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Future Elementary Teachers' Knowledge and Skills in Selection of Teaching Methods

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Abstract Evolution of creative thinking of future elementary school teachers to enhance the formation of skills in order to design a learning process by selecting an appropriate teaching method has not yet been adequately evaluated. It is important to select a well designed method which might be a key to achieve the goal. The present study aimed to analyse the formation of future elementary school teachers' ability to select a teaching method in the traditional system of general didactic training in Ukraine, which has not been reported previously. Three hundred and eighty seven students were enrolled and three groups were established: group 1 (2^{nd} year), group 2 (3^{rd} year), and group 3 (5^{th} year). The questions and scales were designed and the interview as well as theorethical and practical tasks were performed accordingly.The results indicated that students in groups 1 and 2 obtained higher score in knowledge task compared to the group 3. In addition, the level of knowledge in group 3 decreased while the skill level increased. The results of our study highlight that the refreshing didactical knowledge during teaching practice courses for future elementary teachers was neglected.

Keywords: *future elementary teachers, knowledge and skills, general didactic training, teaching methods, selection and design of teaching methods*

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1. Introduction

Professional development consists of all natural learning experiences and those conscious and planned activities which are intended to be of direct or indirect benefit to the individual, group or school and which contribute through these to the quality of education in the classroom. It is the process by which, alone and with others, teachers review, renew and extend their commitment as change agents to the moral purposes of teaching; and by which they acquire and develop critically the knowledge, skills and emotional intelligence essential to good professional thinking, planning and practice with children, young people and colleagues through each phase of their teaching lives [1].

Unfortunately, there are contradictions between the requirements of the elementary school teachers and their professional qualities [2]. Hence, creative thinking and critical thinking skills are valuable and neither is superior. In fact, it has been shown that when either is omitted during the problem solving process, effectiveness declines [3].

Evolution of creative thinking of future elementary school teachers (FESTs) to enhance the formation of skills in order to design a learning process by selecting an appropriate teaching method (TM) has not yet been adequately evaluated [4,5].

In fact, one-sided approach to educational events including TM, selection and design of TM which are mainly considered to their external characteristics [6] as well as, insufficient research in this phenomenon plays an important role [7].

It is important to select a well designed method which might be a key to achieve the goal and ensure the effectiveness of the educational process as a whole [6]. Furthermore, lack of attention to learning theory and unsatisfactory results in practice are the main reasons for researchers to investigate how to develop a skill to select TM during the general didactic training (GDT) of FESTs.

The present study aimed to analyse the formation of FESTs' ability to select TM in the traditional system of GDT in Ukraine, which has not been reported previously.

2. Materials and Methods

The interview and task were carried out in the Institute of Pedagogy and Psychology of National Pedagogical Dragomanov University, Kiev, Ukraine and Pedagogical faculty of Uman State University, Uman, Ukraine.

Three hundred and eighty seven students were enrolled and then categorized into three groups:

Group 1 included 130 students of 2^{nd} year with knowledge and skills about organising the study process after acquiring didactic course.

Group 2 included 125 students of 3^{rd} year who had already acquired general didactic course and

methodological knowledge in courses of disciplines in elementary school.

Group 3 included 132 students of 5th year with didactical and methodological knowledge and skills that were integrated during technology courses and teaching practice in school.

Having in mind that the ethical considerations of confidentiality and privacy right were ensured.

In order to identify and evaluate the difficulties that students are experiencing during selection of TM, the following questions were designed:

- What difficulties you're having in selection of TM?
- What are the factors you should consider when selecting and designing a TM?
- On what issues you would like to have advice?

The interview was relevant to the study as it provided in-depth information, details and understating of the research issues and also, entire interview for each student lasted about 20 minutes.

In order to identify and evaluate the knowledge and skills of students the questions and scales were designed and the theorethical and practical tasks were carried out accordingly. The open ended questions were asked together with some practical assignments. The open-ended format provides an avenue to understand the action of students in their own words [8] as well as opportunities for their self-expression. Items of task were based on the essence of the concept of TM, criteria for their selection and sequence of actions during selecting and designing TM. All items fitted under following scales:

- Completely correct.
- Partially correct.
- Completely incorrect.

The task was performed during 120 minutes and was offered to students in two parts with following questions.

2.1. Theorethical Part of Task

- Describe the links between TM and other categories of didactic; also describe the essence of the concept of TM.
- Briefly explain why TM is a multifaceted pedagogical phenomenon.
- Specify selection criteria of TM.
- Describe structure of TM. What is the difference between the methods and techniques of teaching?

2.2. Practical Part of Task

- Select the system of TM according to the targeted objectives set on the certain educational topic. List the criteria used during selection of TM.
- Present selected TM as a multifaceted didactical and methodical phenomenon.
- Design the structure of previously selected methods.

2.3. Analysis of Data

Interview data was obtained and analyzed by using inductive thematic analysis according to Braun and Clarke ([9], p. 77-101). The task data was collected and analyzed both quantitatively and qualitatively. After collection, the quantitative data was analyzed by using descriptive statistics. Also, the qualitative data was analyzed by using thematic analysis.

3. Results and Discussion

The selection of an appropriate and effective pedagogy has been a central theme in management education for decades. There currently exists a wide range of pedagogical options designed to match course content with the most appropriate technique(s) for effective learning outcomes. There are a variety of TM that effectively conveys information and understanding to students [10].

The difficulties in the process of selecting TM are shown in Table 1.

In respect to first question we noticed considerable number of difficulties that students found during the selection of TM, specifically, lack of understanding the essence of TM category, insufficient level of theoretical preparation concerning the criteria for the selection of TM, existence of many approaches to the definition of TM, their structure and classification, and lack of attention to the TM selection, especially in the study process of group 2 and group 3.

Table 1. The Difficulties in the Process of TM Selection Among Students

Difficulties	Reasons for the difficulties
Lack of understanding in relations between TM and other components of learning theory.	Insufficient knowledge of other categories of didactic, inability to understand the basic components of the learning theory that cater to the educational process holistically and to understand the relations within them.
Incomprehension of TM as a multifaceted didactical and methodical phenomenon.	Lack of understanding the structure of TM. Lack of unified requirements for the construction of TM during all phases of the GDT. Shortage of time to apply knowledge in practice.
Inability to organize the classification of TM in the process of lesson preparation.	Incomprehension method as a multi-pedagogical phenomenon. Deficiency of knowledge and understanding of meaning of the existing classifications of TM. Lack of an unified system in classification and modelling approaches of TM in the GDT.
The difficulties to construct the system of TMs, ensuring their ratio and versatility.	Insufficient knowledge to meet all of the criteria to select TM. Lack of knowledge about the potentialities of methods and conditions for their effective use. Shortage of time in practicing skills to select and design an appropriate TM, as well as to build their systems.

In connection with second question the process of selecting and designing TM are more intuitive, especially by group 3. Despite a wide range of criteria for selecting TM which was developed by reseachers [4,11,12], most of students named only few factors, such as goal and objectives of the study process and content of appropriate school discipline, including topics of particular lesson. On the other hand, students did not pay any attention to other important criteria, such as laws and principles of education, learning capabilities of students, qualitiy of external conditions, and teacher's capability [11].

Regarding third question, students were intersted to learn more about the problem-based learning process, implementation of a differentiated approach to students

and an interactive TM and holistic approach to the selection of TM.

The Table 1 supports the students facing a number of considerable difficulties during selection of TM.

The results of theoretical task are shown in Figure 1. The data showed that 32% of group 1, 28% of group 2, and 9% of group 3 answered the theorethical part completely correct. In addition, 62% of group 1, 65% of group 2 and 76% of group 3 responded partially correct. Also, 6% of group 1, 7% of group 2 and 15% of group 3 ended the task completely incorrect.

In this report strong evidence is given to support that the vast majority of students understand the essence of didactic categories, including TM. While the theoretical knowledge of students in group 1 and 2 about TM and its dependence on other didactic categories is solid, the student's knowledge in group 3 is weaker.

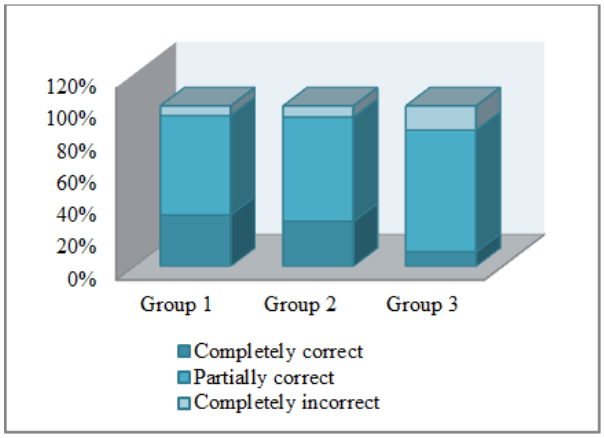

Figure 1. The result of theorethical task among students in group 1 (2nd year), group 2 (3rd year) and group 3 (5th year)

We found that three groups, especially group 3, consider each classification as a separate independent group of methods. So, this indicates a lack of understanding in the nature of TM as a multifaceted didactical phenomenon (data not shown).

The results of practical task are shown in Figure 2. We noticed that 17% of group 1, 17% of group 2 and 12% of group 3 answered the practical task completely correct. In addition, 73% of group 1, 74% of group 2 and 86% of group 3 responded partially correct. Furthermore, 10% of group 1, 9% of group 2 and 2% of group 3 ended the practical task completely incorrect.

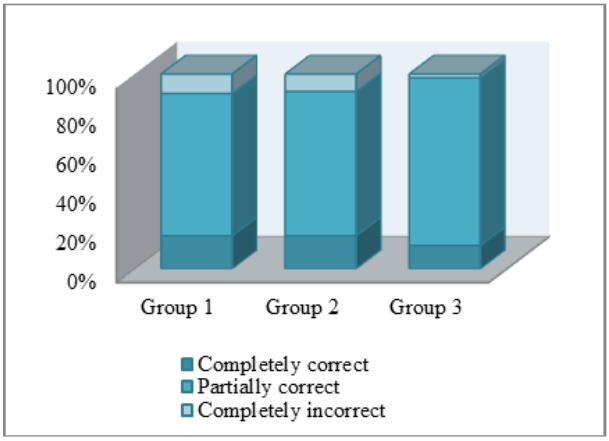

Figure 2. The result of practical task among students in group 1 (2nd year), group 2 (3rd year) and group 3 (5th year)

We noticed that the components of the method (techniques, actions, and operations) assumed by majority of students, especially in the group 3, just as a set of components, and due to insufficient knowledge and understanding of structure formation of TM, the design of selected methods was the most difficult part of practical tasks (data not shown). In current study strong evidence is given to support that due to practical experience, skills in group 3 are mostly intuitive, but not knowledge based skills.

The didactical as well as psychological, dialectical, constructive and analytical knowledge and skills are integrated in the above task. The analysis of completed task can testify not only the current level of students' knowledge and skills, but also awareness of their professional activities, mastering innovative methods and techniques of teaching, ability to apply the skills to select TM and transfer it to the new situation creatively, also the independency of students in educational activity, their capacity for introspection and character of students' motivation regarding the study's activity were performed.

It is well known that teaching is becoming one of the most challenging professions in our society where knowledge is expanding rapidly and most of it is available to students as well as teachers at the same time [13]. Thus, a TM comprises the principles and methods used for instruction to be implemented by teachers to achieve the desired learning in students. These strategies are determined partly on subject matter to be taught and partly by the nature of the learner. For a particular TM to be appropriate and efficient it has to be in relation with the characteristics of the learner and the type of learning it is supposed to bring about.

It has been suggested that the selection and design of TMs must take into account not only the nature of the subject matter but also how students learn [14].

Similar to the results of current study, the absence of practical references of an innovative character during initial teacher education results in future teachers teaching in the way that they had been taught and not being very receptive, in practice, to innovative ideas [15,16,17].

In this regard, one study emphasizes that the factors that future teachers highlight as being the most relevant in their conception of what makes a good teacher are their previous experiences as students and during practical training during initial education [18].

4. Conclusions

It could be concluded that the level of knowledge in group 3 decreased while the skill level increased. The intuitive skills in this group might be due to inadequacy of traditional GDT system. The results of our study highlight that refreshing didactical knowledge during teaching practice courses for FESTs was neglected.

Teaching methodology is an essential element in the educational curriculum because it provides the answer to a key question in teacher education: How to ensure that FESTs learn their profession? This question of How to train FESTs is a professional issue of critical importance for educators. There is no single and simple answer to this question. However, I do not share the idea that there are no methodological principles that guide training practices

that all which is required to educate teachers is that they have command of the knowledge they will impart. To allow other to construct knowledge that is more valid than they possess at the beginning of the education process cannot be done in just any manner: not all options are equally valid [19].

To date in Ukraine there has been a lack of a comprehensive national evaluation programme focusing both on the quality of course offerings and their impacts and effects on practice. This lack of commitment to evaluation is not particular to Ukraine. In this regard, in many countries it seems that the outcomes are not evaluated in a rigorous manner. What evaluation is carried out is often limited and poorly disseminated so that models of best practice are not readily available to policy makers or to practitioners [20].

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