

dr sc. Hatixhe Ismajli
Faculty of Education, University of Prishtina

UDK 159.953.5

ENCOURAGING HIGHER LEVEL THINKING BY THE USE OF QUESTIONING STRATEGIES

What's in a question, you ask? Everything. It is the way of evoking stimulating response or stultifying inquiry. It is in essence the very core of teaching"

Dewey, 1933

ABSTRACT

Seeking solution for various problems that oppose the traditional model of education, modern teaching encourages the use of Socratic method whose purpose is to challenge learners' ideas through questions and answers in discussions, to discover the truth and to lead them towards new knowledge. Posing higher level questions based on Bloom's Taxonomy, learners develop their cognitive skills through analysis, synthesis and evaluation. Aiming to analyze learners' participation and their readiness to formulate higher level questions under the influence of the teaching technology, a research was conducted in the subject of civic education. Research population sample comprised 126 pupils, as well as the 5 teachers of several schools in Kosovo. The data was collected through a survey conducted amongst the pupils, and interviews realized with the teachers. In order to motivate the pupils to ask higher level questions, the projector, CDs and the computer were used. Research findings show the tendency of the increase of pupils' motivation for formulating questions that develop higher level thinking and reflection in responding as a result of the use of the teaching technology, but, at the same time, they indicate the low level of their application in the teaching practice. The situation of poor application of questioning strategies which stimulate the development of higher level thinking, as well as the lack of use of the teaching technology has to be changed in order that the teaching process changes and educational needs are successfully realized.

Keywords: *higher level thinking, pupils' questions, subject civic education, teaching technology*

INTRODUCTION

Higher level thinking includes critical, logical, reflective, metacognitive, and creative thinking. These are activated when individuals encounter unfamiliar problems, uncertainties, questions, or dilemmas. To generate higher level thinking processes, questions must elicit answers that have not already been presented. The most educationally valuable kinds of questions are those requiring pupils to extend knowledge, deepen understanding or achieve new insights in the process of composing a response. (Egan, 1975, p.228). Planning the questions in advance of actual learning time helps assure questions go beyond simple recall of information. Higher level thinking skills are grounded in lower order skills such as discriminations, simple application and analysis, and cognitive strategies and are linked to prior knowledge of subject matter content.

The need for building a state on the principles of a democratic society in the post-war Kosovo, influenced the design of the new curricula and syllabi, in which the subject of civic education aims to assist the pupils ‘to become aware of their personal identity and safety, to respect beliefs and cultural values in a multiethnic society, to comprehend the rights and responsibilities, and to get acquainted with the nature of the functioning of democracy’ (The Curriculum for Grade 5, 2005, p.87). Since this subject prepares the pupils to act and reason about social activities, it is realized through discussion; therefore questioning gains the primary role in the teaching process. During the classroom activities lack of clarity and difficulties occur, and either spontaneously or in an organized manner, expressions which contain question words ‘why’ and ‘how’ that initiate questions and develop critical thinking, derive.

RESEARCH METHODOLOGY

Aims and objectives of the research

Contrary to traditional teaching in which posing questions was exclusively the teacher’s domain, in contemporary teaching questioning is a reciprocal process which is realized between the teacher and pupil. Based on this assumption, as well as on the statement that “a cornerstone of any effective teaching technique is classroom questioning” (Jacobsen, Eggen, Kauchak, 1989, p.134), the aim of the research was to analyze the motivation of pupils to ask higher level questions under the influence of teaching tools since “in constructivist classrooms, the technology can be used as a powerful tool for exploration and discovery” (Eagleton & Dobler, 2007, p.10).

Hence, the objectives of the research that derive from this formulation are as follows:

- To verify the motivation of pupils to use the strategies of classroom questioning;

- To demonstrate the effects of the teaching technology in stimulating pupils to ask higher level thinking questions;
- To statistically process and analyze the data obtained from the participants in the research;
- To draw conclusions aiming at the increase of the quality of teaching through the use of questioning technique.

Research hypotheses

The primary hypothesis that we were lead by was: pupils are encouraged to formulate higher level questions and discuss the knowledge obtained as the effect of the use of the teaching technology in the subject of civic education.

The following sub-hypotheses have derived from the primary hypothesis:

1. Pupils are encouraged to pose open (divergent) questions;
2. Through questions pupils analyze acquired knowledge;
3. Questions activate pupil's ability to reason;

Research methods, techniques and instruments

The theoretical core of the problem in our research required description; therefore, the theoretical analytical method and the descriptive method were used. Apart from these, the statistical method was used in processing the data which enabled us to deduce the final results. The techniques that were used in the research were survey and interview, whereas the questionnaire for the pupils and the interview protocol for the teachers were utilized as research instruments. The data collected through the application of the above mentioned techniques was analyzed by the use of the statistical methodology: arithmetical mean and standard deviation. In investigating the level of correlation between the variables, Pirson's correlation (r_{xy}) was utilized, whereas χ^2 (chi-square) was used in assessing the difference between the observed and the anticipated frequencies.

Research population sample

The research population sample consisted of the pupils of primary schools (grade 5) of Prishtina and Gjakova (urban area) and the pupils of the primary school in the village of Malisheva of the municipality of Gjilan (rural area). The teaching in the subject of civic education was conducted by the use of the teaching tools. Five teachers of the above mentioned classes were also involved in the research. All of them were trained in the Program '*Reading and Writing for Critical Thinking*'. The research population sample consisted of the total of 126 pupils and 5 teachers of the respective primary schools of Kosova.

RESEARCH FINDINGS AND DISCUSSION

1. *Motivation of pupils to pose open questions when teaching is conducted by the use of the teaching technology*

The pupils’ opinions regarding their desire and motivation to pose open questions are presented on Table 1.

Table 1. *Motivation of pupils to pose questions*

Do you like making questions when this teaching technology is used in class?	never	sometimes	often	always	total
Prishtina	3.84%	17.30%	23.07%	55.76%	100%
Gjakova	5.76%	11.53%	25%	57.69%	100%
Village of Malisheva	4.54%	9.09%	22.72%	63.63%	100%
Arithmetical mean	2	5.66	10	24.33	-
Standard deviation	0.82	2.86	3.55	7.31	-
Average	4.76%	13.49%	23.80%	57.93%	100%
N	6	17	30	63	126

Table 1. Motivation of pupils to pose questions

$\chi^2=$

The analysis of the data obtained reveals that the majority of pupils, respectively 57.93% are encouraged to pose open questions when teaching is conducted by the use of the teaching technology. The numerical value of standard deviation (SD=7.31) of this variable indicates deviation from the arithmetical mean. On the other hand, a considerable number of pupils, more precisely 23.80% think that they are ‘often’ encouraged to ask questions, 13.46% declare that this happens ‘sometimes’, whereas 4.76% of the respondents opt for the alternative ‘never’. According to the research findings, since the value of chi square ($h^2= 10.80$) is higher than the limits of the degree of freedom, it is ascertained that the responses obtained in this representative group are of statistical significance.

Table 2. Pupils analyze knowledge through questions

How often has the teaching technology helped you to analyze knowledge through questions?	never	sometimes	Often	always	total
Prishtina	1.92%	11.53%	26.92%	59.61%	100%
Gjakova	3.84%	7.69%	30.76%	57.69%	100%
Village of Malisheva	4.54%	9.09%	31.88%	54.54%	100%
Arithmetical mean	1.33	4	12.33	24.33	-
Standard deviation	0.47	1.63	3.85	8.73	-
Average	3.17%	9.52%	29.36%	57.93%	100%
N	4	12	37	73	126

Table 2 – Questions that encourage analysis of knowledge

$$x^2 = 7.22$$

$$r_{xy} = -0.59$$

From the data presented on Table 2 it results that 57.93% of pupils think that the teaching technology ‘always’ has an impact on generating higher level questions that require greater intellectual activity and analysis of knowledge. The average of the second alternative ‘often’ is 29.36%, whereas ‘sometimes’ 9.52% and ‘never’ 3.17%. According to the research findings, the value of $x^2 = 7.22$ indicates that the difference between the frequencies is significant and can be compared at the level 0.05 with the degree of freedom 12, whereas the correlation coefficient $r_{xy} = -0.59$ is negative and significant. These results lead to the ascertainment that presentations by the use of the teaching technology motivate pupils to ask questions which help them develop critical thinking, respectively higher level thinking. In classrooms where the focus is on true dialogues the nature of questioning is different.

Table 3. Questions that activate pupils' ability of reasoning

Has the teaching technology motivated you to reason about the learning contents by asking questions?	never	sometimes	often	always	total
Elena Gjika	0.53%	17.30%	32.30%	48.84%	100%
Mustafa Bakija 2	0.53%	19.23%	26.53%	52.69%	100%
Emin Duraku	0.54%	3.54%	35%	54.90%	100%
Arithmetical mean	1	6.66	13	22	-
Standard deviation	0	4.02	3.74	5.71	-
Average	0.53%	13.69%	42.26%	52.14%	100%
	3	20	39	64	126

Table 3 – Questions that activate the ability of reasoning

$$x^2=7.89 \quad r_{xy}=-0.41$$

The results presented on Table 3 indicate that 52.14% of pupils consider that the teaching tools ‘always’ influence reasoning about information, 42,26% have responded by ‘often’, 13.69% ‘sometimes, whereas 0.53% have chosen ‘never’. From the research findings it is ascertained that $x^2= 7.89$ and that there is a significant difference between the frequencies at the level 0.5 with the degree of freedom 12. The correlation coefficient $r_{xy}= -0.41$ is negative and of statistical significance.

Teachers' opinions regarding pupils' motivation in asking higher level questions

- Making questions pupils create working atmosphere in class.
- Pupils are willing to ask questions since they are curious and want to know more;
- Pupils make attempts to analyze and to reason about the teaching content. They continually provide new ideas;
- New knowledge is concrete since through the divergent questions pupils make attempts at linking theory with practice.

CONCLUSION

Based on the theoretical analysis of the literature in the field of education, as well as on the statistical parameters of the findings obtained in the research conducted in a number of schools in Kosova, the following conclusions can be drawn:

1. The results obtained from the majority of pupils (57.93%), as well as the results from the interview with the teachers confirm that pupils are encouraged to pose open (divergent) questions. Construction of notions, development of imagination, as well as stimulation of the ability to analyze, compare and evaluate information in the subject of civic education, provide grounds for the development of higher level thinking. These particular findings confirm the first sub-hypothesis. Through the questions that encourage critical thinking pupils gain the ability to make rational evaluation, to have rational thoughts and defend them. This provides pupils the practice in critical thinking.
2. From the obtained findings it can be concluded that the greater ratio of pupils (see Table 2) declare that application of questioning strategies helps pupils to analyze knowledge through questions. The data confirms the second sub-hypothesis, that active questioning enables pupils to deepen their knowledge through thinking, reasoning, and drawing conclusions in responding.
3. Research findings support the ascertainment that teaching technology stimulates questions through which pupils reason and draw conclusions regarding the teaching content (see Table 2 which shows that 52.14% have responded by 'always' and 42.26% 'often'). The data collected from the interviews with the teachers indicate that formulation of questions has a powerful influence on intellectual engagement of pupils as well as on reflecting upon responses. The principal aim of questioning is to stimulate learning and develop higher level thinking. The data confirms the forth sub-hypothesis.

The research findings lead to the conclusion that the questioning strategy represents one of the essential factors in changing the teaching and learning in the classroom. The quality of obtaining knowledge in the subject of civic education can be enhanced by the questions that encourage higher level thinking that are posed by pupils. The development and perfection of mental abilities through productive questions in this subject will help each pupil to have a vision for articulating attitudes and to be independent and quick-minded. (S)he will successfully participate in activities and will gain the capability to actively perform and make progress in life in the society in which (s)he lives.

REFERENCES

- Arends, R. (1994). *Learning to teach*. New York, NY: McGraw-Hill, Inc
- Bloom, Benjamin S., Mesia, B. B., Krathwohl D.R. (1964). *Taxonomy of educational Objectives*. (two vols: The Affective Domain & The Cognitive Domain). New York. David McKay
- Buehl, D. (2009). *Classroom strategies for interactive learning*. (3rd edition), International Reading Association. Inc
- Cecil, N.L.& Pfeifer,J. (2011). *The Art of Inquiry: Questioning Strategies for K-6 Classrooms*. Portage&Main Press
- Dewey, J. (1933). *How we Think*. Boston, MA: DC Heath
- Eagleton, M.B.& Dobler, E. (2007). *Reading the Web: Strategies for Internet Inquiry*. The Guilford Press, Inc. NY
- Egan, K. (1975). *How to Ask Questions that Promote High Level Thinking*. Peabody Journal of Educational. vol.52, no.3. 228-234.
- Gall, M. (1984). *Synthesis of research on teachers' questioning*. Educational Leadership, 42, p. 40.
- Godinho, S.& Wilson, J. (2004). *How to succeed with questioning*, Curriculum Corporation. Education Services Australia
- Jacobsen, D., Eggen, P., Kauchak, D. (1989). *Methods for Teaching. A Skills Approach*. Merrill Publishing Company, Ohio, Bell&Howell Info CoColumbus
- Judy L.D., McDonald,J.B., Mizell, Al.P. (2005). *Teaching and Learning with Technology*. (2nd edition), Pearson Education, Inc.
- McKenzie, J. (1999) *Questions and questioning: The most powerful technologies of all*. From Now On The Educational Technology Journal, 9(3)
- Muzic, V. (1986). *Metodologija pedagogskog istrazivanja*. Sarajevo
- Paul, R.& Elder, L. (2006). *Thinker's Guide to The Art of Socratic Questioning*. Foundation for Critical Thinking
- Resnick, L. B. (1986). *Education and learning to think*, Special Report. Pittsburgh: University of Pittsburgh, Commission on Behavioral and Social Sciences and Education
- Sanders, N. M. (1966). *Classroom questions: What kinds?* NY: Harper & Row
- Shaunessy, E. (2005). *Questioning Strategies for Teaching the Gifted*. Prufrock Press, Inc.
- The Curriculum for K – 5. (2005). Prishtinë, Libri shkollor
- Tileston, D.W. (2004). *Effective teaching strategies*. Corwin Press
- Walsh, J.A. & Sattes, B.D.(2005). *Quality Questioning: Research-Based Practice to Engage Every Learner*. Corwin Press, A Sage Pub Co
- Wragg, E.C.&Brown G. (2002). *Questioning in the primary school*. Taylor&Francis e-Library: Routledge
- Wilen, W. & Clegg A. (1986). *Effective questions and questioning*. A research review. Theory and research in social education, 14(2), 153-61.