Design Tasks As A Method Of Training Specialists - Future Informatic Teachers

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ABSTRACT

The article discusses issues related to the methods of implementation and use of project tasks in the educational process in the training of specialists - future teachers of computer science based on information and communication technologies.

KEYWORDS

Information and communication technologies, design tasks, training of specialists - future computer science teachers.

INTRODUCTION

Currently, in connection with the rapid development of the process of informatization in education, the question arises of the need to introduce and apply innovative technologies in the training of specialists.

The author in his professional activity when teaching students - future teachers of computer science uses the method of projects based on ICT.

Under the project method is understood "... the development of cognitive skills of students, the ability to independently construct their knowledge, the ability to navigate the information space, the development of critical and creative thinking" [1].

MATERIAL AND METHODS

Thus, the project method can be most effectively used to achieve the following tasks in the preparation of specialists - future teachers of computer science:

1. The formation of skills of independent activity in the field of search, processing and structuring of educational information.
2. Motivation for self-knowledge, self-realization and self-development of the future teacher.
3. The development of creative abilities and critical introspection of students in their future professional activities.

The solution to the above tasks is achieved through the use of design tasks in the subject preparation of future computer science teachers.

RESULTS AND DISCUSSION

As an example, we give the contents of project assignments for the courses "Information Systems" and "Use of ICT in Education", read by the author at the faculty of the Namangan Civil Engineering Institute for students studying in the specialty "Computer Science".

The design assignment is issued to each student individually. The number of hours allocated for the implementation of the project assignment may vary depending on the number of hours of independent work of students in a particular discipline of subject preparation.

In the course "Information Systems" read for 1 semester, the project assignment is given 2 months as part of the students' independent work.

To pass the design work, students must provide the following:

- Salary in paper version on paper.
- Implemented information system for the selected subject area, including:
a) Functional model (you must use the CASE-tool Design IDEF 3.7 or BPWin);
b) Conceptual model (you must use the CASE-tool Design IDEF 3.7 or ERWin);
c) Developed database in Access DBMS.
- Prepare a presentation - protection of the developed, designed and implemented information system for the selected subject area (no more than 10 minutes).

Paper requirements:

1. The title page.
2. Description of the subject area.
3. The purpose of the work.
4. Tasks of work.
5. Description of system functions and their relationship.
6. Functional diagram of the project (IDEF0 methodology).
7. Description of the infological model of the project.
8. The conceptual scheme (IDEF1X methodology).
9. Description of the implementation of the physical model of the project1.

Tables: fields, data types, keys.

- Information system data schema in Access DBMS.

- Forms.
- Requests.
- Reports.
- The main button form.

Requirements for the implementation of the physical model of the project2:

1. Tables: (at least 5) fields, data types, keys.
2. Forms: data entry in all tables.
3. Requests: (at least 10). 5 requests implemented in QBE, 5 -SQL
4. Reports: for all inquiries and a help report for all tables.
5. The main button form.

As a result of the protection of the project assignment for the course "Information Systems", students demonstrate the generated knowledge, skills and abilities to develop, design and implement an information system for the selected subject area.

The training course "Using ICTs in Education" involves students completing several project assignments, the number of hours for each project assignment is allocated depending on the topic of practical training.

Project assignments for this discipline require preparation: development and defense of a report on the selected individual topics (a list of individual topics is given to students in advance).

Reporting Requirements:

1. Content of the report:

- Analyze the content of the selected topics in accordance with the content lines of the basic informatics course of the Gosstandart of secondary school;
- Justify a platform for use technologies on this topic using ICT tools;

- Provide examples of methodological developments for secondary schools using ICT on this topic;
- Present their own developed methodology for the use of ICT in teaching computer science at a basic level in high school on a selected topic.

2. The paper should be issued on paper:

- Title page.
- Description of the subject area on the selected topic.
- Purpose of work.
- Tasks of work.
- Description of the contents of the report (see paragraph 1).

3. Create a multimedia presentation in support of your report.

4. Protect work (performance).

The algorithm of students 'project activities at the training course" Using ICTs in Education "prescribes the following stages for the implementation of project tasks:

1) The choice of subject area;
2) Search and selection of information on selected topics in Internet search engines, in particular Yandex, Google, Rambler, etc .;
3) Preparation of a paper report in accordance with the above requirements;
4) Structuring of the selected information and layout according to the presentation slides (filling the content of the presentation);
5) Selection and development of design solutions for multimedia presentations;
6) The technical implementation of the design task in Microsoft PowerPoint;

7) Development and creation of a test in the form of a controlling aspect on the subject of the report;
8) Protection of the project task in the form of a report and demonstration of the created presentation using a multimedia projector (report and demonstration no more than 10 minutes).

Presentation requirements (technical aspect):

1. Create a presentation of at least 20 slides with an individual design.
2. The presentation should have a final slide - a table of contents.
3. The presentation should be navigated using graphic buttons.
4. The following objects should be used on slides: graphic files, drawings, diagrams, diagrams, etc.
5. Connect animations, slides, objects on the slide and parts of objects.
6. Set the footers of the current date and page numbers on the slide.
7. In the presentation, a control test should be implemented on the material of the selected subject area (an additional 21 slides).

Presentation Benchmark Requirements:

1. The test must contain at least 20 questions (1 question - 1 slide).
2. For each question, come up with 3 answers: one is true, two are incorrect.
3. To think over and implement (using hyperlinks in PowerPoint) a navigation system for the test, where when you click on the correct answer, the slide with the next question is loaded, and if you select the wrong answer, the slide informs about it, on which there should be a button for returning to the slide with wrong answer to the question.

4. The last slide in the test should indicate that the test performed correctly.

Presentation requirements (ergonomic aspect) students are offered a link to a resource on the Internet [2].

CONCLUSIONS

Thus, on the example of the introduction and use of the project method in the training of specialists - future computer science teachers, a certain vision is created of the use of educational teaching technologies based on information and communication technologies (ICT).

REFERENCES

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