Student perception comparison on learning methods based on thinking styles

Ariel ORA
Researcher, Toronto, Canada

Roland SAHATCIJA
Department of Informatics and Sciences, Mediterranean University of Albania, Tirana, Albania

Anxhela FERHATAJ
Department of Informatics, Mathematics, and Statistics, European University of Albania, Tirana, Albania

Abstract

Universities are always seeking new teaching methods. The object of their search is to discover and implement effective and efficient ways of teaching methodologies. Modern technology has had an influence in this area, and as a result new types of teaching are being developed nowadays, for example, the online and hybrid learning. Today, three teaching methods are universally applied in learning: traditional, online, and hybrid learning. In Albania, universities have begun to implement the elements of hybrid learning, such as LMS (Learning Management System). The application of different teaching methods, serves the purpose of a more effective transfer of knowledge among students. Because students can differ from each other. One element which can make them different, is their thinking style. The objective of this study is the analysis of student perception on learning methods based on thinking styles. The descriptive method and quantitative research are utilized for this paper. The research

instrument is the questionnaire, which was distributed online. The study sample consists of 190 students from Albanian universities. SPSS 20 and JASP-0.8.5.1 are used to analyze the data in the study. The study concluded that students have different perceptions on the hybrid learning. Students belonging to different thinking styles have different preferences with respect to the traditional learning, online learning and hybrid learning. There exist differences in perception on two statements on the hybrid learning and for one statement on the online learning.

Keywords: *perception, traditional learning, online learning, hybrid learning, thinking style*

Introduction

Technological developments frequently result in improvements and innovation in teaching methodology. Significant technological advances have an impact on the development of new teaching methods. New online and hybrid teaching methods can be used by anyone to study at anytimes. The advantages of these methods reside with the self-management of study time and ability to access it at any place (Fitzgerald & Li, 2015; Farkas, 2011). Study programs in the hybrid learning include a number of study hours completed on campus. Whereas in online study programs, about 80% - 100% of the program takes place online (Allen & Seaman, 2011). Contemporary teaching methodologies (online learning and hybrid learning) are regarded as most effective methods to be employed in the future by universities (Morris, 2010; Anderson, Boyles, & Rainie, 2012; Collopy & Arnold, 2009; Güzera & Canera, 2014; O'Malley & McCraw, 2001; Jasim, Sherbiny, & Guirguis, 2015; Ora, Sahatcija, & Ferhataj, 2018; Dziuban, Graham, & Picciano, 2014; Curran, 2008). Since students possess various characteristics, not all teaching methods deliver academic results with the same level of effectiveness. Students acquire knowledge with one of their preferred teaching methods. Such behaviour on the part of students is determined by their thinking style. Thinking style is one of the influencing factors in student academic performance (Sahatcija, Ora, & Ferhataj, 2017; Cano-García & Hughes, 2010; Bernardo, Zhang, & Callueng, 2010). The objective of this study is to analyze student perceptions of learning methods based on thinking styles.

Literature Review

Topics on education engage by and large a great many researchers (Collopy & Arnold, 2009; Güzera & Canera, 2014; Jasim, Sherbiny, & Guirguis, 2015; Sahatcija,

Ora, & Ferhataj, 2017; Ora, Sahatcija, & Ferhataj, 2018; Harris, Sklar, Amend, & Novalis-Marine, 2010). Interestingly, there has been an increase in research performance on such topics in recent times. Moreover, today's developments and advances make it possible for further research breakthroughs in the field. New teaching methods are a field that is both wide and significant with respect to research, and as such it encompasses additional extensive research. It has been concluded by various researchers that the hybrid learning is more effective than the online learning or traditional learning (Morris, 2010; Fitzgerald & Li, 2015). While other researchers conclude that the online learning along with the hybrid learning will be the future of teaching in universities (Güzera & Canera, 2014; Anderson, Boyles, & Rainie, 2012; Collopy & Arnold, 2009; Stockwell, Stockwell, Cennamo, & Elise, 2015). Such programs and courses are positively perceived by students. (O'Malley & McCraw, 2001; Jasim, Sherbiny, & Guirguis, 2015; Ora, Sahatcija, & Ferhataj, 2018). In Albania, universities have recently introduced elements of the hybrid learning in different study programs.

Meanwhile, in a research setting, thinking style is an even more complex matter. Researchers have difficulty in interpreting the complex functioning of the brain. Thinking style, by its own merit, is a highly intricate field, with respect to thoughts, actions, reasoning, and judgement and it clearly requires further study of the impacts on its various aspects. There exist a number of categories on thinking styles (Sternberg, 1997; Zhang & Sternberg, 2005; Gregorc, 2017), however this study utilizes the classification according to Gregorc (2017). He argues that thinking style is classified in four categories: concrete-sequential, concrete-random, abstract-sequential, abstract-random. The thinking style categories are created as a result of combinations of perceptual quality and ordering ability. Perceptual quality consists of abstract and concrete. Abstract quality infers the usage of intuition, imagination and conception of ideas that are unseen but perceived by an individual. Whereas the concrete quality makes use of the five senses in order to gather information that are based on tangible objects. Ordering ability is formed by sequential and random. Sequential is applied by persons who wish to receive information in a step-by-step manner or to execute actions in logical order. The opposite of sequential is random. Such individuals do not prefer to organize information logically, which occurs often. Therefore, these individuals will skip steps instead of organizing in a linear manner and will acheive their objectives. Individuals employing concrete-sequential, prefer to act in a logical order, predictable and fact-based, following directions, prefer structured environments, find it hard to work in groups and manage abstract ideas. Individuals who employ abstract sequential prefer listening to others, analyze matters in detail before making decisions, strong application of logic in solving solutions, yet do not prefer task repetition. Persons employing concrete random prefer risk, using intuition,

try various ways in solving a problem, yet lose effectivenes once limitations are placed, and have no other options. Individuals employing abstract random collaborative, have great communication abilities, tend to thrive in personalized environments but encounter difficulties in adapoting to competing environments and cooperating with authoritarian types (Gregorc, 2017).

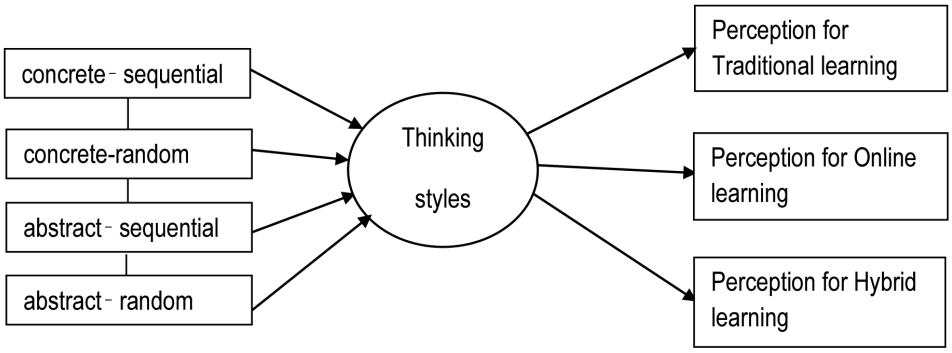
The research questions of the study are:

(1) Are there differences in perception of the traditional learning between students who belong to different thinking styles?
(2) Are there differences in perception of the online learning between students who belong to different thinking styles?
(3) Are differences in perception of the hybrid learning between students who belong to different thinking styles?
(4) Which element of the traditional learning is most preferred based on student classification according to thinking style?
(5) Which element of the online learning is most preferred based on student classification according to thinking style?
(6) Which element of the hybrid learning is most preferred based on student classification according to thinking style?

The research hypotheses of the study are:

- H1a: Students who belong to different thinking styles have the same perception of the traditional learning (α=0.05).
- H1b: Students who belong to different thinking styles have the same perception of the online learning (α=0.05).
- H1c: Students who belong to different thinking styles have the same perception of the hybrid learning (α=0.05).

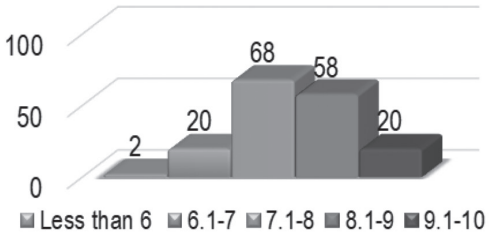
The literature review provides this conceptual model:



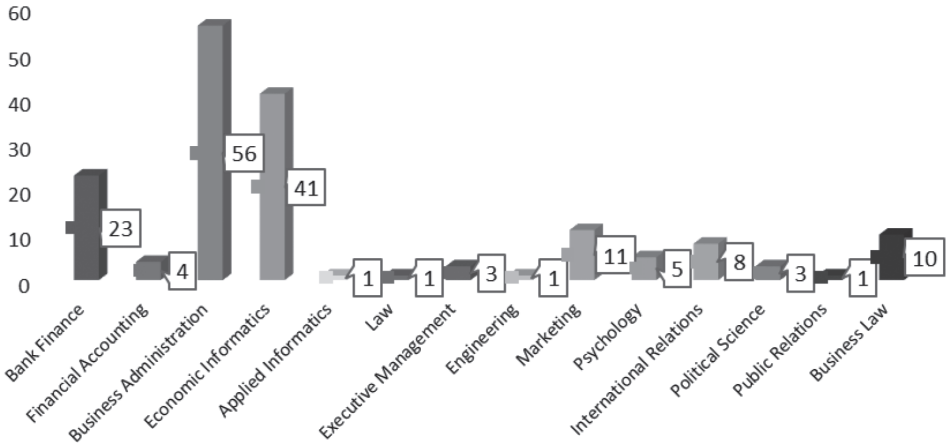
Methodology

This study employs the descriptive method. Data collection was realized through quantitative research, where the research instrument utilized was the questionnaire (O'Malley & McCraw, 2001; Gregorc, 2017). The questionnaire is structured in three parts. The first part consists of questions on teaching methodology, the second part consists of questions on thinking style and the third part consists of demographic questions. The evaluation of questions was conducted through a five-point Likert-scale, with items ranging from "Strongly disagree" to "Strongly agree". The questionnaire was distributed online during the period March 2017 – June 2017. The study sample consists of 190 Albanian university students. Valid questionnaires for use in this study are 168. The rate of response return is 88%. The descriptive data of the participants in the study is shown in the following graphs.

Graph 1: Gender



Graph 2: Grade Average



Graph 3: Student Distribution According to Area of Study

The analysis of the data was conducted through JASP-0.8.5.1 and SPSS 20. The conclusions of the analysis shown on Table 1 establish the reliability coefficient Cronbach's α=0.889(>0.7). Therefore, the data collected through the questionnaires are valid and reliable and are further employed in the study.

TABLE 1: Reliability coefficient Cronbach's α

	Cronbach's α
scale	0.889
Note. Of the observations, 168 were used, 0 were excluded listwise, and 168 were provided. * minimum acceptable value 0.7.	

Results and Discussion

This part treats the empirical analysis of the findings of the study.

Are there differences in perception of the traditional learning between students who belong to different thinking styles?

Table 2 data show that there do not exist significant statistical differences in perception about the traditional learning between students who belong to different thinking styles. Sig values of the traditional method statements are > α=0.05. The analysis concluded that there do not exist differences in perception of the traditional learning.

TABLE 2: One – Way ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Thinks the traditional learning is more effective	Between Groups	13.275	3	4.425	2.024	.113
	Within Groups	358.576	164	2.186		
	Total	371.851	167			
It is easier to study with the traditional learning	Between Groups	10.894	3	3.631	2.402	.070
	Within Groups	247.958	164	1.512		
	Total	258.851	167			

Prefers traditional study programs	Between Groups	.575	3	.192	.148	.931
	Within Groups	212.258	164	1.294		
	Total	212.833	167			
Information received in traditional study programs are equivalent to information received through the online learning and hybrid learning	Between Groups	1.548	3	.516	.464	.708
	Within Groups	182.446	164	1.112		
	Total	183.994	167			
Performs better with the traditional learning	Between Groups	1.151	3	.384	.283	.838
	Within Groups	222.254	164	1.355		
	Total	223.405	167			
Interested in taking more traditional courses	Between Groups	1.660	3	.553	.371	.774
	Within Groups	244.858	164	1.493		
	Total	246.518	167			
Thinks the traditional learning encourages student-professor academic discussion	Between Groups	3.444	3	1.148	.910	.437
	Within Groups	206.836	164	1.261		
	Total	210.280	167			
Prefers listening to in-class lectures	Between Groups	4.944	3	1.648	1.107	.348
	Within Groups	244.050	164	1.488		
	Total	248.994	167			

Are there differences in perception of the online learning between students who belong to different thinking styles?

Table 3 values show that value Sig=0.038 < α=0.05. This means that there exist significant statistical differences between students who belong to different thinking styles regarding the statement that it is "easier to access learning materials online". Whereas for the other statements on the online learning there do not exist significant statistical differences between students. The analysis concludes that students have different thoughts regarding solely one statement on the online learning.

TABLE 3: One – Way ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Thinks that the online learning is more effective	Between Groups	6.795	3	2.265	1.546	.205
	Within Groups	240.324	164	1.465		
	Total	247.119	167			
Thinks it is easier to study with the online learning	Between Groups	2.102	3	.701	.569	.636
	Within Groups	201.874	164	1.231		
	Total	203.976	167			
Prefers online study programs	Between Groups	2.514	3	.838	.713	.546
	Within Groups	192.766	164	1.175		
	Total	195.280	167			
Information received through online study programs are equivalent to information received through the hybrid learning and traditional learning	Between Groups	.357	3	.119	.112	.953
	Within Groups	174.352	164	1.063		
	Total	174.708	167			

Performs better in online courses	Between Groups	.996	3	.332	.283	.838
	Within Groups	192.284	164	1.172		
	Total	193.280	167			
Interested in taking more online courses	Between Groups	3.396	3	1.132	.837	.475
	Within Groups	221.723	164	1.352		
	Total	225.119	167			
It is easier to self-manage study in online courses	Between Groups	3.047	3	1.016	.813	.488
	Within Groups	204.899	164	1.249		
	Total	207.946	167			
More effective in time management with the online learning	Between Groups	6.943	3	2.314	2.232	.086
	Within Groups	170.051	164	1.037		
	Total	176.994	167			
Easier to access materials online	Between Groups	11.285	3	3.762	2.864	.038
	Within Groups	215.376	164	1.313		
	Total	226.661	167			

Are differences in perception of the hybrid learning between students who belong to different thinking styles?

Data analysis concludes the two statements on the hybrid learning have significant statistical differences between students who belong to different thinking styles (table 4). Differences exist only for the statements: "prefer hybrid study programs" (value Sig=0.022 < α=0.05) and "it is easier to self-manage my studies in hybrid courses" (value Sig=0.037< α=0.05). There do not exist differences in perception, regarding the other statements, between students notwithstanding their thinking styles.

TABLE 4: One – Way ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Thinks the hybrid learning is more effective	Between Groups	11.520	3	3.840	2.071	.106
	Within Groups	304.099	164	1.854		
	Total	315.619	167			
Easier to study with the hybrid learning	Between Groups	9.618	3	3.206	2.347	.075
	Within Groups	224.001	164	1.366		
	Total	233.619	167			
Prefers hybrid study programs	Between Groups	11.670	3	3.890	3.293	.022
	Within Groups	193.735	164	1.181		
	Total	205.405	167			
Information received through hybrid study programs are equivalent with information received through the online learning and traditional learning	Between Groups	4.114	3	1.371	1.536	.207
	Within Groups	146.458	164	.893		
	Total	150.571	167			
Performs better through the hybrid learning	Between Groups	6.808	3	2.269	2.112	.101
	Within Groups	176.186	164	1.074		
	Total	182.994	167			

Interested in taking more hybrid courses	Between Groups	3.855	3	1.285	1.033	.380
	Within Groups	204.050	164	1.244		
	Total	207.905	167			
It is easier to self-manage study in hybrid courses	Between Groups	7.862	3	2.621	2.885	.037
	Within Groups	148.971	164	.908		
	Total	156.833	167			
More effective in time management with the hybrid learning	Between Groups	1.738	3	.579	.542	.654
	Within Groups	175.381	164	1.069		
	Total	177.119	167			
Easier to access materials in the hybrid course	Between Groups	7.075	3	2.358	2.002	.116
	Within Groups	193.205	164	1.178		
	Total	200.280	167			

Which element of the traditional learning is most preferred based on student classification according to thinking style?

Table 5 values show that students who belong to the concrete-sequential thinking style prefer most the element of attending auditorium lectures in the traditional learing (mean value = 4.49). Students who belong to the concrete random thinking style have a preference for the element of performance in the traditional learning (mean value = 4.59). Students who belong to the abstract- sequential thinking style prefer most the element of general output with the traditional learning (mean value = 4.24). Students who belong to the abstract-random thinking style prefer the element of productivity in the traditional learning (mean value = 4.35).

TABLE 5: One – Traditional learning evaluation

Table 5: One – Traditional learning evaluation				
		N	Mean	Std. Error
Effectiveness of the traditional learning	concrete-sequential	69	4.07	.163
	concrete random	34	3.32	.273
	abstract-sequential	34	3.88	.218
	abstract-random	31	3.97	.323
	Total	168	3.86	.115
Simplicity in use of the traditional learning	concrete-sequential	69	4.17	.140
	concrete random	34	3.53	.212
	abstract-sequential	34	4.09	.176
	abstract-random	31	4.19	.276
	Total	168	4.03	.096
Quality of the traditional course	concrete-sequential	69	4.09	.149
	concrete random	34	4.03	.171
	abstract-sequential	34	4.03	.166
	abstract-random	31	4.19	.220
	Total	168	4.08	.087
Information update	concrete-sequential	69	3.91	.144
	concrete random	34	3.76	.164
	abstract-sequential	34	4.06	.133
	abstract-random	31	3.97	.194
	Total	168	3.92	.081
Productivity	concrete-sequential	69	4.33	.144
	concrete random	34	4.15	.164
	abstract-sequential	34	4.21	.168
	abstract-random	31	4.35	.260
	Total	168	4.27	.089
General output	concrete-sequential	69	4.04	.159
	concrete random	34	4.00	.219
	abstract-sequential	34	4.24	.174
	abstract-random	31	3.94	.202
	Total	168	4.05	.094
Performance in traditional courses	concrete-sequential	69	4.38	.157
	concrete random	34	4.59	.164
	abstract-sequential	34	4.21	.183
	abstract-random	31	4.19	.157
	Total	168	4.35	.087

Attending in-auditorium lectures	concrete-sequential	69	4.49	.155
	concrete random	34	4.29	.161
	abstract-sequential	34	4.03	.221
	abstract-random	31	4.32	.224
	Total	168	4.33	.094

Which element of the online learning is most preferred based on student classification according to thinking style?

Students who belong to the concrete-sequential thinking style have a preference for the element of flexibility regarding time usage with the online learning (mean value =4.54). Whereas students belonging to concrete random thinking style prefer most the general output element of the study program with the online learning (mean value = 4.06). Students belonging to the abstract-sequential thinking style and abstract-random thinking style prefer most the accessibility element of the online learning, mean values respectively 4.38 and 4.39. Table 6 provides a detailed view of the above.

TABLE 6: One – Online learning evaluation

		N	Mean	Std. Error
Effectiveness of the online learning	concrete-sequential	69	4.00	.131
	concrete random	34	3.56	.257
	abstract-sequential	34	3.85	.199
	abstract-random	31	3.55	.212
	Total	168	3.8	.094
Simplicity of use with the online learning	concrete-sequential	69	3.81	.137
	concrete random	34	3.68	.192
	abstract-sequential	34	3.94	.174
	abstract-random	31	4.00	.202
	Total	168	3.85	.085
Quality of the online course	concrete-sequential	69	3.86	.136
	concrete random	34	3.68	.206
	abstract-sequential	34	4.00	.164
	abstract-random	31	3.68	.176
	Total	168	3.82	.083
Information update	concrete-sequential	69	3.99	.131
	concrete random	34	4.00	.152
	abstract-sequential	34	3.94	.126
	abstract-random	31	3.87	.231
	Total	168	3.96	.079

General output	concrete-sequential	69	4.22	.140
	concrete random	34	4.06	.207
	abstract-sequential	34	4.26	.186
	abstract-random	31	3.87	.216
	Total	168	4.13	.090
Self-study	concrete-sequential	69	3.80	.138
	concrete random	34	3.97	.196
	abstract-sequential	34	3.56	.175
	abstract-random	31	3.71	.203
	Total	168	3.85	.085
Flexibility with time usage	concrete-sequential	69	4.54	.141
	concrete random	34	4.00	.193
	abstract-sequential	34	4.24	.112
	abstract-random	31	4.32	.149
	Total	168	4.33	.079
Accessi-bility	concrete-sequential	69	4.19	.162
	concrete random	34	3.68	.222
	abstract-sequential	34	4.38	.134
	abstract-random	31	4.39	.137
	Total	168	3.77	.086

Which element of the hybrid learning is most preferred based on student classification according to thinking style?

Table 7 values show that students who belong to the concrete-sequential thinking style prefer most the elements: general output, self-study with the hybrid learning and accessibility (mean value = 4.62). Students with the concrete random thinking style and abstract sequential thinking style have the greatest preference for the general output element of the hybrid study program, mean values respectively 4.32 and 4.53. Students who belong to the abstract-random thinking style prefer most the element of accessibility (mean value = 4.39).

TABLE 7: One – Hybrid learning evaluation

		N	Mean	Std. Error
Effective-ness of the hybrid learning	concrete-sequential	69	4.17	.150
	concrete random	34	3.53	.240
	abstract-sequential	34	3.82	.225
	abstract-random	31	3.68	.287
	Total	168	3.88	.106

Simplicity of use with the hybrid learning	concrete-sequential	69	4.38	.132
	concrete random	34	3.79	.230
	abstract-sequential	34	4.12	.183
	abstract-random	31	3.9	.219
	Total	168	4.12	.091
Quality of the hybrid course	concrete-sequential	69	4.55	.123
	concrete random	34	3.85	.207
	abstract-sequential	34	4.21	.157
	abstract-random	31	4.19	.224
	Total	168	4.27	.086
Information update	concrete-sequential	69	4.17	.122
	concrete random	34	3.85	.170
	abstract-sequential	34	4.32	.145
	abstract-random	31	4.19	.150
	Total	168	4.14	.073
Productivity	concrete-sequential	69	4.46	.136
	concrete random	34	4.21	.162
	abstract-sequential	34	4.5	.142
	abstract-random	31	3.97	.199
	Total	168	4.33	.081
General output	concrete-sequential	69	4.62	.132
	concrete random	34	4.32	.178
	abstract-sequential	34	4.53	.154
	abstract-random	31	4.26	.254
	Total	168	4.48	.086
Self-study	concrete-sequential	69	4.62	.107
	concrete random	34	4.21	.183
	abstract-sequential	34	4.5	.142
	abstract-random	31	4.1	.193
	Total	168	4.42	.075
Flexibility with time usage	concrete-sequential	69	4.41	.137
	concrete random	34	4.15	.180
	abstract-sequential	34	4.29	.123
	abstract-random	31	4.23	.190
	Total	168	4.3	.079

Accessibility	concrete-sequential	69	4.62	.126
	concrete random	34	4.12	.183
	abstract-sequential	34	4.24	.184
	abstract-random	31	4.39	.216
	Total	168	4.4	.084

H1a: Studentët who belong to different thinking styles have the same perception of the traditional learning (α=0.05).

Table 8 values show (Sig = 0.643 > α= 0.05), therefore, there do not exist significant statistical differences in perception of the traditional learning between students who belong to different thinking styles. Thus, students share the same opinion regarding the traditional learning. Since there do not exist differences in perception of the traditional learning, it can be concluded that hypothesis H1a is supported by confidence interval 95%.

TABLE 8: One – Way ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Perception for traditional learning	Between Groups	1.214	3	.405	.559	.643
	Within Groups	118.669	164	.724		
	Total	119.882	167			

H1b: Students who belong to different thinking styles have the same perception of the online learning (α=0.05).

Table 9 analysis concludes that students who belong to different thinking styles have the same perception of the online learning. Value Sig=0.555 > α=0.05 shows that there do not exist significant statistical differences between students regarding perception of the online learning. Hypothesis H1b is supported by confidence interval 95%.

TABLE 9: One – Way ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Perception for Online learning	Between Groups	1.113	3	.371	.697	.555
	Within Groups	87.306	164	.532		
	Total	88.419	167			

H1c: Students who belong to different thinking styles have the same perception of the hybrid learning (α=0.05).

Value Sig =0.033 < α=0.05 shows that students have different perceptions for the hybrid learning. Students who belong to different thinking styles do not share the same opinions on the hybrid learning. Between students there exist significant statistical differences in perception of the hybrid learning. The analysis concludes that hypothesis H1c is rejected.

TABLE 10: One – Way ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Perception for hybrid learning	Between Groups	5.435	3	1.812	2.981	.033
	Within Groups	99.668	164	.608		
	Total	105.103	167			

Conclusions and Reccomendations

In general, students have a positive perception of teaching methods. There do not exist significant statistical differences in the traditional learning between students who belong to different thinking styles. Students do not share the same opinion with the online learning about the statement "easier to access material online". There exist significant statistical differences between students regarding this statement. Whereas, regarding the other statements for the online learning preferences are similar. With regard to the hybrid learning, there exist differences only for two statements, the "general output" and "self-study in the hybrid learning". Specifically, students who belong to different thinking styles have different preferences regarding elements of the learning methods. The elements most preferred by students about the traditional learning are: attending in-auditorium lectures, performance, productivity and general output. The elements most preferred about the online learning by students: general output, flexibility in time usage and accessibility. The elements most preferred about the hybrid learning are: general output, self-study and flexibility in time usage. Students have different perceptions only of the hybrid learning, whereas about the traditional learning and online earning, they have the same perceptions. The conclusions of the study are in line with those of the literature review. Thus, students who belong to different thinking styles have different preferences about learning styles.

The extensive application of hybrid study programs and online study programs is recommended to universities. Based on the study's conclusions it is recommended

to universities the use of specific auditoriums for students who belong to different thinking styles.

References

Allen, E., & Seaman, J. (2011). Going the Distance. Massachusetts: Babson Survey Research Group. Retrieved April 2, 2018

Anderson, J. Q., Boyles, J. L., & Rainie, L. (2012). The future impact of the Internet on higher education: Experts expect more-efficient collaborative environments and new grading collaborative environments and new grading courses, the shift away from on-campus life. Washington, D.C.: Pew Research Center's Internet & American Life Project. Retrieved March 14, 2018

Bernardo, A. B., Zhang, L.-F., & Callueng, C. M. (2010). Thinking Styles and Academic Achievement Among Filipino Students. The Journal of Genetic Psychology, 163(2), 149-163. Retrieved March 18, 2018

Cano-García, F., & Hughes, E. H. (2010). Learning and Thinking Styles: An analysis of their interrelationship and influence on academic achievement. Educational Psychology, 20(4), 413-430. Retrieved February 25, 2018

Collopy, R. M., & Arnold, J. M. (2009). To blend or not to blend: Online and blended learning environments in undergraduate teacher education. Issues in Teacher Education, 18(2), 85-101. Retrieved February 15, 2018

Curran, C. (2008). Online learning and the university. In W. J. Bramble, & S. Panda, Economics of distance and online learning: Theory, practice, and research (pp. 26-51). New York: Routledge.

Dziuban, C., Graham, C., & Picciano, A. (2014). Blended learning: Research perspectives. New York: Routledge .

Farkas, K. (2011, May 8). Online education growing as colleges offer more classes to meet student demand. Retrieved March 19, 2018, from Cleveland: http://blog.cleveland.com/metro/2011/05/online_education_growing_as_co.html

Fitzgerald, N., & Li, L. (2015, July 31). Using Presentation Software To Flip an Undergraduate Analytical Chemistry Course. Journal of Chemical Education, 92(9), 1559-1563. Retrieved March 8, 2018

Gregorc, A. F. (2017, September 13). Mind Styles - Anthony Gregorc. Retrieved February 22, 2018, from Mind Styles - Anthony Gregorc: http://web.cortland.edu/andersmd/learning/gregorc.htm

Güzera, B., & Canera, H. (2014). The past, present and future of blended learning: an in depth analysis of literature. Social and Behavioral Sciences, 4596 – 4603. Retrieved March 20, 2018

Harris, J., Sklar, B., Amend, R., & Novalis-Marine, C. (2010). The growth, characteristics and future of online CME. Journal of Continuing Education in the Health Professions, 30(1), 3-10. Retrieved February 15, 2018

Jasim, M. A., Sherbiny, M. M., & Guirguis, S. K. (2015, July). Evaluation of E-Learning Program versus Traditional Education Instruction for Undergraduate. International Journal of Advanced Research in Science, Engineering and Technology, 2(7), 776-786. Retrieved March 12, 2018

Morris, N. (2010). Blended learning approaches enhance student academic performance. International Conference (Hong Kong University, 2010) Enhancing Learning Experiences in Higher Education (p. Proceedings of Enhancing Learning Experiences in Higher Education). Hong Kong: Hong Kong University. Retrieved March 14, 2018

O'Malley, J., & McCraw, H. (2001, June 20). Students Perceptions of Distance Learning, Online Learning and the Traditional Classroom. Retrieved March 9, 2018, from http://www.westga.edu/~distance/omalley24.html

Ora, A., Sahatcija, R., & Ferhataj, A. (2018). Learning Styles and the Hybrid Learning: An Empirical Study about the Impact of Learning Styles on the Perception of the Hybrid Learning. Mediterranean Journal of Social Sciences, 9(1), 137-148. Retrieved April 2, 2018

Ora, A., Sahatcija, R., & Ferhataj, A. (2018). Students' Perception on the Effectiveness of Teaching Methods. European Journal of Economics, Law and Social Sciences, 2(1), 190-203. Retrieved April 7, 2018

Sahatcija, R., Ora, A., & Ferhataj, A. (2017). The Impact of the Thinking Style on Teaching Methods and Academic Achievement. European Scientific Journal, 13(34), 16-29. Retrieved March 28, 2018

Sternberg, R. J. (1997). Thinking styles. New York: Cambridge University Press.

Stockwell, B. R., Stockwell, M. S., Cennamo, M., & Elise, J. (2015, August 27). Blended Learning Improves Science Education. Cell, 162(5), 933-936. Retrieved March 7, 2018

Zhang, L.-F., & Sternberg, R. J. (2005). A threefold model of intellectual styles. Educational Psychology Review, 17(1), 1-53. Retrieved March 13, 2018