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Practice development technology of students in biological local study

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Abstract

The situation is taken as the basis of the research. It is seen that the biological local study is aimed and designed on the students' application of development technology. The study was designed in the fall term of 2022–2023 and was prepared with 148 participants. The participant groups that made up the study were given training on the problem situation of the research. The main purpose is to help participants develop 'Technology' 'Biological local' topics and to further their education. Each data and value obtained according to the training of the study was made by frequency analysis, *t*-test, using the utility program, and the results were written into the research in the presence of tables. As a result of the research, it was concluded that the participant groups easily used development technologies in biological local studies and the application that came with this idea was formed.

Keywords: Biological, distance education, development technologies, primary school students;

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1. Introduction

It is known that determining the scientific success of students in education is the whole of determining how much of the information they encounter during the education and teaching process as well as carrying out appropriate measurement and evaluation processes (Knissarina et al., 2022). It is known that there are various tests for the educational information obtained, however, the tests may consist of different types of questions such as true-false questions, matching questions, fill-in-the-blank questions, multiple-choice questions and open-ended questions (AL-Momani & Rababa, 2022). It is seen that the achievement tests researched and developed in the related field articles generally consist of multiple-choice questions. When choosing the multiple-choice question type; it is known that it considers features such as being able to ask a large number of questions and thus measuring different knowledge and skills, providing objective and easy scoring, being economical in terms of time, and being suitable for measuring high-level behaviours (Urh, Jereb, Šprajc, Jerebic, & Rakovec, 2022). When all this information is clarified, multiple-choice tests are seen as one of the appropriate measurement tools to reveal the level of education and the knowledge level of many students whose education levels change (Jabbar & Hussin, 2019).

It is known that models developed by education are mostly used to show the level of questions in measurement tools used for students' biological local studies (Hack-Polay et al., 2022). It is stated that biological local studies can be used as a tool to determine the appropriateness of educational objectives, activities and evaluation in a unit, course or curriculum (Gandolfi, 2021). In addition, the preparation of test questions according to biological local studies, taking into account the objectives of the course, the scope of the subject, and the level of questions, increases the quality of the questions. While classifying questions as technology in biological local studies, lower and higher-level thinking skills are taken as the basis. Low-level thinking skills are expressed as knowledge, comprehension and application; higher-order thinking skills are expressed as analysis, synthesis and evaluation steps (Li et al., 2021). For each step to be earned, previous steps must be earned.

For biological local studies, due to criticisms made for various reasons, the technology process dimension according to the biological local area consists of the steps of remembering, understanding, applying, analysing, evaluating and creating (Bento, Giglio Bottino, Cerchiareto Pereira, Forastieri de Almeida, & Gomes Rodrigues, 2021). It is also natural that the plans for the emergence of technology systems are not static but are seen as a feature that constantly changes and changes the architecture they are in (Canbazoğlu Bilici, Küpeli, & Guzey, 2021).

In order to increase the functionality of the biological basic application area with technology, the ‘harmonisation’ of the organisational structure leads to the conclusion that the technology education strategy information technology strategy should be studied (Adu-Boateng & Goodnough, 2022). As some researchers have stated, it does not seem possible to create technology systems in a way that supports business strategy if technology is not integrated with descriptive components (Liboreiro, Corradi, & Rapini, 2022). Although it is known that biological local studies that will support technology-integrated applications are not the only factor affecting long-term business sustainability, it should not be forgotten that it is not clear that it is an issue that needs to be studied (Subali & Susilo, 2022).

In this research, it was aimed to provide the activities of biological local study and technology dimensions of primary school students and to provide these activities with the help of technology within the research and continued accordingly.

1.1. Related studies

Yoon, Miller, and Richman (2020) bring the work to the literature by creating complex systems biology computer-based curriculum for teachers on how to use the online version of the PES and instruction, face-to-face version of the research that is aimed at the same high impact, and as a result, students showed positive perceptions of teacher in biology and roughly equal in both format, it is observed that achieves results.

In Bibon's (2022) study, they aimed to develop biological culture-based courses by integrating medicinal plants and technology applications, and as a result, the study shows that the potential of using indigenous medicine as a resource for culture-based courses in biology and technology support is beneficial to this field, participants and users.

Wise, Archie, and Laursen (2022) who have experience in instructional practices in the work they have done in the 2-year college biology instructor is to provide a reconnaissance study on the needs and preferences of the technology since, and as a result MCQ biology learning goals outside of inclusive pedagogy and research, such as quantitative skills and a high level of interest and support for technology instructor technology that achieves results, it is observed that design that carries a container of biology.

It is seen that it is obvious that all the researches mentioned in the relevant research section are shaped by technology and have meaning and support for students in the field of writing. In this context, the same goal and expectation are expected from this research.

1.2. The purpose of the study

The basic situation in the research was aimed at students' application of development technology in biological local study. In order to reach the problem situation in the research, answers to some questions were sought;

1. What is the biological local working status of the participant groups participating in the research?

2. What is the technology education status of the primary school students participating in the research?

3. Is there a significant difference between the biological local working status of the participant groups participating in the research according to the gender variables on the technology course?

4. What is the status of the participant groups participating in the research on the effective approach to biological local studies?

5. How is the technology approach of the participant groups participating in the research compared to their educational status in biological studies?

2. Method

In this section, the method of the research in the study, the study group, the type and source of the data, the data collection tools and the statistics used in the research will be discussed.

2.1. Research model

In this part of the research study, it is seen that the students participating in the research are informed about which model is used for the problem situation. It is seen that the quantitative research model is used in this research, which is the main reason why this model has become a science in terms of system and method before social sciences (Uzunboylu & Karagözlü, 2017). In this study, using the quantitative research method, the students' application of development technology in biological local study was described according to the variables of gender, educational status and education duration.

2.2. Working group/participants

In this part of the study, it was carried out on a voluntary basis, and it was carried out on 148 primary school students who wanted to participate voluntarily in the primary schools in the center of Kazakhstan in the fall semester of 2022–2023. The data collection tool used in the research was accepted online by applying it to 148 primary school students.

2.2.1. Gender

The data of the people who made up the study group participating in the research according to the gender variable were researched in this section and added to Table 1 in groups. In this section, care was taken to make an equal distribution between the groups and the participant groups were randomly selected.

Table 1. Gender variable distribution of the participants participating in the research

Gender	Boy		Girl	
	F	%	*F*	%
Variable	75	50.68	73	49.32

When Table 1 is examined, it is seen that the gender values added to the study on this section are added numerically, in this context, it is seen that 50.68% (75 people) of them consist of male participants, while 49.32% (73 people) consist of female primary school students. In the gender section, the findings reflect the actual gender distribution.

2.2.2. Biological local working situations

In this section, the biological local study status of the students participating in the research and their dimensions in relation to this area were questioned and added to Table 2 by asking the primary school students participating in the research.

Table 2. Biological local study situations

Biological local working situations	Little		Many		Partially	
	F	%	*F*	%	*F*	%
Variable	14	9.46	127	85.81	7	4.73

As seen in Table 2 in the local working conditions of the working groups participating in the survey are examined and the biological information is added in Table 2 it is seen that in the light of this information from local biology students the working conditions 9.46% (14 people) 'less' option are seen to be responsive to while 85.81% (127) of the person 'really' have been shown to respond to the option, and finally 4.73% (7 people) 'partly' is selected, it is seen that in response to the options. The findings quoted in this section reflect the actual distribution.

2.2.3. Class status

In this section, the class status of the participant groups consisting of primary school students participating in the research is examined and detailed information is given in Table 3.

Table 3. Distribution of the students participating in the research according to their class status

Class	Third class		Fourth class	
	F	%	*F*	%
Variable	67	45.27	81	54.73

As seen in Table 3, it is seen that the information is included and formed depending on the class information of the people who created the research. In this context, 45.27% (67 people) of the research stated that they were educated in the third-grade range, while 54.73% (81 people) were in the fourth-grade range. In the class situations section, the findings reflect the actual distribution.

2.3. Data collection tools

In this detail of the study, it will be explained that there is information about which type of data collection tool will be used in the research. Accordingly, it is seen that the data collection tool in the research was created by the people who put the study forward and the framework was expanded in this context. The content validity of the 'technology with biological study' data collection tool was examined by experts with four professor titles working in the fields of biology, application effectiveness and technology, and unnecessary items were removed from the measurement tool and rearranged. 21 items of the measurement tool consisting of 26 items in total were used and 5 items were removed from the measurement tool thanks to expert opinion. The students participating in the research were evaluated in two factorial dimensions 'biological local study' and 'technology methodological parts'.

The opinions of the participating students were consulted. The Cronbach alpha reliability coefficient of the measurement tool as a whole was calculated as 0.84. Measuring tool; 'strongly disagree' (1), 'disagree' (2), 'undecided' (3), 'agree' (4) and 'strongly agree' (5). The measurement tool was

collected from primary school students with the help of their families in the form of an online environment.

1. First Form: Some information was given on this form and the participants were asked. If this information is gender, class, etc.

2. Second form: A 5-point Likert-type data collection tool was prepared in order to obtain information about the opinions of the participants in order to improve their knowledge and use of biological local studies and technology, and to increase their practical knowledge. 21 items of the 26-item measurement tool were used and 5 items were extracted by people experienced in the data collection tool. The opinions of the people participating in the research were taken from two factorial dimensions: 'Biological local studies' and 'technology methodological parts'. The Cronbach Alpha reliability coefficient of the measurement tool as a whole was calculated as 0.84. Measurement tool; 'strongly disagree' (1), 'disagree' (2), 'undecided' (3), 'agree' (4) and 'strongly agree' (5). The measurement tool was also collected by the participants in the research in the form of Ms Teams forms with the help of their families.

2.4. Application

The application size is known to be very comprehensive and valid. In this section, every step from a to z will be explained to the participants in detail and comprehensively, and the biological local studies and technology dimensions will be measured in light of the information given. An online education environment was prepared for 148 volunteer primary school students continuing their education in Kazakhstan and it was designed by showing it to experts in the field of the education environment. During the 3-week online training, information such as methodological approaches, information on biological local studies, activity approaches, etc. was given to the students participating in the research in the form of online training, and technology activity approaches were asked to the people who participated in the research on this subject. Education was given to primary school students. After the 3-week training, the data collection tool and information form of the students participating in the research were applied and the data were given in tables in the findings section. The training is set to be limited to the idea of completing two sections through the Microsoft Teams application program, which is preferred by most institutions and organisations, and each section is distributed over the weeks with the thought of completing it with a maximum of 74 primary school students processed in time. The measurement tool applied to the student groups participating in the research was collected with the help of their families through an online questionnaire, and they were transferred to the Statistical Package for the Social Sciences program by coding them in the computing software environment.

2.5. Analysis of the data

All data obtained from the data collection tool of the study were analysed using frequency (*f*), percentage (%), mean (*M*), standard deviation (SD), *t*-test and one-way analysis of variance (one-way ANOVA) in the Statistics program analysed. The data obtained from the program are given in the findings section accompanied by tables and comments.

3. Findings

In this section, according to the analysis of the data obtained from primary school students, the numerical values obtained from the findings are added in tables, and various interpretations are included in the direction of the findings.

3.1. Technology education status of primary school students participating in the research

In this part of the study, after the research given under two headings, technology education status was investigated again and it is seen that the findings are added to Table 4.

Table 4. Technology education status of primary school students participating in the research

Technology education	*N*	*M*	SS
Technology education affinity	148	4.27	0.381
Using technology education environment	148	4.28	0.376

When Table 4 is examined, the conditions for students to be included in the study were examined and the findings of the technology education are seen to occur, according to this, 'technology education predisposed to being' score *M* = 4.27, it is observed that also when Table 4 is examined, the 'technology in the educational environment using' scores *M* = 4.28, it is observed that. According to these values, it is seen on the related Table 4 that the students included in the research after the study are predisposed towards technology education and this field and that they can use the environment.

3.2. Distribution of the biological local working conditions of the participant groups participating in the research according to gender variables on the technology course

In this part, the *t*-test was applied to find out that the biological local working conditions of the groups of participants participating in the study were not negative for the gender variable on the technology course.

Table 5. Distribution of the biological local working situations of the participant groups participating in the research according to gender variables on the technology course

Biological local working situations	Gender	*N*	*M*	SS	sd	*t*	*p*
Understanding and predisposition to	Boy	75	4.38	0.384	148	0.248	0.428
	Girl	73	4.35	0.392			

According to the results of the *t*-test applied according to Table 5, it is seen that there is no significant difference in the gender variable of the students participating in the research in terms of understanding and predisposition to biological local studies [t (148) = 0.248, $p < 0.05$]. When the arithmetic averages of understanding and predisposition to biological local studies are examined, it is seen that the average score of the male participant group is *M* = 4.38, while the average score of the female participant group is *M* = 4.35, and the scores of the male participants are higher. Accordingly,

it can be said that the male participant groups are predisposed to biological local studies and are predisposed to the female participant group.

3.3. The effective approach of the study groups of participants participating in the study related to biological local studies

In this section, an ANOVA test was applied to find out whether there are any differences in the effective approach examination situations and methodological patterns related to biological local studies of the participant groups participating in the study.

Table 6. Examination of the effective approach of the groups of participants participating in the study related to biological local studies

Dimension	Your variance	Squares total	sd	Squares average	*F*	*p*
The effectiveness	Source	64.750	8	0.212		
	Intergroup	64.870	140	0.152	0.482	0.2350
	Gruplarici	64.810	148			
Methodological patterns	Average total	97.201	8	0.124		
	Intergroup	97.342	140	0.315	0.588	0.3400
	Gruplarici	97.271				

As seen in Table 6, the local approach for biological studies the activity of students surveyed the activity patterns over and methodological approach to the review status for scores for one-way ANOVA according to the results, the activity approach to care for the size of a statistically significant difference was found [*F* (8–140) = 0.482, *p* 0.05]. Again, among the analysis findings, it was concluded that there was no significant difference in terms of methodological patterns of biological local studies [*F* (8–140) = 0.588, *p* > 0.05]. It is observed that the methodological patterns of biological local studies and the lack of differences in the approach to activity situations mean that the subject covered in live lessons is well learned, and it is also observed that behaviour is formed in primary school students about this topic.

3.4. The status of the groups of participants participating in the research according to the technology and activity approach and the level of education on biological local studies

In this part of the study, information about the technology and activity approach of the participant groups participating in the study was investigated according to the state of education on biological local studies, and the findings were added to Table 7.

Table 7. The status of the participants who participated in the research according to the study status of the technology-based activity approach over biological local studies

The technology dimension			
	N	*M*	SS

Becoming a technology predisposition	148	4.36	0.352
Inability to use the technology environment	148	2.08	0.621

The last problem is the situation of research events at the state of the technology with the technology that is used for the assessment of the participant and on the table data gathered from groups of seven students, 'size predisposition technology' section, the highest value in *M* = 4.36 out at the same time as high technology 'media use' (*M* = 2.08), it is noted that this situation is examined in Table 7, when the size of the technology that is used for local activities in biological studies the tendency of abstinence it can be said that their status is low, the situation is very good.

4. Discussion

Jin, Wen, and Xie's (2022) in the year they have done research in the biological, recognise and analyse deep learning-based image visualisation technology applications and biological studies in this research are aimed at local system as a result of deep learning-based interactive visualisation created a high rate of accuracy is higher, and learning-based image visualisation technology that has tremendous potential, it is seen that the conclusion reached in human movement. In this context, when this value is combined with the results of the research, it is observed that the biological local study situations are shaped by technology and at the same time it is concluded that this dimension gains meaning with technology. It can be said that these data obtained show that biological local studies are shaped by gaining meaning with technology and always benefit the participant groups.

In the article study conducted by Nurgaliyeva, Childibayev, Sagyndykova, Azman, and Saparova (2022), it was aimed to address the problem of applied major education for biology departments with technology within the framework of its modernisation, and as a result, the third and fourth it is seen that the results of biology studies with technology related to the scientific and methodological basis for applying to classroom students are good and make sense. In this context, when this value is combined with the results of the research, three and four. According to the gender criterion, the biological local working conditions of the students were examined within the scope of technology and it is seen that there are no significant results in the light of the information obtained from the research and it is also concluded that these values are high. In this context, according to the two variables of the research, biological local study and according to fields three and four. It can be said in the discussion part of the research that it benefits the classroom students.

The work that Juneja and Trainin (2022) have done is also ongoing work on technology integration. Of the possibilities that technology provides lower middle-class students' learning and motivation has a significant effect on the research that is aimed at, and as a result of learning opportunities for students both boys and girls equally and technology support a variety of learning opportunities to meet learning goals and students with very little opportunity to use technology at school and at home using effective technologies that have adopted had reached the conclusion that observed. In this context, when this value is combined with the results of the research, it is seen that the technology predisposition states of the participant groups included in the research, the high technology dimension of the non-predisposition values are low and the results that the technology values are high are reached. In this context, it is seen that the results of the research have been reached that both values and technology values benefit the field and students.

As it is understood from the studies in the discussion section, it is observed that the activity levels and technological approaches have achieved success both in biological local studies and in different courses for primary school students. It is also known that the activity approach to applying biological local studies gives a meaningful message to primary school students, in this context, it can be said that it gives a meaningful value to the direction of education in this part and leaves a mark on research, in this part, it is also among the expectations that the research will be conducted at another time.

5. Conclusion

When the results section in the study is discussed, it is seen that the numerical values of the participants are given first. In this context, it is seen that the results of 148 participants who participated and included in this study have been reached. Another result of the research is that the study group examined the biological local study situations of primary school students and in the light of the information, it was seen that the 'very' option was reached and it is seen that the students who chose this option are predisposed to biological local studies. Another value of the research is that the situations related to the technology education status of the students included in the study were examined, and after the study, it was found that the students included in the study were predisposed to technology education and this field and were able to use the environment.

Another value of research applied to *T*-test results according to the gender of students scores in terms of biological study and understanding of the local susceptibility is reached at the conclusion that the variable is not a significant difference, and it is seen that the groups of the male participants, female participants, according to the group reached the conclusion that it is seen that local biological studies and are prone. Another value of the research approach is discussed for biological studies the activity of students surveyed local activity patterns over the status of the review and methodological approach for scores for one-way ANOVA according to the results, a statistically significant difference for the size of the activity approach to care is not. Again, from the point of view of the results of the research, it was concluded that there is no significant difference in terms of methodological patterns of biological local studies. It is observed that the methodological patterns of biological local studies and the lack of differences in the approach to activity situations mean that the subject covered in live lessons is well learned, and it is also observed that behaviour is formed in primary school students about this topic. The conclusions of the study of the problem of the situation with the technology that is used for the assessment of the state of technology at events data were collected from the participant groups and 'technology predisposition size' section of the results at the same time out of the high technology 'using media' reached the conclusion that it is seen that low. The size of the technology used for the activities of biological local studies can be said in the results of the research in terms of predisposition, very good abstinence, and low abstinence.

In the research, it was concluded that the effects on biological local studies were high and as a result of the research, the participant groups easily used the development technologies in biological local studies and the application that came with this idea was formed.

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