LOWER SECONDARY SCHOOL TEACHERS IN STUDENTS' CRITICAL THINKING SKILLS DEVELOPMENT**Agim BUJARI¹****Abstract**

Encouraging critical thinking skills in students is a necessity and very significant in order to have an open-minded generation and in accordance with actual developments. Teachers should kindle students' curiosity, discussion, fair judgment, evaluation and becoming active in problem solving. Contemporary education process often emphasizes the importance of teaching and learning by focusing learning activities on research and collaborative work, encouraging critical thinking skills, creative and productive application of knowledge, an active approach in learning content and solving specific problems in project activities. The development of critical thinking skills through education is often discussed as a meaningful and necessary objective, but also an implicit and unarguable goal. The purpose of this research is to find out through empirical research whether lower secondary school teachers encourage critical thinking skills in students. The research populace consists of all lower secondary school teachers (about 8,000), whilst the representative group consists of 202 lower secondary school teachers. The overall results show that about 73.6% of teachers do encourage a high level of critical thinking in the classroom, 17.5% of them encourage an average level, while 8.9% of teachers encourage a low level. The overall average of the results, $M = 3.94$. Comparative results suggest that there are statistically significant differences between teachers with different characteristics on encouraging critical thinking skills in students. Empirical results show that female teachers develop a higher critical thinking skill in students, with an average, $M = 112.28$, than male teachers, with a significant lower average, $M = 79.28$, $U = 3021.500$, $Z = -3.768$, $p = 0.000 < 0.05$.

Keywords: Critical thinking, teacher, student, encouragement.

ORTAOKUL ÖĞRETMENLERİ TARAFINDAN ÖĞRENCİLERİN ELEŞTİREL DÜŞÜNME BECERİSİNİN GELİŞTİRİLMESİ**Özet**

Öğrencilerin eleştirel düşünmesini teşvik etmek, çağın gelişmesine ayak uydurarak açık görüşlü nesiller yaratmak için gerekli ve çok önemlidir. Öğretmenler öğrencilerin merakını, tartışmayı, doğru yargılama yetisini, değerlendirmeyi teşvik etmek ve problem çözmede aktif olmak için çalışmalıdır. Çağdaş eğitim süreci, öğrenme etkinliklerini araştırma ve işbirliğine dayalı çalışmaya odaklayarak, eleştirel düşünmeyi teşvik ederek, bilginin yaratıcı ve üretken uygulamasını, öğrenme içeriğine aktif bir yaklaşımla ve proje etkinliklerindeki belirli sorunları çözerek öğretme ve öğrenmenin önemini vurgulamaktadır. Eleştirel düşüncenin eğitim yoluyla geliştirilmesi genellikle anlamlı ve gerekli bir hedef olarak tartışılır, ancak aynı zamanda itirazsız ve tartışılmaz bir hedeftir. Araştırmanın amacı, ortaokul öğretmenlerinin öğrencilerin eleştirel düşünmesini destekleyip desteklemediğini deneysel araştırma yoluyla ortaya çıkarmaktır.

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Araştırma evrenini Kosova'da görev yapan yaklaşık 8000 ortaokul öğretmenleri oluşturmaktadır. Örneklem ise 202 ortaokul öğretmeninden oluşmaktadır. Genel sonuçlar, öğretmenlerin yaklaşık %73,6'sının öğrencileri yüksek düzeyde eleştirel düşünmeye teşvik ettiğini, %17,5'inin öğrencileri ortalama bir düzeye teşvik ettiğini ve öğretmenlerin %8,9'unun öğrencileri düşük bir düzeye teşvik ettiğini gösterdi. Sonuçların genel ortalaması $M = 3.94$. Karşılaştırmalı sonuçlar, öğrencilerin eleştirel düşünmesini teşvik etmede farklı özelliklere sahip öğretmenler arasında istatistiksel olarak anlamlı farklılıklar olduğunu göstermektedir. Ampirik sonuçlar, kadın öğretmenlerin öğrencilerde daha yüksek eleştirel düşünme becerisi geliştirdiklerini, ortalama $M = 112.28$, erkek öğretmenler ise önemli ölçüde daha düşük bir ortalama göstermektedir, $M = 79.28$, $U = 3021.500$, $Z = -3.768$, $p = 0.000 < 0.05$.

Anahtar Kelimeler: Eleştirel düşünme, öğretmen, öğrenci, teşvik.

INTRODUCTION

Critical thinking is the disciplined art to ensure that you use the best thought that you are capable of using in every circumstance. We all have numerous choices to make. We need the best information to make the best choices (Paul, R. W. & L. Elder, 2002). Critical thinking is a complex process which requires higher levels of cognitive skills in processing the information (Choy S. Chee & Cheah, Phaik Kin., 2009).

Critical thinking is the key skill that contributes to the development of human beings. It helps students analyze, evaluate, think on their own, solve problems and reason (Yuliawati, Mahmud and Muliati, 2016). Thinking critically does not mean to think negatively. It is an unbiased and objective process of evaluating the claims and opinions of others (Papak, P. P., L. Vujičić and Ž. Ivković, 2017). Critical thinking skills are useful in almost every situation of daily life, even in evaluating the advertisements we encounter every day (Musai, 2014).

Critical thinking skills, or what some refer to as the highest-level skills, help students connect the knowledge while using information from many different sources and experiences to gain a broader perspective and a deeper understanding (Figen, 2010).

The premise that critical thinking is to know, to listen, means that critical thinking is a learned skill that needs to be constantly developed, practiced and integrated into the curriculum to engage students in active learning. To support this premise, a focused attention should be paid to content implementation, learning process, and methods of assessment (Snyder, L. G. & M. J. Snyder, 2008).

Many teachers are trying to change their practices and support the development of critical thinking skills while reading and writing. They want their students not to be mere reproducers, but to question, examine, create, solve, interpret, and debate the facts, data, or given ideas in relevant materials (Temple, Ch. A. Crawford, W. Saul, S. R. Mathews and J. Makinster, 2006).

Teachers have the key role to play in developing critical thinking. By applying the right approach and different techniques in teaching, they will influence the development of students' critical thinking skills.

1. LITERATURE REVIEW

There are many definitions on critical thinking in literature, but there is no consensus on one definition. On the other hand, all these definitions have something in common, and when studied closely, they seem to revolve around certain ideas: First, there is a consensus that critical thinking is intentional, reasonable, reflective, self-monitoring, responsible, and capable of thinking based on criteria (Figen, 2010).

Thinking is a very important issue in contemporary education and nowadays many teachers are interested in developing and encouraging critical thinking skills in their classrooms (Asgharheidari, F.&A. Tahriri, 2015).

Critical thinking, or the ability to engage in the intentional self-regulation judgment, is widely recognized as an essential skill for the era of knowledge (Abrami, et al., 2008). The critical thinker is usually inquisitive, well-informed, reliable to reason, open-minded, flexible, careful in decision - making, persistent in seeking results, etc. (Facione, 1990).

One of the most important things you can do for yourself is to start the process of becoming a "critic" of your way of thinking. You do this not to deny yourself, but to improve yourself, to start practicing the art of thinking and learning throughout your life (Paul, R. W.&L. Elder, 2002).

1.1. Critical thinking

Critical thinking does not suggest a new concept, but a part of the problem that theorists face is that it is a complex and controversial notion which is difficult to define and, consequently, to be studied (Abrami, et al. 2008). John Dewey is considered to be the inventor of critical thinking. He regarded it as a reflective thought and defined it as an active, persistent, careful consideration of a belief in light of the grounds that support it (Papak, P. P., L. Vujičić and Ž. Ivković, 2017). As we develop the basic intellectual skills which nurture critical thinking, we can begin to use those skills in a selfish way or in a virtuous way. In other words, we develop in a way that we learn to see the mistakes in our own thinking as well as how the others think. Or we can simply develop the ability to make our opponent's thinking look bad (Paul, R. W.&L. Elder, 2002).

There are numerous definitions on critical thinking. One of these definitions is that critical thinking constitutes the evaluation of conclusions, considering logically and systematically problems, evidence and solutions (Musai, 2014).

The meaning of critical thinking can be summarized as reflection; identifying and evaluating assumptions; investigation, interpretation and analysis; reasoning and conclusion; with contextual consideration. Therefore, critical thinking is a complex process that requires higher levels of cognitive skills in processing the information (Choy S. Chee&Cheah, Phaik Kin., 2009).

Critical thinking is an outcome, a reference point in the thinking process, which makes the learner control, include, adapt, or publicize information (Steele, J. L., Meredith, K.S., Temple C., 1998). Critical thinking is the ability to analyze and evaluate arguments according to their consistency and reliability, to respond to arguments, and to reach conclusions through provided information (Tiruneh, 2014).

In general, critical thinking is a kind of ability to look at the events, conditions or thoughts in a certain way, and make comments, decisions, by studying the reliability and validity of knowledge according to the standards of logic and mind (Seferoglu, S. S. & Akbiyik, C. , 2006). Critical thinking involves a range of skills, including the ability to properly assess details, investigate relevant evidence, and find inaccurate arguments in educational settings (Fahim, M.&M. R. Ghamari, 2011). According to Facione, critical thinking refers to the process of meaningful conclusion, a merit of the idea that requires reflection of evidence, environments, methods, and criteria (Facione, 1990). Critically thinking students are usually enthusiastic about learning. They are able to face challenges and see them as opportunities to learn even in more difficult tasks (Temple, Ch. A. Crawford, W. Saul, S. R. Mathews and J. Makinster, 2006).

The Critical Thinking community defines the critical thinking as an intellectually disciplined process of active and skillful conception, by applying, analyzing, synthesizing, and / or evaluating the collected or generated information by observation, experience, reflection, reasoning or communication, as a guide to reliability and action (Scriven, M., & Paul, R, 2007).

The Delphi Committee identified six skills (interpretation, analysis, evaluation, inference, explanation, and self-regulation), 16 sub-skills, and 19 inclinations (including inquisitiveness, operating mind, understanding other people, etc.) that were associated with critical thinking. These skills and inclinations provide a complex normative framework to understand and evaluate the quality of human cognition (Abrami, P. C., Bernard, R. M., Borokhovski, E., Wade, A., Surkes, M. A., Tamim, R., & Zhang, D., 2008).

1.2. Teacher's role in encouraging students' critical thinking

The teacher plays a very important role in running the learning process. Among other things, they affect the development of students. Students who are properly instructed by their teachers are expected to become independent and develop critical thinking skills. The most successful classes are those classes where students are encouraged to think and engage in critical thinking (Halper, 1995; Kurland, 1995; Unrau, 1997 in Temple, et al., 2006). Critical thinking enables us to examine our thoughts and become aware of their nature (Temple, Ch. A. Crawford, W. Saul, S. R. Mathews and J. Makinster, 2006).

In order, for students, to develop critical thinking skills, conditions and opportunities must be created. Paul suggests that critical thinking can be developed in an atmosphere that encourages intellectual virtues: intellectual autonomy, intellectual civilization, intellectual confidence or confidence in reason, intellectual courage, intellectual curiosity, intellectual discipline, intellectual sensibility, intellectual humility, intellectual integrity, intellectual persistence, intellectual responsibility and the intellectual sense of justice (Paul, 1995).

There are many factors that can affect a student's thinking process. These factors are teacher-student relationship, collective or collaborative study, deep approach and transformative learning. The teacher plays a key role in providing clear instruction and performing stimulating classroom activities because they influence students' thinking process (Rodzalan, Sh. A.&M. M. Saat, 2015).

Teaching Critical Thinking is a high-level teaching. It develops students' inquisitiveness and gives them the opportunity to rejoice in their learning success. "If children feel good about learning activities, they take the initiative to engage fully in them" (Gartrell, 2000).

The teacher, during the lesson, must encourage students to become active. He should ask questions, which encourage students to think at a higher level, beyond the questions that require simple repetition of facts (Temple, Ch. A. Crawford, W. Saul, S. R. Mathews and J. Makinster, 2006).

The teacher should implement different strategies to encourage students to think critically. The strategy of learning through exploration is given a special importance as part of collaborative work strategies because its implementation encourages students to learn based on their personal experiences (Papak, P. P., L. Vujičić and Ž. Ivković, 2017).

1.2.1. Various techniques that encourage critical thinking

Teachers should use a variety of methods and techniques, which affect the development of students' critical thinking skills. By implementing these strategies, teachers are able to encourage students' critical thinking.

1. Insert

Insert stands for 'Interactive System for Efektive Reading and Thinking'. Insert is a teaching method, which enables students to actively control their level of understanding during the reading process (Bujari, 2010). Using this technique, the teacher ensures a consistent participation of the student in lesson.

While reading, students should check the degree of comprehension and depending on that degree they place signs which present student's interaction with the text being read. By using this technique, a sustainable participation of children in learning is ensured.

2. Find the title

This is a technique, which motivates students to read the text carefully, analyze it as a whole and make a decision, which will be the title, which would best express the content and message of the text.

This technique activates all students in the learning process. Reading the text is not simple, but it requires in-depth and thoughtful high-level analysis to find the title, which best expresses the content. This technique is usually used in the stage of comprehension of meaning (Bujari, 2010).

3. Discussion network

This is a teaching technique of graphic organization of information and, also, a complex lesson can be "orchestrated". This activity makes students be attentive when reading the text, understand its content and the main idea.

Student participation in this activity is high, while the argument and final results are very positive. This technique provides children with maximum freedom in expressing themselves, expressing their opinions aloud, writing arguments in favor of an issue, trying to persuade opponents, freedom in changing places during the debate, etc.

4. I know, I want to know, I learned

The activity I know, I want to know, I learned, can be used to structure an entire lesson. It inquires students to think about what they know about the topic, ask questions about it, and find answers to these questions (Temple et al., 2006). Using this method helps students make predictions about what they are going to read through the questions that arise and what they would like to answer (Musai, 2005a).

5. Venn Diagram

Venn diagram is a technique which identifies the common and different elements between two or more concepts, objects, characters, phenomena, etc. This technique was previously used only in mathematics classes, but nowadays it can be used successfully in all classes when the comparison of the two elements is required.

6. Directed Thinking and Reading Activity-DRTA

Directed thinking and reading activity is a directed reading activity, which aims to involve students actively in the reading process (Bujari, 2010). Children will think while reading; will predict and record their predictions.

Experience shows that directed thinking and reading is an activity that should be highly valued by teachers because students are encouraged to read and make predictions about what they read (Musai, 2005b).

2. THE GOAL OF THE RESEARCH AND RESEARCH QUESTIONS

2.1. The goal of the research

The purpose of this research is to find out through empirical research whether lower secondary school teachers encourage students' critical thinking.

2.2. Research questions

1. Are there differences between teachers of different ages on encouraging students' critical thinking?
2. Are there differences between teachers of different genders on encouraging students' critical thinking?

3. What is the correlation of teachers' experience with encouragement of critical thinking in students?
4. What is the impact of teachers' training on encouraging students' critical thinking?

3. RESEARCH METHODOLOGY

3.1. The model of the study and methods

This study employed the representative model, where 202 lower secondary school teachers have participated in a survey. In representative studies, the number of participants can be from a small number up to thousands of participants (Matthews, B. and L. Ross, 2010). These studies can be quantitative and qualitative. This study employed the quantitative approach whereby questionnaires were administered among teachers whilst for data analysis, were employed descriptive, comparative and correlational statistics.

3.2. Research participants

This study surveyed the views of 202 lower secondary school teachers. 20 of them are up to 30 years old, 71 are from 31 to 40 years old, 49 are from 41 to 50 years old, 49 are from 51 to 60 years old and 13 teachers are over 60 years old.

There are 136 female teachers and 66 male teachers.

Based on their degree, 17 teachers have a 3 - year bachelor's degree, 116 have a 4 - year bachelor's degree, 63 have a master's degree and 6 teachers have other degrees (5 teachers have a higher pedagogical school degree, and 1 teacher has a PhD degree.

From these respondents, 52 of them work in rural schools, 137 in urban schools and 13 of them work both rural and urban schools.

In terms of experience, 29 respondents have up to 5 years' experience, 85 respondents have 6 -15 years, 41 of them have 16-25 years, 37 respondents have 26-35 years and 10 respondents have over 35 years' experience.

About the trainings attended for RWCT or other trainings related to critical thinking, 156 respondents have attended trainings, and 46 of them have not attended any trainings.

3.3. Research instruments

The research instrument for teachers was used to conduct the research. The instruments consist of two parts, in the first part are presented the data of the teachers, and while in the second part are presented the questions about the promotion of critical thinking in students. The research instrument consists of 18 questions. The questionnaire which used a 5-point Likert scale, was administered to the respondents. The research question posed was aimed at analyzing the promotion of students' critical thinking. A Likert scale was used comprising of 5 scales available: 1. strongly disagree, 2. disagree, 3. neither agree nor disagree, 4. Agree, 5. strongly agree, and

then for study needs, the recoding was done in 3 scales: 1. low encouragement, 2. average encouragement, 3. high encouragement.

3.3.1. Instrument reliability

The reliability of the survey was checked using the Cronbach's alpha model and the parallel model.

Based on the results, in Cronbach's alpha model it is noticed that the predicted value of the instrument reliability is 0.967, while the reliability value is 0.966, also according to the Parallel model, the predicted value is 0.967, while the realized value is 0.966. These two values are close to one another and show that the meter is very reliable.

Based on these results, the reliability of the instrument used is very high which indicated that it could be used in the main study

Table no. 3.1. Reliability of the research instrument

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.966	.967	18

Reliability Statistics	
Common Variance	1.032
True Variance	.635
Error Variance	.397
Common Inter-Item Correlation	.615
Reliability of Scale	.966
Reliability of Scale (Unbiased)	.967

3.4. Statistical data analysis methods

Quantitative research data were analyzed through statistical package for social sciences (SPSS). To test the internal consistency of the instrument, were used the models: Cronbach alpha and Parallel, taking the value above 0.7, as a value that proves whether the questionnaire has internal consistency or not. The level of statistical significance 0.05 was set for the evaluation of the results of all statistical tests.

The Mann Whitney U test was used to test differences in the perceptions of female and male teachers regarding the encouragement of students' critical thinking by teachers. The Kruskal

Walis test is used to test the differences of teachers with different experiences on encouraging students' critical thinking. To compare the age averages of teachers in promotion of critical thinking, the ANOVA One Way Test was used. The T-Test was used to test the correlation of trainings for RWCT.

The Levin test was used to test the homogeneity of variances, while the Kolmogorov-Smirnov test was used to verify whether the distribution is normal or not.

The Pearson Correlation Coefficient was used to estimate the correlation between the variables.

4. RESULTS

4.1. Correlation results

The results show a fairly high correlation between the variables. In general, very few of the variables have low correlation; most of them have average and high correlation. Below are all high-level correlations, ranging from the highest value to the lowest value. There is high correlation between the thirteenth question and the eighteenth question, $r=0.896^{**}$, $p=0.000$, between the seventeenth question and the eighteenth question, $r=0.883^{**}$, $p=0.000$, between the thirteenth question and the seventeenth question, $r=0.880^{**}$, $p=0.000$, the tenth question and the thirteenth question, $r=0.863^{**}$, $p=0.000$, the thirteenth question and the fourteenth question, $r=0.862^{**}$, $p=0.000$, the tenth question and the seventeenth question, $r=0.846^{**}$, $p=0.000$, the thirteenth question and the fifteenth question, $r=0.837^{**}$, $p=0.000$, the fifteenth question and the seventeenth question, $r=0.837^{**}$, $p=0.000$, between the fifteenth question and the eighteenth question, $r=0.834^{**}$, $p=0.000$, between the fourteenth question the sixteenth, $r=0.814$, $p=0.000$, the twelfth question and the thirteenth question, $r=0.813$, $p=0.000$, the sixteenth question the eighteenth question, $r=0.811^{**}$, $p=0.000$, the tenth question the fifteenth question, $r=0.809^{**}$, $p=0.000$, the twelfth question and the seventeenth question, $r=0.808^{**}$, $p=0.000$, the twelfth question and the eighteenth question, $r=0.804^{**}$, $p=0.000$, the tenth question the eighteenth question, $r=0.800^{**}$, $p=0.000$, the thirteenth question and the seventeenth question, $r=0.800$, $p=0.00$, the fifteenth question and the seventeenth question, $r=0.800$, $p=0.000$, between the thirteenth question and the sixteenth question, $r=0.796^{**}$, $p=0.000$, between the twelfth question and the fourteenth question, $r=0.794^{**}$, $p=0.000$, between the fourteenth question and the seventeenth question, $r=0.794^{**}$, $p=0.000$, the fourteenth question and the fifteenth question, $r=0.787^{**}$, $p=0.000$, between the tenth and the fourteenth question, $r=0.783^{**}$, $p=0.000$, between the eighth question and the seventeenth question, $r=0.782^{**}$, $p=0.000$, between the tenth question and the sixteenth question, $r=0.767^{**}$, $p=0.000$, between the eighth question and the twelfth question, $r=0.761^{**}$, $p=0.000$, between the tenth question and the twelfth question, $r=0.760^{**}$, $p=0.000$, between the twelfth question and the sixteenth question, $r=0.753^{**}$, $p=0.000$, between the twelfth question and the fifteenth question, $r=0.753^{**}$, $p=0.000$, between the twelfth question and the fifteenth question, $r=0.747^{**}$, $p=0.000$, between the fourth question and the fifth question, $r=0.744^{**}$, $p=0.000$, the ninth question and the thirteenth question, $r=0.742^{**}$, $p=0.000$, the eighth question and the thirteenth question, $r=0.739^{**}$, $p=0.000$, the eighth question and the tenth question, $r=0.734^{**}$, $p=0.000$, the eighth question and the fifteenth question, $r=0.729^{**}$,

p=0.000, the ninth question and the fourteenth question, 0.725**, p=0.000, the ninth question and the seventeenth question, 0.724**, p=0.000, the eighth question and the ninth question, r=0.723**, p=0.000, the ninth question and the tenth question, 0.722**, p=0.000, the eighth question and the eighteenth question, r=0.720**, p=0.000, the first question and the second question, r=0.719**, p=0.000, the ninth question and the seventeenth question, r=0.707, p=0.000, the ninth question and the eighteenth question, r=0.707, p=0.000, between the fifth question and the sixth question, r=0.704**, p=0.000.

These results indicate a high and statistically significant correlation between the variables.

Table no. 4.1. Correlation of variables

		Correlations												
		Q2	Q5	Q6	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
Q1	Pearson Correlation	.719*	.603*	.642*	.412*	.498**	.341*	.580*	.537*	.545*	.503*	.474*	.521*	.551*
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Q4	Pearson Correlation	.645*	.744*	.646*	.513*	.603**	.272*	.560*	.613*	.613*	.567*	.541*	.602*	.602*
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Q5	Pearson Correlation	.660*	1	.704*	.538*	.543**	.355*	.552*	.569*	.548*	.542*	.516*	.575*	.572*
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Q8	Pearson Correlation	.610*	.615*	.582*	.723*	.734**	.521*	.761*	.739*	.697*	.729*	.684*	.782*	.720*
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Q9	Pearson Correlation	.501*	.538*	.520*	1	.722**	.502*	.678*	.742*	.725*	.691*	.707*	.724*	.707*
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.000	.000	.000	.000	.000	.000	.000
Q10	Pearson Correlation	.588*	.543*	.523*	.722*	1	.485*	.760*	.863*	.783*	.809*	.767*	.846*	.800*
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000	.000	.000	.000	.000	.000	.000

Q12	Pearson Correlation	.608*	.552*	.523*	.678*	.760**	.578*	1	.813*	.794*	.747*	.753*	.808*	.804*
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000		.000	.000	.000	.000	.000	.000
Q13	Pearson Correlation	.583*	.569*	.536*	.742*	.863**	.423*	.813*	1	.862*	.837*	.796*	.880*	.896*
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000		.000	.000	.000	.000	.000
Q14	Pearson Correlation	.588*	.548*	.552*	.725*	.783**	.444*	.794*	.862*	1	.787*	.814*	.794*	.858*
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000		.000	.000	.000	.000
Q15	Pearson Correlation	.558*	.542*	.469*	.691*	.809**	.491*	.747*	.837*	.787*	1	.800*	.837*	.834*
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000		.000	.000	.000
Q16	Pearson Correlation	.549*	.516*	.515*	.707*	.767**	.506*	.753*	.796*	.814*	.800*	1	.800*	.811*
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000		.000	.000
Q17	Pearson Correlation	.601*	.575*	.518*	.724*	.846**	.479*	.808*	.880*	.794*	.837*	.800*	1	.883*
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000		.000

** . Correlation is significant at the 0.01 level (2-tailed).

4.2. Hypotheses results

Hypotheses 1:

Alternative Hypothesis (AH): There are statistically significant differences between teachers of different ages on encouraging critical thinking in students.

Hypothesis zero (HO): There are no differences between teachers of different ages on encouraging critical thinking in students.

To test the hypothesis was administered the One Way ANOVA parametric test.

To find the homogeneity of variances was used the Levin test. Empirical results show that the variances are not homogeneous, because $p=0.031 < 0.05$. Empirical results show that teachers over 60 years old have the highest average on encouraging critical thinking in their students, $M = 76.8$, whilst teachers from 51 to 60 years old have the lowest average, $M = 69.5$, $F = 0.923$, p

= 0.452 > 0.05. Empirical results show that there are differences between teachers of different age groups on encouraging students' critical thinking, but these differences are not statistically significant, so we can conclude that the alternative hypothesis is not supported.

Table no. 4.2. Testing the first hypothesis through the ANOVA test

Descriptives								
Encouraging critical thinking								
	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Min	Max
					Lower Bound	Upper Bound		
Up to 30	20	72.8000	4.84062	1.08240	70.5345	75.0655	65.00	82.00
31-40	71	69.7324	16.27791	1.93183	65.8795	73.5853	18.00	86.00
41-50	49	72.0000	14.78456	2.11208	67.7534	76.2466	18.00	87.00
51-60	49	69.4694	15.91920	2.27417	64.8969	74.0419	22.00	84.00
Over 60	13	76.8462	5.36728	1.48862	73.6027	80.0896	72.00	88.00
Total	202	70.9802	14.58922	1.02649	68.9561	73.0043	18.00	88.00

Test of Homogeneity of Variances				
Critical thinking				
Levene Statistic	df1	df2	Sig.	
2.709	4	197	.031	

ANOVA					
Critical thinking					
	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	786.909	4	196.727	.923	.452
Within Groups	41995.012	197	213.173		
Total	42781.921	201			

Hypotheses 2:

Alternative Hypothesis (AH): Female teachers have a greater impact on encouraging critical thinking in students.

Hypothesis zero (HO): There is no correlation between teachers' gender and encouragement of students' critical thinking.

To test the hypothesis was administered the non-parametric Mann Whitney U test, and to assess whether the distribution is normal was used the Kolmogorov-Smirnov test. The findings show that distribution is not normal, $p=0.000<0.05$. Empirical results show that the average of results of female respondents' on encouraging critical thinking in students, is $M = 112.28$, while the average of results of male respondents is $M = 79.28$, $U = 3021.500$, $Z = -3.768$, $p = 0.000 < 0.05$. Based on the averages and statistical test, it turned out that female teachers have a greater impact on encouraging critical thinking in students. Based on these results, we can conclude that the alternative hypothesis is supported.

Table no. 4.3. Testing of the second hypothesis, through the Mann Whitney U test

Ranks				
	Sex	N	Mean Rank	Sum of Ranks
Encouraging critical thinking	Female	136	112.28	15270.50
	Male	66	79.28	5232.50
	Total	202		

Test Statistics ^a	
	Critical thinking
Absolute	.318
193	

Most Extreme	Positive	.029
Differences	Negative	-.318
Kolmogorov-Smirnov Z		2.120
Asymp. Sig. (2-tailed)		.000
a. Grouping Variable: Gender		

Test Statistics ^a	
	Encouraging critical thinking
Mann-Whitney U	3021.500
Wilcoxon W	5232.500
Z	-3.768
Asymp. Sig. (2-tailed)	.000
a. Grouping Variable: Sex	

Hypotheses 3:

Alternative Hypothesis (AH): There are differences between teachers with different work experience on encouraging critical thinking in students.

Alternative zero (HO); There is no correlation between teachers' work experience and encouraging critical thinking in students.

The results of Kolmogorov-Smirnov test showed that the distribution is not normal, since $p=0.037<0.05$.

Empirical results show that teachers with 6-15 years of work experience have a greater impact on encouraging critical thinking in students, for their average is the highest, $M = 117.63$, then teachers with the longest work experience in teaching, over 35 years of work experience, $M = 113.35$, and then teachers with 26-35 years of work experience, $M = 95.45$, teachers with 16-25 years of work experience, $M = 89.59$, while teachers with experience up to 5 years have the lowest average, $X^2 = 15.107$, $p = 0.004 < 0.05$.

Based on the empirical results, we can conclude that the alternative hypothesis is supported, for there are statistically significant differences between teachers with different experiences on encouraging students' critical thinking.

Table no. 4.4. Testing of the third hypothesis, through the Kruskal Wallis test

Ranks			
	Experience	N	Mean Rank
Encouraging critical thinking	Up to 5 years	29	74.71
	6-15 years	85	117.63
	16-25 years	41	89.59
	26-35 years	37	95.45
	Over 35 years	10	113.35
	Total	202	

Test Statistics ^a		
		Critical thinking
Most Extreme Differences	Absolute	.517
	Positive	.517
	Negative	.000
Kolmogorov-Smirnov Z		1.410
Asymp. Sig. (2-tailed)		.037
a. Grouping Variable: Experience		

Test Statistics ^{a,b}	
Encouraging critical thinking	
Chi-Square	15.107
Df	4
Asymp. Sig.	.004

- a. Kruskal Wallis Test
b. Grouping Variable: Experience

Hypothesis 4:

Alternative Hypothesis (AH): Teachers who have attended critical thinking trainings have a greater impact on encouraging critical thinking in students.

Hypothesis zero (HO): There are no differences between teachers who have attended critical thinking trainings and those who have not, on encouraging critical thinking in students.

The empirical results of the Levene's test show that the variances are not homogeneous, since $p=0.000<0.05$.

Empirical results show teachers who have attended critical thinking trainings, have the highest average $M = 73.106$, while the average of teachers who have not attended critical thinking trainings is, $M = 63.7826$, value of $F = 33.314$, while $p < 0.05$.

The results show that there are statistically significant differences between teachers who have attended critical thinking trainings and those who have not, thus teachers who have attended critical thinking trainings, have a greater impact on encouraging critical thinking in students, so we can conclude that the alternative hypothesis is supported.

Table no. 4.5. Testing of the fourth hypothesis, through the T-test

Group Statistics					
	Trainings	N	Mean	Std. Deviation	Std. Error Mean
Encouraging critical thinking	Yes	156	73.1026	11.15069	.89277
	No	46	63.7826	21.30406	3.14111

Independent Samples Test							
Encouraging critical thinking	Levene's Test for Equality of Variances				t-test for Equality of Means		
	F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference

Equal variances assumed	33.314	.000	3.943	200	.000	9.31996	2.36371
Equal variances not assumed			2.854	52.465	.006	9.31996	3.26552

5. DISCUSSION OF RESULTS

Results discussion on the correlations between the variables

The correlation between variables measures the relationship between two variables. In this research, we did not find any correlation between the independent variables and dependent variables, but we found a high correlation between some dependent variables. The highest correlation was found between the thirteenth question and the eighteenth question, $r = 0.896^{**}$, $p = 0.000$, which is an indicator of a high and statistically significant relation.

Results discussion on research hypotheses

In this study, we have analyzed and compared some data, but below will be presented only the comparisons that showed statistically significant differences.

According to the alternative hypothesis; Female teachers have a greater impact on encouraging critical thinking in students. It was found that there are statistically significant differences. The results show a high average of teachers, $M = 112.28$, while the average of teachers, $M = 79.28$, $U = 3021.500$, $Z = -3.768$, $p = 0.000 < 0.05$. These results show that female teachers have a greater impact on encouraging critical thinking in students, and in this case the alternative hypothesis is supported.

Teachers' work experience is of great importance when dealing with various issues. Regarding the encouragement of critical thinking in students, the hypothesis is that: There are differences between teachers with different work experience on encouraging critical thinking in students. Empirical results show that there are differences between teachers with different work experience and the highest average was shown by teachers with 6-15 years' work experience, with an average of $M = 117.63$, while the lowest average was shown by teachers with up to 5 years' work experience, $X^2 = 15.107$, $p = 0.004 < 0.05$. Based on these results, we can conclude that neither teachers with less work experience nor teachers with more work experience have influenced the promotion of students' critical thinking, but teachers with an average work experience did.

Trainings play an important role for teachers to be up to date with information and practices applied in the education system. Innovations, which are implemented in schools, are mainly learned through constant training. And then, it depends on teachers whether they are willing to implement those innovations in their teaching practices. Regarding the assertion that: Teachers who have attended critical thinking trainings have a greater impact on encouraging critical thinking in students, it was found that trainings have helped teachers to have a greater

impact on encouraging critical thinking in students. Teachers who have attended critical thinking trainings have a higher average ($M = 73.106$) than teachers who have not attended any critical thinking trainings ($M = 63.7826$). Based on the value of $F = 33.314$ and $p < 0.05$, we can conclude that the differences are statistically significant. Based on these results, we can conclude that teachers who have attended critical thinking trainings, have a greater impact on encouraging critical thinking in students.

Based on the results of the study we can conclude that teachers generally are committed to encourage critical thinking in their students. There are statistically significant differences between female and male teachers, teachers with different work experiences and teachers who have attended and those who have not attended critical thinking trainings on encouraging critical thinking in lower secondary school students.

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