

6. Федчишин О. М. Дидактичні можливості використання компетентісно-орієнтованих завдань на уроках фізики. *Abstracts of II International Scientific and Practical Conference Osaka, Japan 30-31 October 2019*. 593 p. P. 297-303.
7. Яцишина М. М., Федчишин О. М. Використання штучного інтелекту для індивідуалізованого навчання з фізики. *Збірник тез матеріалів XI Міжнародної науково-практичної інтернет-конференції. Сучасні цифрові технології та інноваційні методики навчання: досвід, тенденції, перспективи*. м. Тернопіль, 6 квітня 2023. С. 94-96.

PLANNING OF THE PEDAGOGICAL EXPERIMENT DURING THE PERFORMANCE OF THE DISSERTATION RESEARCH

Wen Xiaojing

PhD student of the Department of Physics and Methods of its Teaching, Ternopil Volodymyr Hnatiuk National Pedagogical University, Ukraine

Scientific researcher, School of Physics and Electronic Engineering, Hanshan Normal University, Chaozhou, People's Republic of China

Wen32Xiaojing@gmail.com

The effectiveness of any new theoretical developments in pedagogy must be confirmed in the process of conducting a pedagogical experiment. Therefore, the correct planning of a pedagogical experiment is an important factor in the work of a teacher as a researcher.

In order to properly plan the conduct of the pedagogical experiment, we analyzed the main characteristics identified in the methodological literature [1].

There are three levels of conducting a pedagogical experiment: all-Ukrainian, regional, and the level of a higher educational institution. A pedagogical experiment at the level of a separate higher educational institution involves testing innovations developed by employees or graduate students of this educational institution.

Depending on the logical structure of proving or rejecting research hypotheses, parallel and sequential pedagogical experiments are distinguished. In a parallel experiment, experimental and control groups are created. Training in the experimental group takes place with the introduction of an independent variable. Training in the control group takes place without introducing an independent variable. In a sequential experiment, the state of one group is studied before and after the introduction of an independent variable.

According to the conditions of conducting, natural, model and laboratory pedagogical experiments are distinguished. The natural pedagogical experiment is conducted under conditions familiar to all participants. In a model pedagogical experiment, it is necessary to isolate independent variables from side effects. A laboratory pedagogical experiment is conducted for a separate group of participants in specially created conditions, which made it possible to isolate independent variables from other influences.

According to the level of awareness of students, an open or closed pedagogical experiment is distinguished. In the case of conducting an open experiment, students familiarize themselves with the task and content of the research. Conducting a closed experiment does not involve informing its participants.

According to the direction, absolute and comparative pedagogical experiments are distinguished. The absolute experiment performs the role of a diagnostic study, which does not involve the study of the dynamics of development. Conducting a comparative experiment involves studying the influence of an independent variable on the educational process and analyzing the dynamics of development.

Based on the analysis, we planned to conduct a pedagogical experiment, which had characteristics that are appropriate in the context of our dissertation research on the topic " The formation of research competency of future physics teachers". The pedagogical experiment continued during 2021-2023 at the level of several higher educational institutions of Ukraine, independently of each other. This made it possible to draw a conclusion about the reliability of the obtained results.

Depending on the logical structure of proving or rejecting the hypothesis, the conducted pedagogical experiment was consistent. According to the conditions of conducting the pedagogical experiment was natural. Depending on the awareness of the participants, the pedagogical experiment was closed, since the students were not informed about the experiment, which made their behavior relaxed. Therefore, we were able to objectively assess the advantages and disadvantages of using an independent variable in the educational process.

At the beginning of the research, we conducted a confirmatory pedagogical experiment, which can be considered absolute. A research hypothesis was formulated on the basis of a confirmatory pedagogical experiment. Then we conducted a formative pedagogical experiment, which was comparative, since we measured the levels of formation of the components of research competency at the beginning of the formative pedagogical experiment and after its implementation. The proposed method made it possible to reveal the influence of an independent variable on the effectiveness of the educational process.

REFERENCES

1. Pedagogichniy eksperyment: navch.-metod. posib. / ukl. O. E. Zhosan. Kirovohrad : Vydavn. KOIPPO im. Vasylia Sukhomlynskoho, 2008. 72 s.