

THE IMPACT OF TEACHING TECHNOLOGY ON THE DEVELOPMENT OF CRITICAL THINKING

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Summary – *Living in an era of dynamic technical and technological development, the need to apply teaching tools in the process of teaching represents a challenge for teachers and schools nowadays. The acquisition of teaching content aided by teaching technology increases the level of knowledge and critical thinking, decreasing at the same time the mechanical reproduction of facts. The application of such technology in the learning process motivates learners to reflect, to think sharply and to integrate intellectual skills.*

The principal aim of this research is to study the effects of the application of teaching technology on the development of critical thinking in pupils. The research has been undertaken in the school subject of nature and society, the teaching content of which, by synthesising knowledge on nature and society, motivates pupils to ask questions, draw logical conclusions, to make judgments and evaluate various matters of objective reality. Participants in the research were 720 pupils and 24 teachers of several education centres of Kosovo who were trained in the programme “Reading and Writing for Critical Thinking”. The data were collected from pupils and teachers by testing and through surveys conducted during the initial and final research.

The findings show that teaching aided by the use of the overhead projector, CDs and DVDs with teaching content, and computers, has a considerable influence on critical reflection on knowledge, which integrates logical abilities such as evaluation, development of imagination, and the generation of new ideas. The effects of its application in the experimental group were observed in the fulfilment of high level tasks in Bloom’s taxonomy, which require analysis, synthesis and evaluation of information. The experimental group achieved 71% of points. Compared to the control group that attained 56.77%, the experimental group attainment is 14.23% higher. The difference in favour of the experimental group is attributed to the effects achieved by the application of teaching tools, which stimulated active learning and the development of critical thinking, an important premise in enhancing the quality of learning and in transforming the teaching process.

Key words: *teaching technology, critical thinking, the subject of nature and society.*

Introduction

In the post-war period, the Kosovar education system has undergone a process of changes “aiming at the establishment of a modern education system according to advanced international parameters” (Koliqi, 2004, p. 45). The new education system which is gradually emerging as a result of a range of radical changes in traditional teaching has been swept by a wave of modernisation achieved by school reforms. The application of technological innovations in teaching alters the methodology of the learning process, enabling the establishment of an “activity” discipline instead of an “obeying” discipline. At the same time, instead of “filling heads” with information, focus is placed on forming a creative personality which will allow the individual to integrate successfully in contemporary trends in society.

The origin of various determinants of critical learning and thinking are found in the Socratic/inductive method: stimulation of the interlocutor through questions which cultivate a disciplined mind (see Elder & Paul, 2006). Critical thinking is “a synonymous term for ‘evaluation’ and belongs to the highest level of thinking” (Fisher, 1995, p. 92). Evaluation as a cognitive operation sets demands for the learner to make judgments, to have rational opinions, and to defend them logically. This is achieved when the learner actively participates in the learning process, goes into its depths, analyses, synthesises and evaluates new information.

Interactive teaching is made possible through the application of teaching technology. Hence, critical thinking, as a new form of education, and other intellectual skills (see Kyriacou, 1995) are developed in harmony with the individual capacity of each learner. In order to achieve this, apart from a solid financial foundation, highly qualified and professionally conscientious staff are required.

Rationale of the research topic

1. Reforms in education are characterised by essential changes in the teaching process and the modernisation of teaching activities. In Kosovo, although the process has been initiated, there are still cases of the use of the verbal method and traditional teaching. In schools generally, since much of the teaching is based on memorising and repetition of acquired knowledge, insufficient focus is given to increasing the learners’ capacity to analyse, make judgments, justify, and debate the possibilities of solving problems.

The requirement to “develop the knowledge and intellectual abilities of learners, essential in order to understand, analyze, and act in everyday life” (see Grade 3 Curriculum and Syllabus, 2005) constitutes the primary aim of school and is fully in line with Piaget’s attitude (cited in Musai, 2005, p.11):

“The main aim of education is to create people that are able to do new things and not simply repeat what other generations have done – people who are creative, inventors and discoverers. The second aim of education is to form minds that are critical, that can verify, rather than simply accept everything that is offered to them”.

2. Among the first steps in the transformation of teaching practice, of particular importance is the application of teaching technology which “touches each pore of human activity and is the driving force not only in the sphere of material production, but also in the development of mental powers of contemporary man” (Geber, 1980, p.5). Perceptions, observation, and comprehension of essential notions stimulate the processes of intellectual activity. The function of education technology also lies in the engagement of learners in regularities of cognition, which begin with concrete observation and lead to abstract thinking and reflection. Thus, the learner easily applies knowledge in practice, relates phenomena, and discovers the relations of cause and effect.

Based on an analysis of the curriculum and textbooks, it has been assessed that the content of the school subject nature and society “is very suitable for exercising, and for the development of, mental abilities and functions” (Krasniqi and Veseli, 2000, p.279). Knowledge in the field of nature and society arouses learners’ curiosity to discover the unknown and explore a range of questions that contribute to the development of learners’ imagination, the creation of images, as well as interpretation, comparison, and argumentation. The proper application of teaching technology requires the teacher to have “a good understanding of interactivity, coactivity, and auto activity relations, social forms of teaching activity and their didactic and methodological value” (De Zan, 1999, p.253). The learner’s motivation to discover his/her creative abilities and to develop critical thinking categorically outweighs traditional school postulations related to the “average learner”.

3. In many primary schools, the programme “Reading and Writing for Critical Thinking”, in the vanguard of reforms in education, successfully provides in-service teacher training based on the philosophy of critical thinking. The programme has made a considerable contribution to this research as well.

The aim and objectives of the research

The aim of this research is the comparative analysis of traditional teaching practice and the impact of contemporary teaching technology on the development of critical thinking in the subject nature and society. In order to achieve this aim, focus was placed on the following objectives:

- to ascertain the impact of teaching technology on the development of critical thinking in teaching the subject nature and society;

- to process and interpret statistical data obtained during the initial and the final research;
- to draw conclusions leading to discussion.

Research hypothesis

The hypothesis of the research was developed on the bases of teaching practice and pedagogical literature. The initial hypothesis used was: the application of teaching technology enhances the qualitative acquisition of teaching content and the development of critical thinking through the subject nature and society.

In formulating the hypothesis, it was possible to distinguish the following sub-hypotheses:

- The application of teaching technology changes the position of the learner and teacher in the teaching process;
- The use of teaching technology represents a sound basis for the elicitation of questions and the initiation of discussion.

Representative group / sample

Based on the data obtained from the Kosovo Education Center (KEC), which provides training for Kosovar teachers, the overall number of teachers trained in the Programme of Reading and Writing for Critical Thinking is 1,000, whereas the number of pupils reaches the figure of around 30,000. Since the research population is numerically much greater, incomplete induction through a representative group consisting of two subgroups of pupils and teachers was used. Considering the fact that institutions of primary education are distributed in areas of a varying scale of infrastructural development, the features of urban and rural environments were also included in the research.

The inclusion of individual cases of the population in the representative group was calculated by the formula: $Pm = \frac{n}{N}$

(Pm/permutation of sample, n/number of individual cases, N/number of general cases).

$$Pm = \frac{720}{30000} = 0.024 \text{ or } 2.4\% \text{ of the population, which means that}$$

every 42nd case of the overall population was selected for inclusion in the representative group (24 x 30 = 720).

The participation of schools in the research and the distribution of groups of schools are shown in Table 1.

Table 1 – *Schools included in the research*

Primary school	Place	Control group	Experimental group	Number of pupils
1. “Elena Gjika”	Prishtina	2	2	120
2. “Hasan Prishtina”	Prishtina	2	2	130
3. “Matio Logoreci”	Prizren	2	2	128
4. “Abaz Ajeti”	Gjilan	2	2	118
5. “Mustafa Bakija” 2	Gjakova	2	2	124
6. “Ahmet Rustemi”	Village of Bec	1	1	44
7. “Emin Duraku”	Vill.Malisheva	1	1	56
Total	7 schools	12 classes	12 classes	720

Table 1 shows that 7 primary schools, 5 from urban and 2 from rural areas, participated in the research. Pupils were divided into two groups: a control group (in which teaching was conducted without teaching technology, making a total of 12 classes comprising 359 pupils) and an experimental group (in which modern teaching tools were used, consisting of a total of 12 classes comprising 361 pupils). The overall number of pupils representing the sample amounted to 720. A total of 24 teachers of the schools mentioned above, trained in the Programme of Reading and Writing for Critical Thinking, were also included in the research.

The representative group (the sample) consisting of 720 pupils and 24 teachers were the subjects of the initial research, of the research techniques, and of the final research.

Research methods

1. Method of theoretical analysis: the complex character of the impact of teaching technology on the development of critical thinking required the thorough study of pedagogical literature including encyclopaedic dictionaries, books, university textbooks and education journals. Apart from these, several scholarly articles and Internet resources were analysed.

2. Comparative method: during the analysis of the collected data, differences and similarities related to the control group and experimental group were investigated on the one hand, and, on the other hand, the results obtained in schools in urban and rural areas were compared.

3. Experimental method: the research was of an experimental character, since the effects of teaching are enhanced through the experimental factor.

4. Statistical method: the collected data were analysed, compared, and interpreted by statistical percentages. Due to the complexity of the issue, the arithmetical mean (\bar{X}) and standard deviations (S) were used. In order to assess the level of correlation between the variables, r^2 was used.

Research techniques

- Survey: a vast amount of data related to pupils' and teachers' opinions and attitudes towards the use of teaching technology was collected through a closed-type survey.
- Achievement test: pupils participated in the initial and final test in the subject nature and society. The questions of a lower and higher level of thinking were classified into four categories.

Research dynamics

Following the ideational project, first pilot research was conducted. This was followed by initial research to continue with the factor impact in order ultimately to conduct the final research (see Muzhic, 1986).

Pilot research conducted in urban and rural areas aimed to verify the characteristics of the measurement instruments. This led to the correction of some questions to be used in the survey of pupils.

During the *initial research*, pupils of both the control group and the experimental group completed a test to assess their knowledge of the subject nature and society. After the test, the following teaching tools were used:

- Overhead projector
- DVDs
- CDs with teaching content
- Computers

The final research was concluded by conducting a survey where pupils and teachers were both included, and by administering a test to evaluate the content of the subject nature and society which was taught to both groups participating in the research.

Results of the initial research

The initial test was administered both to the control and experimental groups to provide a preliminary measurement of the pupils' knowledge of the subject nature and society. Tasks were categorised into four groups (1 and 2 – low level, and 3 and 4 – high level):

- 1/ knowledge, comprehension
- 3/ analyses, synthesis
- 2/ application
- 4/ evaluation

The statistically processed data show that the control group managed to achieve 54.52% of the overall points. It is clear that pupils attained a greater number of points in lower level thinking. The overall test results achieved by the control group, as well as the results according to groups of questions, are given in the table below:

Table 2 – Control group test results

Tasks group	Possible number of points	Achievement	%
I	3,960	2,831	71.5
II	4,680	3,140	67.1
III	5,760	3,024	52.5
IV	8,640	3,387	39.2
Total	23,040	12,382	54.52

The same test was also administered to the experimental group. This group scored 55.07% of the overall amount of points. The statistically processed data are given in the table below:

Table 3 – Experimental group test results

Tasks group	Possible number of points	Achievement	%
I	3,874	2,976	72.3
II	4,752	3,074	65.26
III	5,693	3,124	53.5
IV	8,740	3,287	37.6
Total	23,059	12,461	55.07

The statistical values obtained in the initial research from the control group and experimental group are as follows:

CONTROL GROUP

N= 359

X= 36.61

SD = 11.15

% = 54.52

EX=123.82

EXPERIMENTAL GROUP

N= 361

X = 38.82

SD = 12.78

%=55.07

EX= 124.61

Based on the statistical parameters X – arithmetical mean, SD – standard deviation, % – percentage, and EX – the sum of points attained in the test, the

conclusion can be drawn that the differences between the control group and the experimental group are very small. Consequently, they cannot influence the final results of the two groups under the conditions of the impact of the experimental factor. This conclusion is a significant argument and prerequisite for the successful conduct of the research, as well as for the verification of the hypothesis, data analysis and data interpretation.

The final research results

The survey conducted among pupils and teachers consisted of ten questions. Some of the survey questions are listed below:

Questions for pupils

Question 1: *Has the use of the overhead projector motivated you to make judgments about the content of the lesson?*

Table 4 – The impact of the OHP on developing the ability to make judgments

EXPERIMENTAL GROUP urban and rural areas	Yes	Partly	no	%
Prishtina	69.84%	19.84%	10.32%	100%
Gjakova	70.31%	17.19%	12.50%	100%
Prizren	70.02%	16.67%	13.83%	100%
Gjilan	70.18%	17.54%	12.28%	100%
Village of Bec	66.37%	20.83%	13.50%	100%
Village of Malisheva	65.38%	19.23%	12.38%	100%
Average	68.68%	18.55%	12.80%	100%

The findings show that 68.68% of pupils admit that the use of the OHP has motivated them to make judgments about the lesson, 18.55% consider that this device has had a partial influence, whereas 12.80% denied its influence. In this respect, no significant differences were observed between urban and rural areas. Referring to the data, it may be ascertained that the OHP in the teaching context enables pupils to make judgments on the teaching content and makes the learning process rational and qualitative.

Question 2: *How much have CDs helped you to understand the message of the lesson?*

Table 5 – The impact of CDs on the evaluation of knowledge

EXPERIMENTAL GROUP urban and rural areas	not at all	partly	fairly well	very much	fully	total
Prishtina	2.40%	7.60%	19.20%	62.03%	8.80%	100%
Gjakova	3.20%	6.10%	19.40%	68.41%	2.90%	100%
Prizren	1.60%	12.50%	10.90%	65.60%	9.4%	100%
Gjilan	6.80%	15.30%	18.50%	67.80%	3.40%	100%
village of Bec	9.10%	27.30%	13.60%	43.50%	5.40%	100%
village of Malisheva	10.70%	17.90%	14.30%	50.05%	7.10%	100%

Table 5 shows that a considerable number of pupils (an average of 57.89%) chose the alternative “very much”. In urban areas, the impact of CDs is greater (compare Gjakova 68.41%, Prizren 65.60%, Gjilan 67.80% and Prishtina 62.03%) compared to rural areas (see the village of Bec 43.50% and the village of Malisheva 50.05). The findings show that pupils value the use of CDs with teaching content in the stage of reflecting on the knowledge acquired, and in understanding the message of the lesson.

Question 3 – *How much has television helped you to draw conclusions on the content of the lesson?*

Table 6 – DVDs with teaching content and their impact on drawing logical conclusions

EXPERIMENTAL GROUP urban and rural areas	not at all	partly	fairly well	very much	fully	Total
Prishtina	0.0%	4.72%	17.32%	64.57%	13.89%	100%
Gjakova	0.0%	6.45%	8.06%	69.35%	16.13%	100%
Prizren	3.13%	4.69%	10.94%	62.50%	18.75%	100%
Gjilan	6.78%	13.56%	8.47%	57.63%	13.56%	100%
Village of Bec	4.55%	9.09%	13.64	54.54%	18.18%	100%
Village of Malisheva	7.14%	10.71%	10.71%	50.01%	21.43%	100%
Average	3.6%	8.20%	11.52%	59.76%	16.99%	100%

The data obtained from the experimental group, which are presented in Table 6, show that DVDs with teaching content on average help 59.76% of pupils understand the lesson “very much” and draw logical conclusions from the teaching content. On the other hand, as many as 16.99% of respondents favour their use, choosing the alternative “fully”. These facts support the development of critical thinking. It is worth mentioning that in the two cities of Prishtina and Gjakova a considerable increase in pupils’ results was observed compared to other education centres. The number of pupils who chose the first three options is smaller. We consider that the use of DVDs with teaching content in teaching the subject nature and society, apart from providing sustainable knowledge, motivates pupils to continually think independently and express their ideas. This teaching tool also enables pupils to construct concrete notions and analyse various matters from nature and society, beginning with observations and concrete images. Apart from their role in the teaching process, the use of DVDs also intensifies and develops functional thinking, such as critical thinking, as well as other abilities of logical reasoning.

Question 4 – *How much has the computer helped you in constructing new ideas and in using your imagination?*

Table 7 – The impact of the computer on the development of imagination and on the creation of ideas

EXPERIMENTAL GROUP urban and rural areas	not at all	partly	fairly well	very much	fully	Total %
Prishtina	2.40%	3.20%	11%	12.80%	70.40%	100%
Gjakova	3.20%	6.50%	11.3%	16.10%	62.90%	100%
Prizren	3.10%	3.10%	17.20%	21.90%	54.7%	100%
Gjilan	3.40%	5.10%	16.90%	20.30%	54.20%	100%
Village of Bec	4.50%	9.10%	9.10%	22.70%	54.50%	100%
Village of Malisheva	3.60%	10.70%	14%	17.90%	53.60%	100%
Average	3.16%	5.01%	13.37%	17.22%	61.45%	100%
Standard deviation	0.68	0.92	1.47	2.15	3.68	-
N	11	18	48	63	221	361

$$h^2 = 7.47$$

The Table above shows that the last option “fully” was excessively selected by respondents from both areas, displaying an average value of 61.45%. The average selection of “very much” is 17.22%, “fairly well” 13.37%, “partly” 5.01% and “not at all” 3.16%. In both urban and rural environments, similarities were observed in the results obtained in different education centres. The greater influence of computers was reported in the

primary schools of Prishtina (70.40%). Referring to numerical indicators, it can be said that the computer, as an infinite source of knowledge, contributes to the development of the pupils' imagination and the creation of new ideas in this school subject. Due to the great number of respondents, the value of h^2 was calculated, displaying the value of 7.47, which proves the significant correlation between the variables. Based on the findings obtained in the research, we consider that the use of computers in teaching, compared to other tools used in the research (OHP, CDs, and DVDs), showed the greatest impact in the development of critical thinking.

Question 5 – *How often have teachers encouraged you to ask questions in the subject nature and society?*

Table 8 – Pupils' questions in the subject nature and society

CONTROL AND EXPERIMENTAL GROUP	never	several times	often	always	%
Control group / urban and rural areas	8.33%	20.83%	29.17%	41.67%	100%
Experimental group / urban and rural areas	0.62%	5.22%	30.33%	63.83%	100%
Arithmetical mean	1.96	2.39	3.75	4.83	-
Standard deviation	0.76	1.92	2.84	3.65	-

Based on the findings obtained, it is clear that the pupils in the experimental group, compared with pupils – participants of the control group (see the alternative “always” selected by 41.67%), revealed a greater desire to ask questions and become actively involved in the process of learning in the subject nature and society (63.83% marked “always”). Teaching aided by contemporary tools provided a wider range of opportunities for pupils to formulate explorative questions and ignited in them the spark of creativity. Thus, favourable situations for cooperation were created, continually prompting class discussions. This led to the establishment of the feeling of confidence in pupils' abilities to think critically during problem-solving activities. The development of pupils' abilities and motivation to formulate questions was facilitated by teachers who applied the methods of interactive learning.

Questions for teachers

In the new conditions of organising teaching, in which teaching technology is applied, teachers are not the sole source of information and knowledge. Pupils obtain a vast amount of information from sources outside the school environment. This sets the requirement for the permanent education of teachers.

Question 1: *Have you been trained in the application of teaching technology in teaching?*

Table 8 – Teachers and their level of qualifications in the application of teaching technology

Level of education	Trained	Partly trained	Untrained	Total
Teachers – teacher training college graduates	4.17%	8.33%	87.50%	100%
Teachers having completed higher pedagogical schools	4.17%	12.50%	83.33%	100%
Teachers with university education	8.33.0%	16.67%	75.00%	100%
The average according to level of education	61.94%	32.50%	5.56%	100%

The findings show that the majority of teachers who are holders of a two-year degree have not been trained in the application of education technology, whereas teachers who hold a university degree (see 61.94%) are capable of using teaching technology in the teaching process. Considering the problems which primary schools in our country are facing, it can be stated that the factors which hinder the application of contemporary education technology in practice are on the one hand poor financial means, and on the other hand the inadequate level of training of teachers in using the respective technology.

Question 2: *Does the position of pupils change with the use of technology in the teaching process?*

Table 9 – Change in the position of pupils with the use of teaching technology

EXPERIMENTAL GROUP Urban and rural areas	Does not change	Changes partly	Changes fully	Total
Prishtina	6.60%	25%	68.90%	100%
Gjakova	7.40%	28.30%	64.30%	100%
Prizren	6.90%	23.50%	69.60%	100%
Gjilan	7.70%	13.20%	79.10%	100%
Village of Bec	7.90%	28.80%	63.30%	100%
Village of Malisheva	7.60%	29.90%	62.50%	100%
Average	7.15%	25.5%	67.95%	100%

As can be seen from the results presented in Table 9, 67.95% of pupils – participants of the experimental group declared that, as a consequence of the use of teaching technology, their position changes “fully”, 25.5% consider that it changes “partly”, whereas 7.15% of pupils point out that their position does not change. The research findings show that the changes in the pupils’ position bring about contemporary solutions in the organisation of the teaching process. This particularly relates to the shift of focus from teaching to learning, from leading to monitoring and self-leading, from the passive receiving of knowledge offered by teachers to organised individual activities which contribute to the development of intellectual skills and abilities, creating opportunities for multi-direction communication. On the other hand, the new position of the teacher in using teaching tools assigns him/her the role of explorer, creator and collaborator in the process of discovery of knowledge and in the affirmation of the pupils’ intellectual potential in the learning process.

Analysis of findings

The final results obtained in the final test show that the control group managed to achieve a total of 56.77% of the overall number of points, whereas the number of points attained by the participants of the experimental group, particularly in the third (analysis, synthesis) and the fourth (evaluation) group of tasks which belong to high level thinking amounted to 69.25% and 68.88% of the total points respectively. The concluding results obtained in the final research are as follows:

<u>CONTROL GROUP</u>	<u>EXPERIMENTAL GROUP</u>
N= 359	N= 361
X= 44.25	X = 49.78
DS = 12.36	DS= 21.58
% = 56.77	%=71.00
EX=13080	EX= 16639

After the results of the data obtained in the final test were processed, it was concluded that the experimental group attained 71% of the possible number of points. This achievement proves that the attainment of the experimental group, compared to the achievement of the control group, is 14.23% higher for tasks that require analysis, synthesis and evaluation of information in the subject nature and society. Other statistical values (arithmetical mean and standard deviation) were also higher for the experimental group.

Based on the analysis of the initial and the final test results, as well as of the surveys conducted among pupils and teachers, it may be concluded that the application of teaching technology to a considerable extent positively

influences the teaching process in the development of critical thinking compared to teaching which in everyday practice lacks contemporary teaching tools. Both the final test results and the data from the surveys among pupils and teachers confirm the initial research hypothesis. The impact that these teaching tools have on the process of critical thinking among pupils was observed in the pupils' ability to make judgments, draw conclusions and evaluate information. The use of teaching tools, by placing the pupil in the centre, also enhanced active participation, the formulation of productive questions, discussions on learning by cooperating, free expression and the creation of new ideas, all of which serve to develop critical thinking and intellectual skills.

Recommendations

From the concluding findings which are indicators of the positive effects of contemporary teaching technology in the development of critical thinking, the following recommendations can be made:

1. Schools and competent education institutions, by introducing changes in their education policies, should create opportunities for training teachers in the use of teaching technology in the teaching process.
2. The lack of teaching tools imposes the need for schools to be equipped with contemporary teaching technology.
3. In the process of developing the teaching content in the subject nature and society, pupils should be encouraged to initiate class discussions.
4. Teachers should be encouraged to abandon verbalisation and traditional approaches in favour of teaching with the use of contemporary teaching technology.

In conclusion, we consider that the development of critical thinking through the use of teaching technology is an essential factor in productive teaching, long-term learning, and the cultivation of values and learning habits required for overall development. This objective requirement derives from our strategic orientation towards integration in a society based on knowledge, whose achievement will accelerate the development of Kosovar society in general.

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UTJECAJ OBRAZOVNE TEHNOLOGIJE NA RAZVOJ KRITIČKOG MIŠLJENJA

Hatixhe Ismajli

Sažetak – U vremenu dinamičnog tehničkog i tehnološkog razvoja, potreba za primjenom obrazovnih alata predstavlja izazov za učitelje i škole današnjice. Usvajanje obrazovnih sadržaja potpomognuto tehnologijom povećava razinu znanja i kritičkog mišljenja, istovremeno smanjujući mehaničku reprodukciju činjenica. Primjena obrazovnih tehnologija u procesu učenja motivira učenika za refleksiju, mišljenje i integraciju intelektualnih vještina.

Osnovni cilj ovog istraživanja je proučiti utjecaje primjene obrazovne tehnologije na razvoj kritičkog mišljenja učenika. Istraživanje je provedeno na predmetu prirode i društva, čiji obrazovni sadržaji sintetizirajući znanja o prirodi i društvu motiviraju učenike da postavljaju pitanja, zaključuju, prosuđuju i procjenjuju različite uzorke objektivne stvarnosti. U istraživanju je sudjelovalo 720 učenika i 24 učitelja različitih obrazovnih centara na Kosovu, obučeni u programu “Čitanje i pisanje za kritičko mišljenje”. Podaci su prikupljeni testiranjem i anketiranjem učitelja i učenika provedenih tijekom inicijalne i finalne faze istraživanja. Rezultati ukazuju na to da poučavanje potpomognuto upotrebom projektora, CD-a, DVD-a obrazovnih sadržaja ima osjetnog utjecaja na kritičku refleksiju znanja, integrirajući logične sposobnosti poput procjene, razvoja mašte i generiranja novih ideja.

Utjecaj primjene obrazovnih tehnologija na eksperimentalnu skupinu promatran je u ostvarivanju zadataka na visokoj razini (Bloomova taksonomija), koji zahtijevaju analizu, sintezu i procjenu informacije. Eksperimentalna skupina ostvarila je 71% bodova, dok je kontrolna skupina ostvarila 56.77% bodova. U usporedbi je eksperimentalna skupina ostvarila 14.23% više bodova. Uspjeh eksperimentalne skupine pripisuje se utjecaju primjene obrazovnih alata, koji stimuliraju aktivno učenje i razvoj kritičkog mišljenja., važne premise poboljšanja kvalitete učenja i preobrazbe procesa poučavanja.

Ključne riječi: obrazovna tehnologija, kritičko mišljenje, nastavni predmet priroda i društvo