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METHODOLOGY OF CREATING INTERACTIVE ELECTRONIC EDUCATIONAL RESOURCES AND USING THEM IN THE EDUCATIONAL PROCESS

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Annotation: The present research endeavors to devise an intellectually engaging and interactive electronic educational resource for higher education institutions with the objective of elevating the standard of education by harnessing the power of artificial intelligence and information and communication technologies in the digital transformation of education.

To attain this objective, a combination of research methodologies were employed that entailed an intellectual examination of practical exercises and self-directed learning tasks, with a spotlight on evaluating the learners' competencies and dissecting the tasks into smaller, manageable components. These components were then recombined to tackle the challenge at hand. The findings of the investigation indicate that the primary advantage of incorporating artificial intelligence into the e-learning process is the capability for students to pose technology-based inquiries and receive immediate responses. This interactive methodology allows for a more profound engagement with the course material, as AI can furnish customized feedback and support to each student.

The implementation of AI in the e-learning process has the potential to significantly improve the quality of education by providing student-focused, adaptive and personalized learning experiences. It can address the limitations of traditional classroom-based instruction, such as the shortage of individualized attention, and also increase student involvement, motivation and academic success. With the integration of artificial intelligence, students will have access to a more dynamic, flexible and adaptive learning environment that accommodates their own pace, interests and learning style.

Key words: e-pedagogics, e-learning, creative competence, artificial intelligence, professional creativity, artificial intelligence, task differentiation, task integration.

INTRODUCTION

The methodological foundation of constructing an interactive, intellectually stimulating electronic educational resource is rooted in the principles of contemporary science and the central role of models in its progression. A model can be considered as a hypothetical or tangible representation of a system that enables researchers to attain a more comprehensive comprehension of the subject of study.

The creation of interactive and intellectually stimulating e-learning resources has become a crucial aspect of modern education, particularly in the realm of computer science and programming. The development of such resources necessitates a comprehensive understanding of the methodology for modeling the learning process. This study explores the various principles of this

methodology, including the significance of the pedagogical scenario, the educational objective, and how these principles influence the creation of interactive and intellectually stimulating e-learning resources for teaching algorithmic languages and programming.

The creation of e-learning resources involves modeling the learning process in order to gain a deeper understanding of the educational goals and objectives. This is based on a thorough analysis of the research object and an examination of the underlying principles of education. The purpose of education is shaped by the needs of society and this, in turn, affects the choice of content, methods, and organizational forms. The learning objectives for teaching algorithmic languages and programming are determined by state education standards and the necessary competencies required.

The pedagogical scenario plays a crucial role in the development of e-learning tools as it outlines the structure and organization of the educational content. It encompasses the relationship between the content, its elements, and the methods of teaching management. The components of a pedagogical scenario include the setting, topic, teacher, supervisor, corrector, and guide, and it should include all necessary materials for the creation of electronic learning tools, such as a methodological guide, a block diagram, and instructions for the programmer. The development of the pedagogical scenario is carried out in stages and should provide enough detail to guide the creation of e-learning resources.

The development of a teaching tool in the field of algorithmic languages and programming requires a solid understanding of the educational system, its goals and principles, as well as the specific characteristics of the subject matter. The pedagogical scenario plays a crucial role in the development of e-learning tools and should reflect the educational goals and objectives. The methodology behind the creation of an interactive intellectual electronic educational resource is complex and requires a deep understanding of the fundamental concepts and principles involved in order to develop effective e-learning tools that support student learning and achievement.

METODS

Modeling is an essential element of pedagogical design and is defined as the process of understanding every minute detail of what should occur. The use of this scientific method in our research is highly relevant because it serves as a connection between theory and reality. Furthermore, the creation of a model beforehand, the visualization of conceptual ideas, and the process of creating a resource will facilitate mutual understanding among all stakeholders (teachers, specialists, software developers). This is particularly important because modeling is the most critical stage of pedagogical design[12].

In the development of the interactive e-learning resource model, fundamental concepts such as the goals of education and the principles of education, as well as the approach to education, were taken into consideration.

The activities related to the acquisition of knowledge, skills, and competencies pertaining to algorithmic languages and programming should be geared towards achieving the objectives outlined in the methodology. The educational tools, including the electronic educational resource under investigation, should be designed to assist the learner (student) in achieving the intended goal of the course "Algorithmic Languages and Programming".

In today's knowledge-based society, the goal of education is to foster general cultural, personal, and cognitive development among learners, thereby providing basic competencies such as the ability to read. This skill enables an individual to pursue independent education throughout their life in order to update and improve their com-

petencies, enhance their qualifications, or change their field of work. This is closely linked to the ability to identify relevant information, make informed choices, and set a personal educational path [14].

In the broadest sense, the concept of personalized learning encompasses the ability of an individual to engage in self-directed development and self-enhancement through the deliberate and active assimilation of new social experiences. Conversely, in a more specific or "narrow" sense, personalized learning is a set of techniques and strategies employed by the learner, which includes the independent acquisition of new knowledge and the organization of the learning process, commonly referred to as academic work skills[11].

The concept of personalized education is predicated on the notion that each student's learning process should be tailored to their individual needs and goals. This approach is characterized as systematic and active, in which the acquisition of knowledge, skills, and competencies is viewed as a derivative of goal-oriented actions undertaken by the learner [10].

The process of personalized education is centered on the acquisition of educational activity components, such as motives, goals, tasks, and actions or operations that must be performed with the material. This process is facilitated through the utilization of electronic learning resources (e-Learning resources), which have been demonstrated to be effective in shaping both regulatory and cognitive personalized learning activities [5].

Regulatory personalized learning activities, such as goal-setting, planning, prediction, control, correction, evaluation, and self-correction, are particularly well-suited to being shaped through the use of e-Learning resources. These resources allow for a more interactive and dynamic learning experience, promoting the development of essential regulatory skills that are necessary for effective self-directed learning.

In addition to regulatory skills, e-Learning resources can also be used to promote the development of cognitive skills, such as critical thinking, problem-solving, and information literacy. This is achieved by providing learners with access to a wide range of digital materials, such as videos, simulations, and interactive exercises, that can be used to engage them in active, self-directed learning [8].

Overall, the use of e-Learning resources in personalized education is seen as a powerful tool for promoting the development of regulatory and cognitive skills, and for fostering self-directed learning. It allows for the provision of a dynamic, interactive and individualized learning experience, aimed at helping each student to reach their full potential [2].

In the training mode, learners are presented with a brief overview of the key concepts and features of a programming language, as well as a set of tasks that are designed to help them achieve specific goals. The tasks are presented along with clear instructions on the time and means required to complete them. By repeatedly working with these tasks and the accompanying resources, learners gain the ability to formulate educational tasks in various contexts, and to develop and implement plans to solve them.

One key aspect of this training approach is the emphasis on task-based learning, which helps learners develop important problem-solving and critical thinking skills. By working on tasks that are broken down into smaller, manageable steps, learners learn to predict the outcomes of their actions, and to control and evaluate the results of their work. This approach to learning also promotes the development of independent learning skills, as learners are encouraged to take ownership of their learning process and to monitor their progress.

Additionally, the use of an algorithm that involves the division of tasks into smaller

steps and the monitoring of software operations, allows learners to gain greater control over their actions and to make adjustments as needed. This can lead to an increase in self-efficacy, and a sense of autonomy in learning. It's a strategy that allows learners to evaluate their own work based on the goals, plans and results achieved.

Cognitive personalized learning activities involve the development of a range of cognitive skills that are necessary for effective problem-solving and decision-making. These activities include the separation and formulation of cognitive goals, the search and selection of necessary information, the identification of the most effective methods for solving problems, and the reflection on the methods and conditions of actions. It also includes the control and evaluation of activity processes and results, and the formation of problem-solving strategies [7].

These activities are highly individualized and require learners to engage in independent learning, creating their own algorithms for solving problems. By working on cognitively challenging tasks, learners develop the ability to identify and define problems, to gather and analyze information, to identify and evaluate alternative solutions, and to choose the most appropriate course of action. Furthermore, reflecting on their own problem-solving methods and the conditions under which they work, learners develop metacognitive skills, which allow them to monitor their own progress and make adjustments as needed, leading to an improved problem-solving performance.

Overall, cognitive personalized learning activities are an important component of an effective personalized education, as they promote the development of essential cognitive skills and foster self-directed, independent learning. These activities are well-suited for shaping via e-Learning resources, which offer interactive and engaging ways to engage learners and promote active problem-solving and critical thinking.

Working with e-learning resources is an effective way for learners to master personalized learning activities, such as regulatory and cognitive activities. For example, an e-learning resource that focuses on reading comprehension can help learners to identify and organize relevant information and to select the most appropriate strategies for understanding and problem-solving in different contexts. The resource becomes a tool that allows them to practice the different components of personalized learning [1].

In this way, e-learning resources are an excellent tool to develop problem-solving skills, which include the ability to create algorithms to tackle creative problems. The development of this skill is a result of mastering a set of algorithms that are selected based on the type of task at hand, and it can be effectively shaped and practiced using electronic tools. This allows learners to become more autonomous in the learning process, and to develop the critical thinking and creativity skills needed to tackle new and complex tasks.

Overall, the use of e-learning resources in personalized education can help learners to develop the skills and strategies that are necessary for effective self-directed learning and problem-solving. It is a great support for learners to acquire the skills to create their own plan and algorithm to solve problems that come up in their learning process.

The implementation of personal and communicative personalized learning activities, such as self-determination, moral-ethical goal-setting, cooperation planning, problem-solving, conflict resolution, and the ability to express one's thoughts, is aligned with the goal of fostering mutual cooperation between the teacher and the learner. This approach is further facilitated by an increase in the proportion of independent work, enabled through the utilization of resources, ultimately leading to a savings in time and effort [2].

In the process of learning the commands

of a programming language, the utilization of e-learning resources plays a crucial role in enhancing the educational experience. One of the key objectives of such resources is to promote the independence of the learners. To achieve this, the educational materials included in the e-learning resource are carefully curated to not only provide comprehensive training on optimal work strategies and tactics for completing tasks, but also to impart knowledge on the unique characteristics of each command.

Exactly, as learners engage with the e-learning resource, they gain a deeper understanding of the specific actions performed using the computer, and the underlying rules governing them. This interactive mode of learning enables learners to identify and correct common mistakes made in their work. As a result, learners can develop more effective methods for completing the types of tasks where these mistakes are commonly made.

Furthermore, E-learning resources provide a level of flexibility, and allows learners to learn at their own pace and time, which can be beneficial to students who may have other commitments, or students who learn better independently.

The e-learning resource also offers benefits to the educators as well, it allows them to have access to data and analytics that can give them a better understanding of the student's learning process, it also facilitates the tracking and monitoring of student progress, which can be used to adjust the instruction to better meet the student's needs.

Overall, e-learning resources are an effective way of facilitating independent learning, promoting the acquisition of practical skills and knowledge, and offering personalized and flexible learning experiences for students.

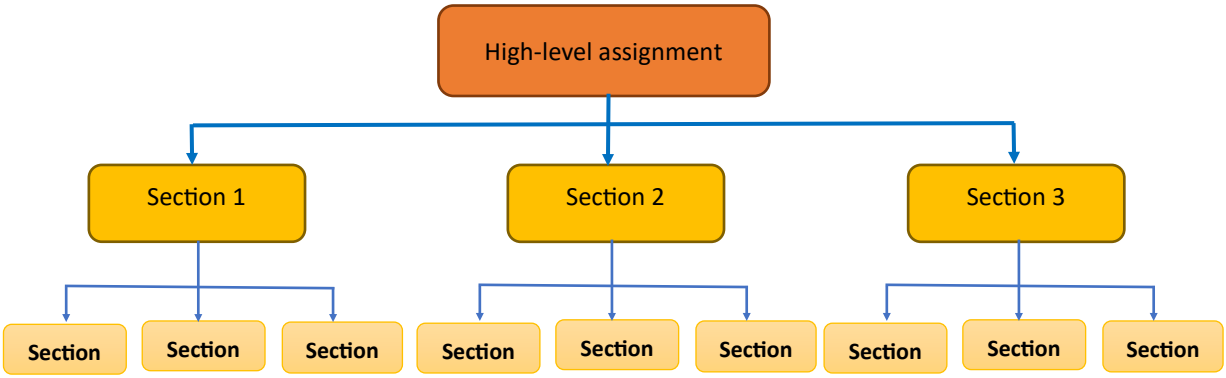

Figure 1. The process of dividing the task into parts.

The model you described outlines a step-by-step process for assigning tasks to a student in a way that takes into account their ability to perform the given task. The number of parts into which the task is divided (n) will vary depending on the learner's individual abilities and the complexity of the task.

The teaching principles outlined in this model also include the goals, methods, tools, organizational forms, and teaching process used in the educational process. These principles are essential for the successful implementation of the learning task.

Dividing a task into smaller parts, also known as task decomposition, is a key step in effective task management and organization. It helps to break down a larger, complex task into manageable chunks that can be completed one at a time. This process can be accomplished through a variety of methods, such as:

1. Functionality decomposition: This method involves breaking down a task into smaller parts based on the functional components of the task. For example, if the task is to build a house, the functional components might include designing the floor plan, laying the foundation, constructing the walls, installing the roof, etc.

2. Time-based decomposition: This method involves breaking down a task into smaller parts based on the amount of time required to complete each part. For example, if the task is to write a research paper, the smaller parts might include: researching the topic, outlining the paper, writing the introduction, writing the body, and writing the conclusion.

3. Hierarchical decomposition: This method involves breaking down a task into smaller parts based on a hierarchical structure. For example, if the task is to develop a website, the hierarchical structure might include: design, layout, and user interface, followed by development of the front-end, back-end, and database.

4. Sub-task decomposition: This method involves breaking down a task into smaller parts that can be completed in parallel. This way multiple people can work on different parts of the task at the same time.

Once the task has been decomposed into smaller parts, it becomes much easier to organize and prioritize the work, as well as to assign specific responsibilities to team members. Additionally, by breaking the task down into smaller parts, it becomes easier to track progress and identify any issues that need to be addressed.

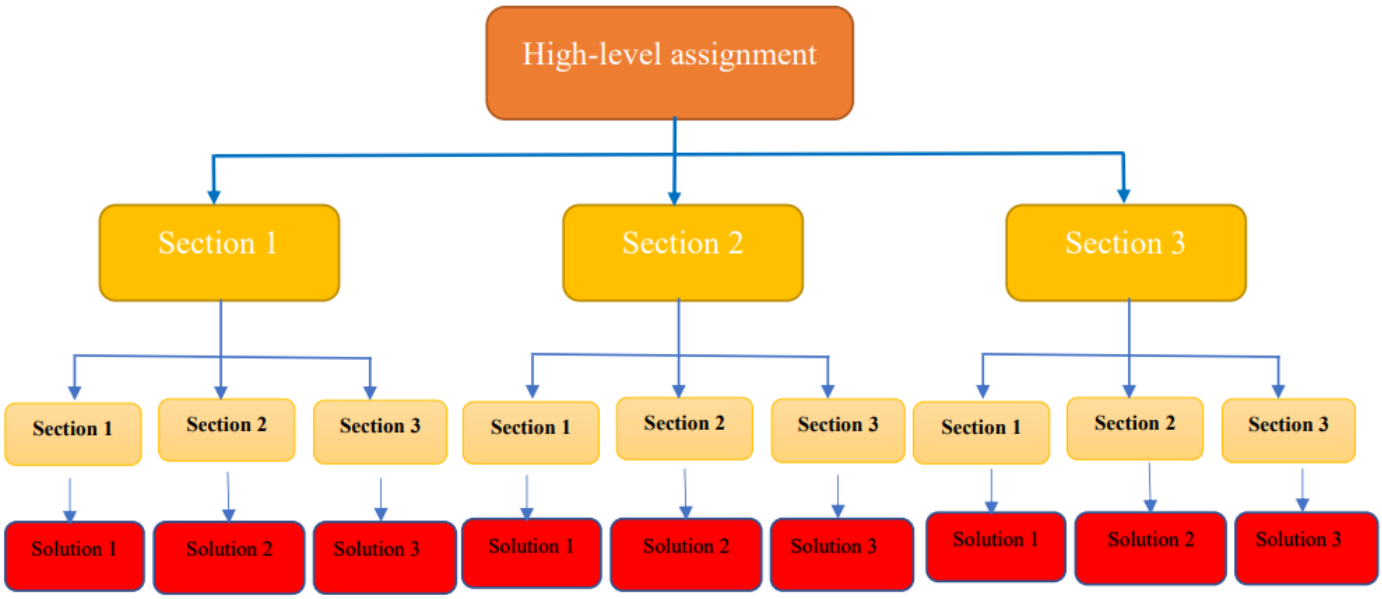

Figure 2. Divides the task into parts and finally presents the solution.

The development of electronic educational resources as a new generation of educational tools is built upon the fundamental didactic, psychological, and personal methodological principles of teaching, as well as the principles of electronic pedagogy. These principles provide a foundation for the design and implementation of the e-learning resource, ensuring that it is aligned with the needs and abilities of the students.

One of the key advantages of e-learning resources is their ability to adapt to the individual needs and learning style of each student. For example, the resource may include different levels of difficulty or provide different types of support, such as visual aids or audio explanations, to help the student understand the material.

Overall, the development of electronic educational resources as new generation of tools aims to provide an effective and efficient way for students to learn, that offers opportunities for personalization, interaction, engagement and adaptive support throughout the learning process.

Dividing a task into smaller parts and then combining the results is a technique that can be used to simplify and manage complex tasks. By breaking the task down into smaller, more manageable parts, it becomes easier to understand the task and to

identify any issues or dependencies that need to be addressed.

One approach to dividing a task into parts is to use a functional decomposition method, where the task is broken down into smaller parts based on the functional components of the task. For example, if the task is to build a house, the functional components might include designing the floor plan, laying the foundation, constructing the walls, installing the roof, etc.

Once the task has been divided into smaller parts, it is then necessary to combine the results in order to complete the overall task. This can involve coordinating the efforts of multiple team members and ensuring that the results of each part are properly integrated.

When combining the results, it is important to verify the outcome and quality of each sub-task and make any necessary adjustments. It is also important to document the progress, the quality assurance and to make sure the deadlines are met.

In summary, dividing a task into smaller parts and then combining the results is a technique that can be used to simplify and manage complex tasks by breaking them down into manageable chunks and coordinating the efforts of multiple team members. It also allows for better tracking and quality assurance of the sub-tasks and overall task.

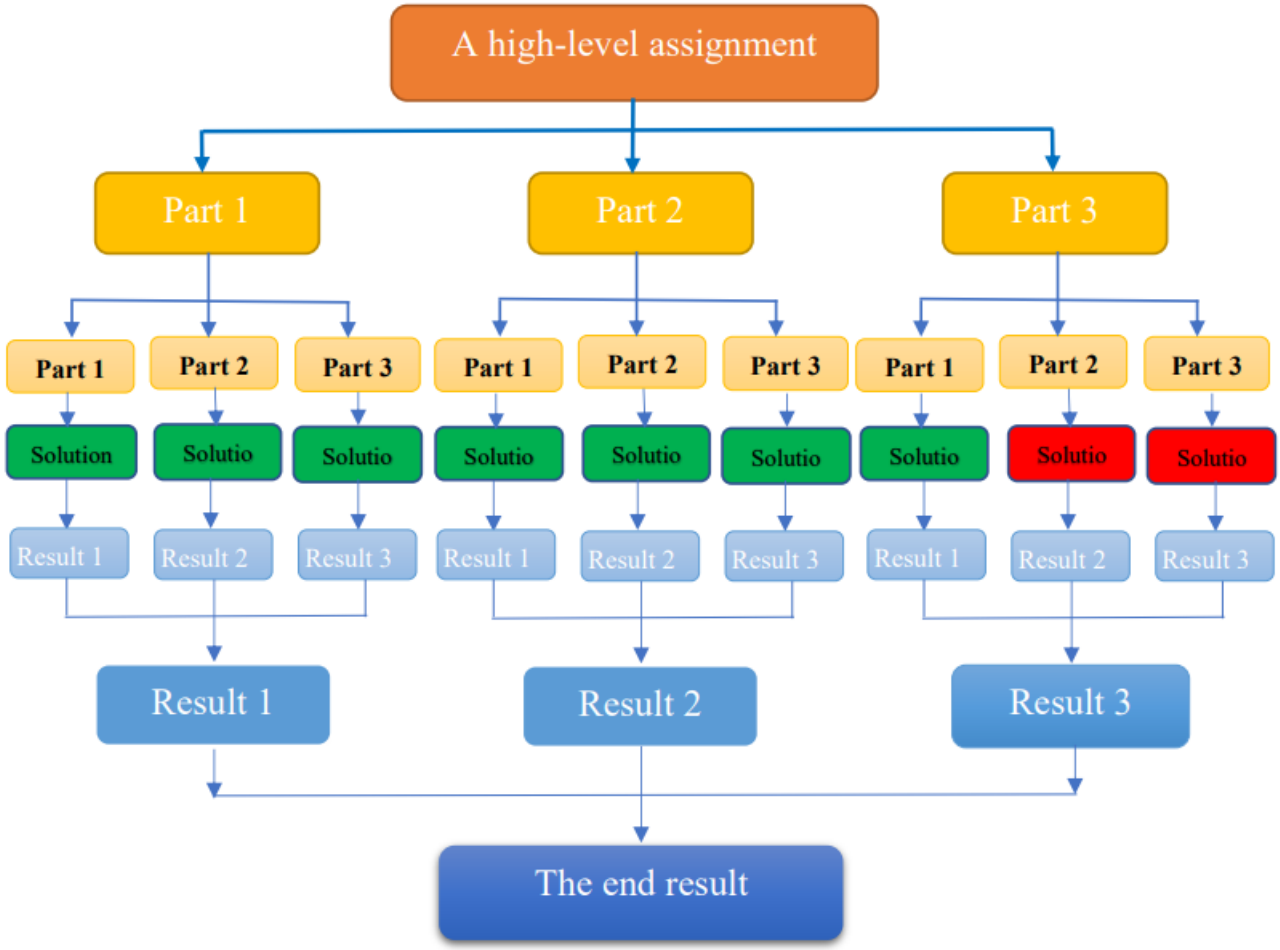

Figure 3. Divides the task into parts and combines the results.

Figure 4. Algorithm for dividing tasks into parts and summing up the result.

An algorithm for dividing a task into parts and summing up the result can be described as follows:

1. Identify the task to be divided.

2. Analyze the task and determine the functional components or logical steps that are required to complete the task.

3. Break the task down into smaller subtasks based on the functional components or logical steps identified in step 2.

4. Assign sub-tasks to team members or individuals who are responsible for completing them.

5. Track the progress of each sub-task, making sure that deadlines are met, and that the quality and outcome are what expected.

6. Integrate the results of each sub-task, and verify that all sub-tasks have been completed and the results have been combined correctly.

7. Sum up the results of each sub-task to obtain the final result.

8. Document the progress and the final results.

It is important to note that this algorithm is a generalization and may need to be adapted to the specific task and context. Additionally, it's important to consider the complexity and resources necessary for the execution of each sub-task, the level of expertise of team members and the dynamic of the team.

This algorithm can be useful for managing complex tasks by breaking them down into smaller, more manageable chunks, assigning responsibilities, tracking progress, and ensuring that the final result is accurate. It also allows for better quality assurance by tracking the sub-tasks and making sure that deadlines are met. This algorithm can be applied to different type of projects and industries, such as software development, research projects or construction projects.

In this case, depending on the student's ability to complete the given task, it is divided into n parts, with the number of parts varying based on the student's individual abilities and the complexity of the task. This approach is based on the principle of differentiated instruction, which acknowledges that students have different learning styles and abilities and therefore require different strategies for learning. By dividing the task into smaller parts, the teacher can ensure that the student is presented with tasks that are appropriately challenging, yet still within their abilities.

The completed parts of the task are then collected and evaluated by the teacher. This allows the teacher to monitor the student's progress and identify areas where additional support may be needed. The teacher can also use this information to adjust the task and the teaching methods to better suit the student's needs.

The principles of education used in this approach are basic rules that determine the requirements for the educational process and its components. These include the goals, tasks, methods, tools, organizational forms, and the educational process. These principles are essential for the successful implementation of the learning task. The goals define what the student is expected to learn, the tasks define the specific activities that the student will complete, the methods and tools are the techniques used to achieve the goals, the organizational forms set the structure of the class and the teaching process is the sequence of activities that the student and teacher will use to achieve the goals.

In summary, dividing the task into parts depending on the student's ability to complete the given task, along with collecting and evaluating the completed parts is an effective way of personalizing the learning experience, by providing appropriate challenges and support, in accordance with the principles of education. This approach allows the teacher to adjust instruction and materials to better meet the needs of the student.

The principle of taking into account the individual and psychological characteristics of the learner is a key aspect of the e-learning resource. This can be implemented in various ways, such as:

1. Non-linear form: The e-learning resource can be organized in a non-linear fashion, allowing the student to choose the order in which they complete the tasks and access the reference information. This allows the student to work at their own pace and in a way that suits their individual learning style.

2. Tailored tasks: The set and composition of tasks in the e-learning resource can be tailored to the individual needs of the learner. For example, the resource can include different levels of difficulty or provide different types of support, such as visual aids or audio explanations, to help the student understand the material.

3. Adaptive feedback: The e-learning resource can provide personalized feedback to the student based on their performance and progress. The feedback can be adjusted depending on the student's success and speed of task completion, providing guidance and recommendations for improvement.

4. Personalized learning path: The e-learning resource can be designed to adapt the learning path based on the learner's characteristics, past performance, and progress. The resource can adjust the content, the speed, and the difficulty level to help the student achieve optimal performance.

Overall, by taking into account the individual and psychological characteristics of the learner, the e-learning resource can provide a personalized and effective learning experience, tailored to the unique needs and abilities of each student. This approach can lead to greater student engagement, motivation, and improved learning outcomes.

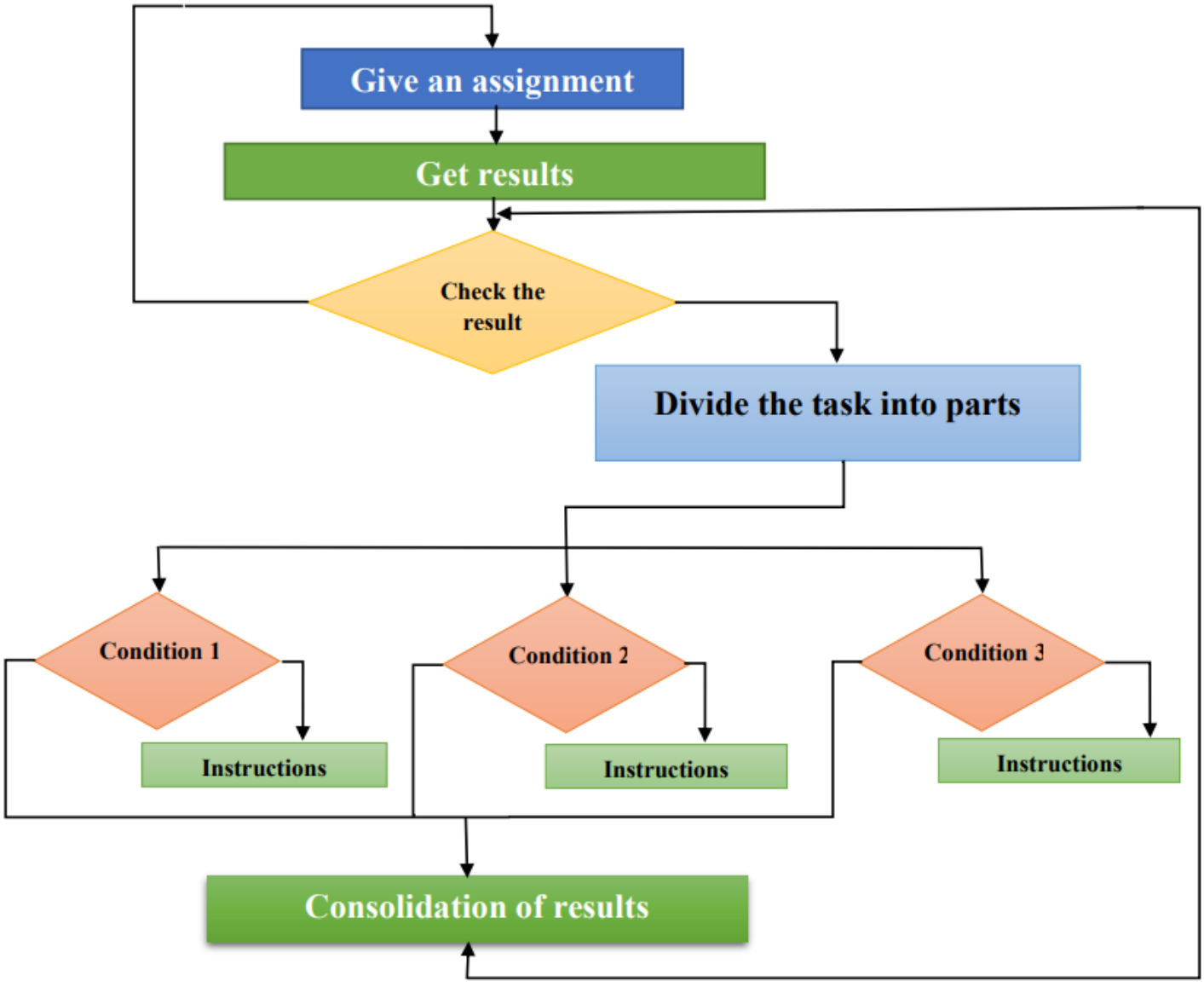

Figure 4. Algorithm for dividing tasks into parts and summing up the result.

RESULTS AND DISCUSSIONS

In order to determine the effectiveness of the results obtained from the experimental work, it is important to compare the results obtained in the control groups with those obtained in the experimental groups. The control groups represent the traditional teaching method while the experimental groups represent the e-learning method using the resource developed. The professional knowledge and skills of the students were evaluated in both groups.

The results obtained at the beginning and at the end of the experiment were systematically analyzed and compared. The analysis should consider not only the numerical data, but also the students' motivation, engagement, and satisfaction.

Based on the results of the analysis and comparison, a conclusion can be drawn on the effectiveness of using electronic educational resources in the experimental group. If the results show that the experimental group performed better or similarly to the control group, it can be concluded that the electronic educational resource had a positive effect on the student's learning experience, and professional knowledge and skills.

It is also important to note that the analysis and results should be presented in a clear and concise manner, highlighting the main findings and conclusions. The results should also be discussed in relation to the theoretical basis and practical implications, such as the potential for scaling up the method and the potential benefits for the students and the educational institution.

The results of your pedagogical experiment indicate that the use of electronic educational resources has led to an increase in educational efficiency in teaching the general professional subject "Algorithmic languages and programming". The purpose of the experiment was to validate the hypothesis put forward in your scientific research, which suggests that the use of electronic educational resources can improve the efficiency of teaching this subject.

To ensure the objectivity of the results, the experimental method was used and two parallel groups were designated as an experimental and control group in each academic year. This is a common method used in educational research to compare the effectiveness of different teaching methods. The control group served as a benchmark, representing the traditional teaching method, while the experimental group represented the new method, the teaching process based on electronic educational resources.

The results show that the use of electronic educational resources in the experimental group led to an increase in educational efficiency compared to the traditional method used in the control group. The results of the experiment provide evidence to support the hypothesis put forward in your scientific research and demonstrate the potential benefits of using electronic educational resources in teaching this subject.

It is important to regularly analyze and compare the results of the experimental and control groups in order to draw accurate conclusions about the effectiveness of the electronic educational resources. The results can be analyzed by comparing the performance of the students in the experimental and control groups on tests or assessments of professional knowledge and skills. Additionally, measuring motivation and engagement of students can give a more holistic picture of the effectiveness of the e-learning resource.

It is also beneficial to gather feedback from the teachers directly involved in the process. This can help to identify any challenges that the teachers faced in implementing the electronic educational resources, as well as any areas for improvement in the design and delivery of the e-learning resource. By taking into account the perspectives of the teachers, the results of the experiment can be interpreted more accurately and refined to better support

students in the future.

It is also good to compare the results with the initial expectations and goals set, as well as with other studies and research in the field of electronic educational resources. This can give a perspective on how the results of the experiment compare to other studies, and identify any areas for future research to continue exploring the potential benefits of electronic educational resources in teaching.

Overall, by regularly analyzing and comparing the results, as well as gathering feedback from the teachers, you can ensure that the conclusions drawn from the experiment are accurate and can be used to improve the teaching process in the future.

It seems that the results of your experiment indicate that the students had difficulty understanding the tasks in the first step, with only 23.2% of the students completing the first step of the task. This suggests that the traditional teaching method alone may not be sufficient to help students fully understand the subject.

However, it seems that the use of e-learning resources has helped to improve this situation. By dividing the task into smaller parts, and providing the students with e-learning resources for independent study, a larger number of students were able to complete the task. Specifically, after dividing the task, 115 students (81.2%) were able to complete the task, compared to 46 students (23.2%) who completed the task using the traditional method.

This suggests that e-learning resources can be a useful tool to increase coverage and help students understand the subject better. However, the number of students that completed the task is still relatively low. As the independent study is not able to accommodate all students and to deal with each of them individually, it is important to find ways to improve the e-learning resources so that it can be more accessible, user-friendly and interactive for students.

It is important to note that the number of students that participated in the experiment is quite low, 198 students, which might affect the generalization of the results. Additionally, it is important to consider other factors that might affect the results of the experiment.

Table 1. Indicators of student performance.

№	Number of students	**Students who completed the first step**	As a result of task fragmentation	Those who did it with the help of instructions	Those who could not complete the task at all
1	28	**5**	18	4	1
2	27	**7**	15	3	2
3	29	**6**	19	4	0
4	28	**9**	12	6	1
5	26	**6**	17	3	0
6	27	**3**	20	3	1
7	17	**8**	6	1	2
8	16	**2**	8	5	1
	198	**46**	115	29	8
	100%	**23,2 %**	58 %	14,6	4,2 %

CONCLUSION

The e-learning resource you described utilizes artificial intelligence to provide an interactive and personalized learning experience for students. The resource breaks down tasks into smaller chunks and presents them to the student, allowing for parallel processing and efficient use of time. The resource also allows students to ask questions and learn at their own pace, outside of the classroom. This can be especially beneficial for students who may not feel

comfortable asking questions in a traditional classroom setting.

The literature review shows that the development of creativity in students is an important goal of education, and the use of an interactive intelligent e-learning resource can promote the development of professional creativity in students. The ability of the resource to tailor the learning experience based on the needs of the individual student can help to better engage and motivate students, leading to improved learning outcomes.

It's important to note that AI-based e-learning resources can handle a large number of students, providing a level of differentiation that can be challenging for teachers working with large groups of students. However, it's important to consider that technology is not a replacement for the teacher. Instead, it can be seen as a tool that allows the teacher to focus on more personalized instruction, while allowing the technology to handle the repetitive and administrative tasks. The key is to use AI -based e-learning resources in a way that complements the teacher's role and enhances the student's learning experience.

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МЕТОДИКА СОЗДАНИЯ ИНТЕРАКТИВНЫХ ЭЛЕКТРОННЫХ ОБРАЗОВАТЕЛЬНЫХ РЕСУРСОВ И ИХ ИСПОЛЬЗОВАНИЯ В ОБРАЗОВАТЕЛЬНОМ ПРОЦЕССЕ

Аннотация

Настоящее исследование направлено на разработку интеллектуально привлекательного и интерактивного электронного образовательного ресурса для высших учебных заведений с целью повышения уровня образования за счет использования возможностей искусственного интеллекта и информационно-коммуникационных технологий в цифровой трансформации образования.

Для достижения этой цели использовалось сочетание исследовательских методологий, которые включали в себя интеллектуальное изучение практических упражнений и самостоятельных учебных задач с акцентом на оценку компетенций учащихся и разделение задач на более мелкие, управляемые компоненты. Затем эти компоненты были повторно объединены для решения поставленной задачи. Результаты исследования показывают, что основным преимуществом включения искусственного интеллекта в процесс электронного обучения является возможность студентов задавать вопросы, основанные на технологиях, и получать немедленные ответы. Эта интерактивная методология позволяет более глубоко погрузиться в материал курса, поскольку ИИ может предоставить индивидуальную обратную связь и поддержку каждому учащемуся.

Внедрение ИИ в процесс электронного обучения может значительно улучшить качество образования за счет предоставления ориентированного на учащихся, адаптивного и персонализированного учебного опыта. Это может устранить ограничения традиционного обучения в классе, такие как нехватка индивидуального внимания, а также повысить вовлеченность учащихся, мотивацию и успехи в учебе. Благодаря интеграции искусственного интеллекта учащиеся получат доступ к более динамичной, гибкой и адаптивной среде обучения, которая соответствует их собственному темпу, интересам и стилю обучения.

Ключевые слова: электронная педагогика, электронное обучение, творческая компетентность, искусственный интеллект, профессиональное творчество, искусственный интеллект, дифференциация задач, интеграция задач.

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INTERFAOL ELEKTRON TA’LIM RESURSLARINI YARATISH VA TA’LIM JARAYONIDA FOYDALANISH METODIKASI

Annotatsiya

Ushbu tadqiqot ta'limning raqamli transformatsiyasida sun'iy intellekt va axborot-kommunikatsiya texnologiyalari kuchidan foydalanish orqali ta'lim darajasini oshirish maqsadida oliy ta'lim muassasalari uchun intellektual qiziqarli va interaktiv elektron ta'lim resursini ishlab chiqishga intiladi.

Ushbu maqsadga erishish uchun amaliy mashg'ulotlar va mustaqil o'quv topshiriqlarini intellektual tekshirishni nazarda tutuvchi tadqiqot metodologiyalarining kombinatsiyasi qo'llanildi, bunda o'quvchilarning kompetentsiyalarini baholash va vazifalarni kichikroq, boshqarilishi mumkin bo'lgan qismlarga ajratishga e'tibor qaratildi. Keyinchalik bu komponentlar mavjud muammoni hal qilish uchun qayta birlashtirildi. Tekshiruv natijalari shuni ko'rsatadiki, elektron ta'lim jarayoniga sun'iy intellektni kiritishning asosiy afzalligi talabalarning texnologiyaga asoslangan so'rovlarni qo'yish va darhol javob olish qobiliyatidir. Ushbu interaktiv metodologiya kurs materiallari bilan chuqurroq shug'ullanish imkonini beradi, chunki AI har bir talabaga moslashtirilgan fikr-mulohaza va yordamni taqdim etishi mumkin.

Elektron ta’lim jarayonida sun’iy intellektni joriy etish o‘quvchilarga yo‘naltirilgan, moslashtirilgan va shaxsiylashtirilgan ta’lim tajribasini taqdim etish orqali ta’lim sifatini sezilarli darajada oshirish imkoniyatiga ega. Bu individual e'tibor etishmasligi kabi an'anaviy sinfga asoslangan ta'limning cheklovlarini hal qilishi mumkin, shuningdek, talabalarning ishtiroki, motivatsiyasi va akademik muvaffaqiyatini oshiradi. Sun'iy intellektning integratsiyasi bilan talabalar o'zlarining tezligi, qiziqishlari va o'rganish uslublariga mos keladigan yanada dinamik, moslashuvchan va moslashuvchan o'quv muhitiga kirish imkoniyatiga ega bo'ladilar.

Kalit so'zlar: elektron pedagogika, e-learning, ijodiy kompetentsiya, sun'iy intellekt, professional ijodkorlik, sun’iy intellekt, vazifalarni differentsiallashtirish, vazifalarni integratsiya qilish.