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**THE PSYCHO-PEDAGOGICAL DIMENSION OF
STUDENTS’NOTE-TAKING TECHNIQUES**

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Abstract

In the current democratic society that is dominated by profound transformations in all fields, when physical and intellectual activity is transferred to flexible and intelligent information technologies, students are undertaking an intense learning and creative activity. In the near future, learning and studying in general will be less reliant on mechanical memorization or acquisition of large amounts of knowledge. Students should be concerned about developing their thinking and creativity and focusing on *learning how to learn* efficiently, creatively, intelligently, not inefficiently and by rote. Students also need to be aware that emphasis should not be on memorizing knowledge but on acquiring methods and techniques of learning and on the intellectual activity, on identifying, retrieving and using information, analysing, synthesizing and processing it, and, last but not least, on the learning of methods and techniques for the development of creativity. This study presents the issue of taking notes in the learning process and outlines the stages of efficient note-taking. We were concerned with describing in detail the different ways in which students take their notes and, in order to identify individual studying patterns, we undertook a research action. For this purpose, the following were used: observation, conversation, interview, questionnaire, analysis of students' activity (notebooks, written works, etc.). The information obtained has been continuously verified and compared to the rest of the data, so that we may provide an objective and factual view of the situation.

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1. Introduction

According to Bower and Hilgard (1981), learning is a process of acquisition based on experience, meaning a process through which certain activities or behaviours are established or modified in relation to the variable or repetitive environment conditions.

In-school learning is a process of mental acquisition, active and interactive assimilation of information, formation of intellectual operations, of cognitive strategies, of intellectual and practical abilities and skills, of attitudes (Bocoş & Jucan, 2017).

Taking notes, especially for students, is an important and indispensable step in the learning process, which begins with (Bocoş & Jucan, 2017): the perceiving / receiving of the material, understood as the induction of a state of attention, of mental activation. Against this backdrop, an active perception of the concrete data takes place, followed by analysis, essentialization, synthesis and generalization, relationships and relevant observations are established, comprehension takes place, which will lead to the condensation of the information into notions, laws, principles – namely, the first steps in understanding are taken. This condensed information will be recorded as notes. Following this, in the learning process we reach the stage of memorizing, the recorded information is finally used, the knowledge is updated through repetition and through mental operations, through transfer in similar circumstances and then in a new context. The listed stages, how they are articulated, receive various connotations in the structure of the student learning process, depending on the individual awareness of their own cognitive strategies.

2. Problem Statement

2.1. Defining the process of note-taking

We define note-taking as a laborious activity that involves motor skills and intellectual skills. Taking notes implies: comprehension, mental systematization of the information heard or read and, at the same time, its intelligible, meaningful recording (Jucan, 2009).

To be effective, the notes taken by students should pay attention to the following aspects, at a minimum: (Bernat, 2003):

- Identifying the important aspects, the ones with a maximum of relevance;
- Identifying the main themes and ideas, their arguments and demonstrations;
- Creating an inventory of illustrative examples concerning the essential themes;
- Formalising the conclusions of the teacher, essentially proving the comprehension and systematization of the information.

Differentiating between the essential and non-essential, between the pro and con arguments as they relate to the main themes, drawing conclusions, etc. are not operations that can be easily done from the very beginning, spontaneously. Therefore, note-taking in the case of students requires a systematic exercise, allowing them to acquire relevant experience and thus become an intellectual activity skill.

2.2. Characteristics of the note-taking process

Note-taking implies the formation and development of certain competencies in students (Jucan, 2009) which would target the synthesizing of information, the system of text compression, of replacing one or more of the teacher's phrases through a key term or phrase that is meaningful and all-encompassing.

This system requires an active, selective attitude, distributive attention, an eye for details, the capacity to structure and restructure the information quickly, to evaluate, generalize, synthesize, summarize (Dumitru, 2000). In note-taking, the subject expressed in a sentence can be implied in the following ones; the predicate that is common to several sentences can be left out; the secondary parts of sentence – clauses and modifiers – can be eliminated as well if the general meaning of the sentence isn't affected by this action.

To facilitate the process of decoding the notes and any subsequent additions, the students will make use of different markings (Phye, 1997), meaning they will differentiate between chapters and subchapters through titles, underlining, leaving some empty space on the edge of the page or between the lines, etc. Immediately after the class or laboratory it is recommended that the students go over their notes and fill in any blank spaces, interrupted phrases, verify certain unclear dates or names, correct any grammar mistakes, and underline in black or coloured pencils the main ideas and facts; based on the bibliography consulted by the student, additional comments or observations can be written in the space left for this purpose on the edge of the page.

For didactic reasons, it is recommended that note-taking be done during the teacher's lecture, thus eliminating repetitions and the recording of non-essential aspects. The completion of the notes is done immediately after writing them down, in order to systematize the information, to facilitate memorization and the integration of the new information into previous cognitive structures.

In the case of notes taken during the reading of a material, in order to facilitate the note-taking process, during the pre-reading, the relevant paragraphs and issues can be underlined, if the material belongs to us, or jotted down on a separate page, to be later extracted from the text. When re-reading the text, only the ideas that are still considered essential after this critical reading will be written down. We suggest that the notes be an accurate and complete summary of the text read; as such, they should be rigorously constructed and then carefully verified. In order to highlight the essential data and the logical connections, figures, diagrams, models, or tables can be made, in which concision and essentialization are maximized. Abbreviation of words is also used, in the case of words that are well-known and encountered often, thus saving both space and time. We suggest that abbreviations not be too numerous and thus later indecipherable; they should aid in the later reading of the notes.

2.3. Stages in students' efficient note-taking

The systematic observations during the courses and seminars have shown that many students consider note-taking to be a relatively simple operation, but few of them actually master the objectively correct technique for note-taking.

Understanding note-taking as a process, we will attempt to identify the various stages of this process (Bernat, 2003). In case the notes are taken during the teacher's lecture, the first stage would be that of **active listening**. If the students are taking notes while they're reading a material or a book, then the first stage would be that of **prereading (skimming or scanning)**. Then, in both cases, comes the **processing or understanding** of the information read or heard by the students. The next stage consists of the **mental selection, organization, and systematization** of the information, at the same time as **recording** it, and, finally, **reviewing** the notes. We note that all of these stages, with the exception of the revision, are basically taking place simultaneously and in a very short timeframe.

Active listening means adopting an appropriate mental attitude, while maintaining the students' attention so that they are able to think logically and obtain a complete understanding. Critical listening implies that the student has to doubt the validity of the facts described and, partially, the assumptions and arguments that the teacher uses (so that the teacher doesn't just end up imparting his own beliefs and opinions to the student), and that he carefully considers the value of the arguments and the logic and condensed structure of the message. Furthermore, actively listening means paying attention while listening, and attention can fluctuate and be selective. Generally, the attention curve for most students starts fairly high, decreases if the message continues, and peaks again towards the end. This tendency in students must be countered through a deliberate effort in the middle of the message so that their attention remains engaged throughout the entire message. While actively listening, the identification of the essential ideas is easily done. The teaching staff, during their lectures, emphasize these main points through repetition, changing their tone of voice, highlighting certain key terms, phrases, ideas, conclusions, etc.

Prereading or the **skimming** of the text represents a type of pre-training in note-taking for students. This training, however, is most often either forgotten or avoided, generally due to the desire to save time.

Scanning a text means examining the manner in which the text is organized and identifying the location of certain information. In the scanning of a text, the title, contents, subtitles, index are all quickly identified.

The title offers a first idea on the contents of the book, then the scanning of the contents follows, then subtitles, and finally the index. Identifying key terms implies searching for relevant words in a fragment of the text. Usually, the key terms can be found in the first paragraphs of a new chapter. Skimming involves reading the main parts of a material and is extremely useful when the material is stuffy. Through diagonal reading, the students can familiarize themselves with the most important ideas of the author, as well as the themes presented. Skimming is achieved by reading the beginning and ending of a material, together with isolated fragments from it.

Prereading or skimming represents a foundation that facilitates note-taking in the case of students due to the fact that it helps in identifying the main ideas of the text.

Processing or the **understanding** of information means the in-depth processing of the information by the students, with the goal to reorganize it into a new product: notes, summaries, outlines, etc. This new external representation of the studied material reflects the level of understanding and refining reached by the learner and can represent a source of feedback for them. The visual design of the information influences the speed with which it is processed, but also the depth of it, through facilitating the identification of key terms, main ideas, necessary correlations. During the mental processing, the **selection, organization, and systematization** of the information happens at the same time as the **recording** of the notes.

It is recommended that the **review** of the notes be done during the final moments of the teacher's lecture and not the second or following days.

Not respecting these stages leads to 'spontaneous' note-taking by students (Slotte & Lonka, 1999), which will have dire consequences upon the later comprehension of the text. The two authors have concluded an experiment with 2 groups: one experimental and a control one. The subjects were given a 10-page text which they had to learn within a certain amount of time. The subjects in the experimental group were allowed to take notes on the edges of the text, while the control group were not even allowed to

underline or highlight key words. When the time was up, all the subjects were given a test based on the material they had to learn, while they also analysed the notes that the experimental group had taken. The conclusion was that the notes had been taken spontaneously: disparate words, incomplete diagrams and drawings, etc. The final conclusion was that there were no considerable differences between the results of the two groups, both of them having performed poorly.

Therefore, during the learning process, it is recommended that students employ a note-taking system that is adequate to their individual style of intellectual activity.

3. Research Questions

The question that has been of concern to us in this study is to what extent the students of the Preschool and Primary Education specialization make use of efficient learning and note-taking strategies

4. Purpose of the Study

In order to identify the manner in which the first-year students of the Preschool and Primary Education specialization take notes, we have undertaken an investigative activity, gathering data concerning note-taking and its value as a learning strategy. The items designed for data collection aimed at achieving the following research objectives:

- The importance awarded by students to the learning process;
- Estimating the importance that students place on the learning process and note-taking;
- The extent to which students have information about planning, organizing, and conducting the learning process and note-taking;
- Identifying the methods for completing the learning process and note-taking;
- Classifying the main note-taking techniques.

5. Research Methods

The following research methods were used: observation, conversation, interview, analysis of the products of the students' activity (notebooks, written papers, notes, etc). Our investigative efforts included 120 students of the Preschool and Primary Education specialization.

6. Findings

A concise commentary on the information obtained shows the disorientation and ignorance of the students concerning the theoretical and practical aspects of the learning process and note-taking. Approximately half of the students (55%) know how to seamlessly combine the notes from their classes and seminars with the information from their textbooks or other sources. Thus, a negative aspect of the learning behaviour of students is establishing the habit of exclusively using their notes. The fact that the course textbook is useful is not denied, but it is accepted either on a declarative level, or a factual one. The explanation for the students' preference to use notes, or even the exclusive desire to do so, can be found in their tendency for essentialization and systematization, qualities often encountered in teacher's lectures and sometimes, less often, in university textbooks. Almost all the interviewed students (95%) have stated that

it is necessary to draw up an outline on the blackboard during the teacher's explanations, outline which they can then copy in their notes, regardless of their preference to either use only their notes in preparing for the exam, or the coursebook, or both. The unanimous recognition of the usefulness of such an outline reveals serious deficiencies in the students' note-taking techniques, even though many students (80%) have said that they knew how to take notes properly. This could also be an issue of convenience, with students unwilling to put in the motor and intellectual effort to conceive the summary of the material studied.

Another worrying aspect is the fact that almost half of the interviewed students (55%) have confessed to not knowing how to make use of their notes and coursebook, their analysis, systematization, essentialization, etc. abilities being underdeveloped. Some of them mechanically memorize their notes, in the exact form in which they managed to write them during their courses, others memorize entire fragments from the coursebook. 'I read the coursebook out loud once, I then read it again silently, and then I recite the textbook word for word', said one student.

The poor general situation concerning the use of note-taking and of the coursebook in first-year students as fundamental means in the learning process indicates severe deficiencies when it comes to the students' familiarization with efficient note-taking strategies. We cannot even begin to discuss the use of more complex methods and processes of note-taking in the case of first-year students.

The results obtained in this investigation have determined us to provide important contributions in the theoretical and conceptual areas of the issue of note-taking and, through our future endeavours, we aim to contribute to the practical and applicative areas of the subject as well.

We note that the written recording of certain ideas, problems, models helps cement them in the students' memory through three channels connected by a relationship of complementarity: audio, visual, and kinesthetic. This ensures a higher rate of long-term retention as opposed to only using the audio or visual channels. From the observations made, we can conclude that, most often, students that take notes during the class or seminar have the tendency to write down the teacher's lecture word for word, with no omissions. We quote one such student: 'At the university, I write down everything I hear from the teachers, especially since some of them nearly dictate the entire coursebook'. Unfortunately, writing down everything is nearly impossible to do without omissions in the case of a normal lecture. In transmitting the information from the teacher to the student, the paralanguage component plays an important role, essentially, at any age. The tone of voice, the inflexions, the pauses in speech – they all have the role of underlining or highlighting the essential ideas of the speech, effectively marking the moments when the student should be taking notes.

In our observations we have also discovered that, in their rush to jot down everything, students make use of various abbreviations, frequently too numerous, unsystematic, inconsistent, and impossible to decipher later on. Furthermore, a short inspection of the notes taken by the first-year students revealed plentiful blank spaces left for words or phrases they did not manage to record and, generally, a writing that is difficult to read and re-read. If those blank spaces are not filled in on a daily basis or the notes aren't rewritten to be more legible, most frequently these notes taken in such a haphazard manner cannot be used, especially after a longer period of time has passed. Therefore, such empirical and careless intellectual activity of the students cannot lead to any desirable results. Those students that are concerned with writing down everything are only exercising their mechanical memory and neglecting their logical memory, not

developing their reasoning, creativity, analytical and critical thinking, effectively not participating in the class. Too busy with recording the entire lecture, they cannot comprehend the text or material, they cannot identify the essential ideas, the key terms, they cannot make the connections between these ideas, they cannot accomplish a real and in-depth understanding of the content. We must also note here the inaccuracies and mistakes that can occur in situations where critical, logical thinking is not involved.

Even in the case of first-year students who are not familiar with efficient intellectual activity techniques, we observed the tendency to take notes in the form of various quotes taken haphazardly and placed alongside each other. The reader is not able to detach himself from the text: sometimes everything seems important and he is tempted to transcribe everything, at other times he is not capable to identify the main ideas of the text and rewrite them using his own words. There is also the mistaken belief that using quotes means that no mistakes can occur in recording and retaining the information. Let us not forget that virtually always the presentation of the quotes is accompanied by the reader's comments, personal interpretations, the implications of his own perceptions and representations, a series of inferences, all of which bring with them a dose of subjectivism to the decoding of the text.

7. Conclusion

The fact that almost all students have claimed the necessity of knowing and using study and research strategies indicates that an up-to-date, well-organized, and modern approach is required of the teacher in order to train students with efficient learning and note-taking skills, skills which would ultimately help them with the selective acquisition of knowledge.

Another conclusion drawn is the one regarding the reasons for which students do not use efficient learning and note-taking strategies: they are not informed or are misinformed about how to properly use efficient learning and note-taking strategies. Many students are naïve from a metacognitive point of view, meaning they either do not have the information or have wrong information on when the efficiency of the strategies employed is the one desired.

There is also a category of students that have low self-esteem when it comes to their ability to learn in an academic environment. These students consider that they are not capable of learning the different strategies and generally avoid learning tasks. As long as the student gives himself negative autosuggestions concerning his ability to learn, he will not show any efficiency in learning.

What does a student have to remember about a learning strategy and especially a note-taking strategy? The fact that these are based on the elaboration, comprehension and organization of the material (Ionescu, 2003).

Elaboration consists of the use of previous knowledge in the interpretation and enrichment of the material to be retained. The purpose of elaboration is understanding, namely the relationship between the new information and the information already stored with the goal of developing active and flexible knowledge structures. Both processes involve linking past and new knowledge and both are necessary for effective learning. There are some ways to facilitate the development of elaboration and the understanding of the material when the student learns or takes notes:

- Activating knowledge by going over the material and asking questions related to how previous knowledge connects to the information presented in the material;
- Making analogies, or linking certain concept or ideas based on similarities between them.

The organization of the material, namely the way in which the information is grouped in various categories and structures, is another condition of the learning and note-taking processes. The human mind operates with structures of knowledge, which is why structuring and organizing the information that it acquired is necessary. Thus, a material that is well-organized and written will be far better retained than one that is unorganized. The coursebook is in most cases an organized material. There are certain cases, however, in which the structure of the material, even if it exists, is not transparent, either due to the difficulty of the topic, or due to a lack of alignment with the expectations of the reader. In these cases, the use of strategies for the organization of the material are required:

- Realizing outlines of the main ideas from the text;
- Realizing diagrams of the content based on the relationships between ideas. The relationships can be: cause-effect, super ordination or subordination, chronological order, narrative, etc.;
- Summarizing – an efficient technique for reviewing notes as well. This involves the critical approach to the material with the aim to select only the most relevant ideas and examples, which will then serve as a support for the revision of the remaining ideas.

Following the analysis of the data we have obtained, we also consider it useful to provide students with some valuable references for taking notes efficiently:

- Taking notes begins before listening to a speech and ends only after the notes have been reviewed, completed and corrected. Taking notes necessarily involves elements related to correcting, completing and reviewing said notes.
- Completing the notes and correcting them ensures the validity and value of the retained information. Notes can be completed or processed by comparing them to the notes of other students, but nevertheless taking into consideration the correctness of the data, the possibility of transferring it to other contexts, etc.
- Keeping notes in a system that is organized according to certain criteria familiar to the individual makes their identification and subsequent use more accessible even after longer time periods.
- It is not always necessary to note everything that is said or heard. Notes are important for memorizing and learning, but there is information that we can find in other bibliographic support. We recall in this context the crucial importance of the investigative and research capacities in the intellectual training of students as well as in their general formation.
- Trying to save paper is not recommended when taking notes. It is important that the notes have a title and are dated.
- An organized note-taking system makes it easy to access the notes. If loose pages are used, then they should be numbered and organized into files.
- You can also create a content index, possibly including even the page numbers of the different subdivisions.
- Writing instruments are also important: the fountain pen is recommended, but it slows down the writing, however, the pencil and the pen deform it.

Although taking notes by handwriting is the traditional way of recording data, contemporary forms of alternative note taking have emerged in contemporary society: the tape recorder, tablet, laptop, mobile phone, etc.

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