the semester, as proof of the influence of metacognitive strategies. Students (about 95% both in the beginning and in the end of the semester) had very clear in mind that they will use all new knowledge in their career or as a parent, in future, thus showing use of metacognitive planning in an untrained way.

Students wrote that they usually had to study further to master each week's topic, but in the beginning their answers were diffuse, without any method being clearly named of described. As writing in the journal progressed, they mentioned the repetition of the method used in class, but in the last entries more than half of the students described the method they would use at home. The methods and techniques were from among those used in class, on different occasions, but students were able to identify those more suitable for the topic and for their learning style, thus showing strong metacognitive abilities and highlighting the success of our endeavour, as previous research showed that combining metacognitive strategies is one of the most important metacognitive abilities.

The last question required the students to assess themselves and give themselves grades for their activity during each class. After the first session, most of them evaluated their activity with 8 (the range being from 1- the lowest to 10 – the best mark). The grades increased gradually, up to 9 or 10 in the last class, thus showing students' greater self-confidence and feeling-of-knowing.

## 5. CONCLUSIONS

Metacognition seen as the ability to reflect on what you do or do not do as a learner can

bring about changes in the way of learning. Students may develop self-regulatory learning skills in an unconscious way, but specific training of the metacognitive abilities is the one that provides academic success. One of the strategies of raising metacognitive awareness is using a reflective journal, as shown in the present study. But this is just one of the techniques that can be used for this purpose. Also, metacognitive strategies should be practised on a regular basis and, as Olson and Johnson (Olson & Johnson, 2012) highlight, writing journals should become a weekly routine in order to meet its purpose, along with a descriptive feedback offered each time by the teacher.

Among the limits of this study, we include the limited representativeness of the sample (students from one faculty and only girls), which may be overcome in future studies, expanding this research to more groups of students, from different faculties.

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