How Generation "Z" Learns Better?

Slavoljub Hilčenko[1]

[1]College of Vocational Studies, Vocational Training of Preschool Teachers and Sports Trainers, University of Novi Sad, Serbia.

Abstract: *In this paper, we started from the established view that the information technology has (IT) improved the education, regarding that it gives better results in students learning (Generation "Z") as compared to traditional methods of work. The aim of this paper is to present the research results that we obtained. They show that students achieve better results by learning identical content in the traditional way (from the book), but using the technology. However, when the same material for students learning is offered in the form of thoughtful-appropriate and multimedia-interactive e-animated content with the direct manipulation, IT has claimed the advantage.*
Keywords: *Adaptation, Image-Manipulative IT, Senses, Students Habits, Traditional School.*

1. Introduction
Serbia and her Generation "Z"

I'm afraid that one day the technology will outreach the communication among people. The World will then have a generation of idiots." (Albert Einstein)

Serbia, the country of the Balkans, is one of the medium developed countries of Europe. Today it educates the 75% of young people who want to ESCAPE in search for a better future – "by buying a one-way ticket." Regarding the economy, fertility and better tomorrow Serbia is in a vicious circle, loaded the by corruption in which politicians are the main media stars. There is no prospect for young people and the solution to the agony in which the country is now it's not in sight. Filled with contradictions, lost generations and failed education reforms, young members of Generations "Z" computer literate itself. While in the western countries is being considered the introduction of programming in pre-school institutions (and in Australia), the informatics in our primary schools is still (optional!) elective subject.

Among the young people in Serbia prestige, (IN) is first and foremost to have the latest model of smart mobile phone, than anything else. This "private-uncontrolled computerization," has long ago surpassed those institutional. Grew up on the IT technology, this generation, is bored in a traditional school - not by their fault!

"In relation to Milenijals that did parallel work, on average, the two monitors of different devices, the new generation feels best with 5! (TV, laptop, desktop, phone, iPod or other portable music sources)." Generation "Z" https://beeshaper.com/blog/post/100/neki-novi-klinci-generacija-z

Sociologists for years point the fact that traditional methods of teaching are not compatible with the new generation of young people born in the digital era. Chalk and board are completely outdated assets in class when Generation "Z" wonders because young people today are using tablets, interaction on social networks and daily use of the Internet. Teachers are expected to primarily change the approach to teaching- educational technology, adapt the teaching resources and raise the level of interactivity; otherwise, we are completely losing the focus of the coming generations. Furthermore:

Attention should be directed to the Methods of Visual Learning

Studies have shown that today young people are quite different from the older generations. Environment of Generation "Z" are graphically rich web technologies, high-definition screens, and large diagonals and the overall saturation of information. In generation born between 1990 and 2000 (and the next!), senses are adapted to the stimuli emitted by modern media. "Their language is a picture!". This is not about genetics but the reaction of the body and brain to such an environment.

The results of this are expressed perceptual (sensory perceptual) abilities of young people which very easily accept visual (image) forms-effectively accept and learn them. Teachers must keep pace with the time and adapt their lectures with the needs of new generations.

Focus on Critical Thinking and Problem Solving, rather than Information Storage

There will always be those for whom it is easier to remember some information, but the question is will they be able to take advantage of this knowledge in the real working conditions and tasks. It is believed that especially today, it's needless to remember certain information when they are available with a few clicks on the Internet. It is clear that education from strategic point must deal with young people in terms of developing critical thinking and learning to apply knowledge for problem solving, rather than creating a staff who will always know the dates of historical events and the values of mathematical constants or a specific scientific theorem. Entrepreneurship is considered as a basis for future economic prediction and therefore it is important to train young people on time with knowledge that will help them in their struggle to survive in the market.

Adjust the Lectures with the needs of Young per Criteria of Time

The big disadvantage of Generations "Z" is with the excessive amount of placed information, attention is dropping drastically (attention deficit disorder) after a short time. Simply, saturation of information and accelerated cognitive activities, contribute to the fact that after only a few minutes brain cannot receive new information and that he needs to rest. And so the class-hour system of Comenius (1592-1670), founded 500 years ago, with 45 minutes is inappropriate when it comes to the attention of this generation. Lectures should be divided into shorter segments or it is needed to enable that young people have access to knowledge when they are ready to accept it. This is where the methods of distance learning, e-learning platforms and systems step in and are easily accessible via the internet and who are at all times available (http://www.valentinkuleto.com/2012/05/3-metode-ucenja-za-nove-gene racije).

All statements about the improvement of education require animation of important subjects that it improve with the help of ICT and get closer to developed educational systems in the world. It is a team of experts who will, under the auspices of state institutions will develop the curricula for the 21st century (at all levels). This is also true for Serbia and many other countries in the world (including South Africa), because surely they have their own resources to do so. Education is the most important area of society that will improve all other segments of the community. Young people need to be provided with quality education and a job so they don't go where those conditions are better.

Learning: Traditionally or Using IT?

Rakočević (2014, p. 15) points out that the educational system in Serbia is not among the 40 best in the world. Furthermore, this system belongs in traditionally- reproductional in which teaching in a higher percentage is conducted in classic way or most with the use of beam-projectors (Apart from the few economically richer and specialized institutes, Departments of distance learning...). The number of domestic dedicated and quality sites (and software), behind which is the teamwork of professionals (eg., Instructional designers), dedicated to education, can be counted on the fingers of one hand. Educational habits of our children and students are formed in long-term (exposed) on the basis of such educational technology.

According to Radovanović (2015, p. 15), in recent years there have been more often talks that the students because of the twiddle development of digital technologies in the near future are going to learn from electronic books, and that those printed on paper will be neglected. Professional public is divided, some state reasons for which electronic editions are more "practical" (= Handling, Storage, Access, Price...), but there are those who are big rivals of neglecting the "good old books." This was the cause that in the University of Stavanger in Norway, researchers carry out a study about whether students of this University, as well as high school students, learn better, or remember the text that they have read in electronic form or on the paper. The research was conducted by having made two mixed groups of volunteers composed of students and pupils. The same text was given to one group of subjects to read in electronic form, while the second group was reading a classic textbook on the paper, which was followed by an anonymous test. The test was aimed to show which group has better remembered a given text. Based on these results, it is evident that the group, who read the classic

book, had much better results, regarding that they better remembered (even certain details which respondents from other groups who have read the electronic edition, do not remember). Scientists from the University point out that the causes of this phenomenon are not clear. According to the results obtained from the test, and done studies, in one and in another case, students and pupils have been identified themselves with the character of the story, but have read with the same attention. Even despite these facts, those who read the digital edition remembered less details, but also information. According to Norwegian scientists cause is in the contact, or in the tactile experience of the book. In particular, the traditional book allows the reader to experience by firsthand the progress in reading and learning, which can contribute to better adoption of what was read. Incorporating the reader with the book of paper is much higher. Writing, underlining, wring of pages...is indispensable. Norwegian research certainly is not enough to form a final opinion on the effectiveness of learning from electronic books and it should be noted that the study did not cover the very important question-how many students actually regularly use electronic textbooks.

In our (pre)research, we gave to students an anonymous questionnaire in order to determine: How much time on average during the day they spend with both the media; In which percentage of such sources for preparing the exams are they using IT, traditional means or equally both ways; Which attitude they have on the issue of personal and generational achievements (results) during the study, using one, the other or a combination of approaches to learning; And whether they have ever of these mentioned sources such illegal means "used" to pass the exams. Let's look at the results of the survey at the University of Professional Studies in Education of Teachers and trainers in Subotica (Serbia). The sample represented 180 voluntary students of both genders from 1-3 years of study (Table 1). Degree program of the students is B.Ed (A Bachelor of Education).

Table 1 Survey results

questions	offered answers			∑ hours
How many hours a day on average do you use IT, regardless of the type of activity (Learning, Social networks, Entertainment, Telephony...), and how much with the traditional media (Books, Newspapers ...)?	IT □ 4.01 hours	traditional □ 1.9 hours		∑ □ 5.91 hours
1. Does on the college as sources for the acquisition of knowledge you use more this available:	IT resources (computers, internet ...) 52 (28.6%)	traditional sources (library, textbooks, scripts...) 48 (26.4%)	I use both learning sources equally 80 (44.4%)	∑ students
2. Whether in the preparation for the exam you learn more using:	IT 22 (12.1%)	traditional sources 54 (29.7%)	I use both learning sources equally 104 (57.2%)	
3. Do you believe that you get better results on the exams using the learning sources which are:	modern IT 30 (16.5%)	Traditional (skripts, textbooks...) 64 (32.5%)	I use both learning sources equally 86 (47.3%)	180
4. Do you believe that your generation on studies achieves better results using more:	Modern recources IT 42 (23.3%)	traditional resources and methods of learning	equally to both types of learning 89 (49.5%)	

		49 (27.2%)	
5. Have you ever in exam used unallowed means of this type:	earbuds, mobile phones and others. 0 (0.0%)	Papers with answers, whispering, copying from textbooks ...	none of the above mentioned 78 (42.9%)
		102 (56.1%)	
∑ answers	142	208	350

It is noticeable that the students daily average spend twice as much time (4:2 hours) with the modern means of IT, than with books, newspapers, novel etc,. As sources for acquiring knowledge at the university, students say that almost equally are using one or the other approach to learning 52 (28.6%) 48 (26.4%), and that most of them, or a total of 80 students (44.4 %) is using equally both sources. During the preparation of the exam, 104 students (or 57.2%) is using equally both sources, while 54 of them (or 29.7%) is using only the traditional approach, and only 22 (or 12.1%) only means of IT. In questions 3 and 4, students prefer the traditional approach in relation to IT in terms of achieving personal or generational success during the study 64 (32.5%) : 30 (16.5%) and 49 (27.2%) : 42 (23.3%). When asked whether did they during the exam used unhallowed (or traditional IT) means in order to achieve a success, the ratio looks like this, the traditional = 102 (56.1%): IT = 0 (0.0%), which is devastating from an ethical standpoint.

If the indicators of the realized survey in the case of the third answer (gray area of Table 1) in each of the offered questions (except in the last 5.) in the same ratio add 1. and 2. response (IT or traditional), results in the total sum would have been also on the side of traditional learning (Table 2).

Table 2 Results of 4 survey questions

∑ results of 4 survey questions	IT access: 395 (43.4%)	traditional: 520 (57.2%)	180 students

Although at first sight this seems like a paradox given the time that students spend daily with the IT, the previous system of educational technology and traditional education through which they have passed, and the fact that we are sensual beings, might offer a response to the achieved results and students attitudes. The answer may be hiding in the fact that students in Serbia, use more of IT resources in the service of entertainment rather than education... .

Comparison of our students and their generation in Norway (Europe) or the USA is unrealistic (Because of the system of education, Socio-economic status, Investment in education, etc,.). Indeed, our survey is not representative, but there are no such researches on national level in Serbia, besides the work of institutions or individual authors (eg., www.trend.uns.ac.rs/stskup/trend_2011/radovi/B1-1/B1.1-1.pdf).

However, certain habits are typical for all young people regardless of the country and money at their disposal. Agency IMAS International conducted a survey in Austria, the Czech Republic, Slovakia, Hungary, Romania, Croatia and Serbia (covering a representative sample of 750 young people aged 14-25 years old in each of these countries). Thus, the habits of young people when it comes to watching TV and using the Internet on smartphones are similar in all countries. On average, young people watch TV and use internet on their phones about 2 hours, five days a week. However, young people in Serbia, are real representatives of Generation "Z" and does not differ much from those of their generation in other countries, so the vast majority of respondents (85%) have a smart phones that use for surfing the Internet and using of applications. These applications are mostly used for social networking (92%), closely followed by communication and messaging (83%). Internet in all countries is mostly used to search for information, and shortly thereafter, for social networking. It is interesting that in Serbia 77% of respondents is watching TV on the Internet, movies and video clips or listening to the radio, which is the highest percentage compared to other countries. About learning not even a word!? (http://blog.erstebank.rs/sadrzaj- bloga/finansijski-i-digitalni-zivot-mladih-u-srbiji/).

Furthermore, in Serbia, only 10% of the population from generation continue their education,

and in countries in transition, which once fall behind Serbia, today 20% of young people is studying. Experts warn that this is the latest signal to the Serbian Government to develop a strategy for higher education. In Germany, 40% of young people continue their education in England and France, 50% goes to college, leading USA with 55%. Experts warn that the society is moving forward thanks to the educated because they are the most creative. The figures in Serbia say about the high part of the generation which is unused and only 10% of highly educated and 1.3 million illiterate! (http://www.b92.net/info/vesti/...03&dd=23&nav_id=192438, http://www.politika.rs/rubrike/Drustvo/U-Srbiji-10-odsto-visokoobrazovanih.lt. html).

2.   Research Methodology

In our research, the methodology was based on the study of professional-scientific literature, papers, magazines, the Internet, including own practical researches.
During the (pre)research, has been applied the survey method-collecting and processing the attitudes of respondents with measuring survey instruments.
We divided the main part of the research, into two steps - Learning of identical content (theme: the first tenner numbers) but with different approaches!
In step 1, it was applied the experimental method of work with parallel groups, based on the traditional approach of learning (book= short text book (plot1), illustrated with 13 pictures on 5 pages of A4 format and the possibility of underlining, rounding, folding, holding, the tactile sensations of paper in hand and under the fingers, the smell of book...) and IT source for learning (Power Point presentation = 5 slides + 13 images, with the ability to use all available tools of this application).

In step 2, as experimental learning method, we used an e-animated teaching content, the film "The boy's dream"- numbers of first tenner (application for a period of 12 minutes – done by the author of the work on the platform AdobeFlash CS4, Hilčenko, 2015b, p. 113), compared it with better learning results from 1st step of research. All study groups had 20 minutes, followed by a five-minute method written solving test.

An anonymous questionnaire was applied on a voluntary sample of 180 students of both gender, and in the experimental work with parallel groups total of 3 uniform groups (criteria for the formation of the groups were: gender and the results on the studies) with 60 students 1-3 years, from the Educator school in Subotica. As an epilogue, it followed the identical five-minute written test of knowledge (6 questions) for all respondents. The entire investigative procedure was carried out in the period of the winter semester, from October to December 2015 in the premises of the school.

In analyzing the results, it was applied descriptive-statistical method of work with tabular display of data. In experimental work, we have defined two main research hypotheses:

In step 1. of the experimental work, set hypothesis (h1) was, that considering the given time that students spend the day with the IT, the results of such experiential learning, should give better results in the test of knowledge from learning an identical content with traditional way.

In the 2. experimental step, the hypothesis (h2) should had to confirm "the functional superiority" of thoughtful-suitable and multimedia-interactive animated content (IT) for learning with direct manipulation in relation to the achieved results of traditional approach to work.

Problem with operational-developmental research was related to the confirmation (or rejection) of hypothetical starting points regarding on the time that respondents spend on a daily basis with IT, which is timely twice as long compared to the time that is given to traditional media. Also that in learning phase by using experimental models of IT (or two-step approach in experimental work), may affect the efficiency of learning compared to the traditional approach.

The research topic was the need to raise teaching practice and learning process on a higher level, to show the teaching content in a new and different way. Our assumption was that with the use of experimental models better learning results will be affected. The advantages of this learning method in relation to traditional approach would be in: better learning results of identical material, to reduce of the time for the adoption of instructional contents, a higher degree of motivation to work, in a more efficient differentiation and individualization of this teaching in which the student is achieving the results and it progresses in accordance with its own capabilities and in automation of monitoring and processing the results of students work.

The aim of this paper was to theoretically explore and practically prove the possibilities of use

of learning models in improving and increasing learning results at a higher and better level. The task of the research was to: examine whether the results of the use of two applicative model of learning are better than that provided by traditional way of work.

The experimental variable (independent variable) was a procedure in the work, or IT models (PowerPoint presentations and animated film with the direct manipulation), while the experimental factor was the use of these applications (access), also the backbones of this work. The efficiency of the final test, we identified as the dependent variable: the number of realized points (%) on the final test (and the time required for preparation of the final test).

3.   Results

Obtained 1. comparative results of experimental test (control and experimental groups) do not support the hypothesis (h1). To check the obtained results of research with theoretical values we used hi-square test. How $x_0^2 = 5,86488 < x_{(0,05;5)}^2 = 11,070$, the null hypothesis h1 given the time that students spend during the day with the IT, the results of such experiential learning should give better results in the test of knowledge than learning identical contents with traditional procedure, has not been confirmed. The obtained results can be defended by the fact that the Serbian schools has exclusively traditional character, and that the "critical time of respondents schooling" was spent almost entirely on the way in which they formed a long-term habit of learning and adaptation of respondents senses (Table 3). Habits represent a form of automated knowledge/behavior that is in the domain of the subconscious part of the brain. According to Chalmers (2008) what the child see /hears/experiences, leaves deep tracks in children's gentle soul/heart /mind, which no after circumstances in life can not completely erase... The repetition of certain behaviors creates habits. They can, in the continuation of life, change with serious exercise, but rarely completely change! Habits create quite permanent pathways in the brain. Even in the case that a particular path is not used for years, the habits from the brain will not be deleted. They can be overcome by creating other stronger habits than those who we want to resist. So, the hypothesis (h1) in this case is not confirmed.

Table 3 Comparative test results of experimental and control groups

Comparative Test Results Of Experimental And Control Groups (Traditional approach with book and use of IT)		
	The control group, 60 students (printed material)	The experimental group, 60 students (IT)
Questions	∑ T answers	∑ T answers
1. For whom is the content of the topic intended: Numbers of first tenner	60 (100%)	60 (100%)
2. What the boy Igor carries with him on a trip?	60 (100%)	58 (96.2%)
3. List the characters he meets along the way.	52 (86.3%)	41 (68.0%)
4. Specify the order of the characters he meets.	47 (78.0%)	34 (56.4%)
5. Which character represents which number?	45 (74.7%)	36 (59.7%)
6. Igor at the end of the road should line up the numbers in?	55 (91.3%)	56 (92.9%)
∑ POINTS OR % ON TEST:	319 (88.3%)	285 (62.1%)

Furthermore, from the table we can see that the results of the control group, which offered contents taught in the traditional way from the paper (with the possibility of: Underlining, Rounding, Folding, Holding, Tactile sensation of the paper in the hand and the fingers...) in the overall sum better for 34 points (or 26.2%) from the experimental group. Identical content was taught also by the experimental group but in the form of electronic Power Point presentation (with the possibility of use of all available tools of this application), which cannot be ascribed with "traditional advantages."

The fact that speaks in favor of this is not new and can be substantiated with saying attributed to Benjamin Franklin (1706-1790), which was pronounced more than 200 years ago: "Tell me and I'll forget; show me and I may remember; Involve me and I will understand." (Hilčenko, 2014, p. 178).

The development of computers is much faster than the phylogenies and adaptation of man to the technology, and even the revised Moro (Gordon Moore) law of 1965, that the power of computers doubles roughly every 18-24 months is too fast for a man (https://sr.wikipedia.org /sr/Murov_zakon), which causes stress, addiction... but "obviously cannot override all earlier long established habits of learning and impacts on the senses". (Hilčenko, 2011, p. 473; 2015e).

Here are the results of test 2. comparative control and experimental groups (Table 4).

Table 4 Comparative control and experimental groups

2. COMPARATIVE TEST RESULTS OF EXPERIMENTAL AND CONTROL GROUPS (Traditional approach with book and use of e-animated film)		
	The control group, 60 students (printed material)	The experimental group, 60 students (e-animated film)
Questions	∑ T answers	∑ T answers
1. For whom is the content of the topic intended: Numbers of first tens	60 (100%)	60 (100%)
2. What the boy Igor carries with him on a trip?	60 (100%)	60 (100%)
3. List the characters he meets along the way.	52 (86.3%)	59 (97.9%)
4. Specify the order of the characters he meets.	47 (78.0%)	56 (92.9%)
5. Which character represents which number?	45 (74.7%)	54 (89.6%)
6. Igor at the end of the road should line up the numbers in?	55 (91.3%)	60 (100%)
∑ POINTS OR % ON TEST:	319 (88.3%)	349 (96.7%)

The second hypothesis (h2) show that the results of learning – "functional superiority", will be on the side of use thoughtfully-suitable and multimedia interactive animated content IT in learning with direct manipulation of materials (Drawing 1) as compared to the traditional approach to paper was confirmed as correct.

And here for the confirmation of obtained results used the hi-square test. How we $x\frac{2}{0} = 4,193604 < x\frac{2}{(0,05;5)} = 11,070$, the null hypothesis h2, and the results of such experiential learning, confirm "the functional superiority" of thoughtful-suitable and multimedia-interactive animation of content (IT) for learning with direct manipulation in relation to the achieved results of traditional approach to work.
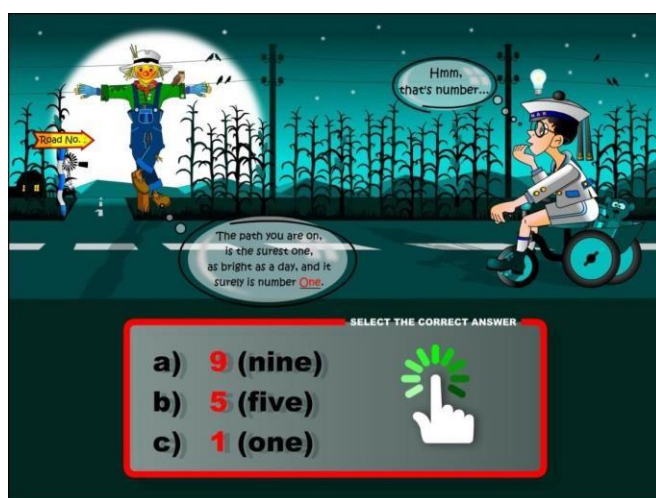
Drawing 1. The 9th scene – the boy meets a bogy, who asks a mysterious question

The obtained results on the test of knowledge of experimental group compared with the test results of control group from the 1st part of the experimental work, confirmed their preponderance in relation to the traditional approach to work in the following ratio, 349 (96.7%): 319 (88.3%) of correct

answers (or the difference of 30 accurate points in favor of experimental group).

Analysis

Our research as a measuring instrument used three different models-sources or accesses to learning: 1. Traditional (text + illustrations on paper); 2. Power Point presentation ("electronic book" + illustrations); and 3. Designed e-learning application with direct manipulation of animated contents, while the test for knowledge check was identical for all respondents-traditional on paper, composed of 6 questions, of which solving, not in any case, has not been exceeded the scheduled time. The survey which was preceded by experimental work showed that students in higher percentage use traditional sources of learning.

In the 1st phase of the experimental procedure on a sample of uniform groups of students of both genders, we offered the identical learning content, topic: "The boy's dream" - the numbers of the first tenner. A control group of students was learning the text material with images on paper, and the experimental group of students the same material in the form of a PowerPoint presentation (text + images). In the 2nd phase of experimental work, better results of phase 1=traditional approach, we compared with the third group of students, which the same content was offered in the form of multimedia and interactive animated film with direct manipulation. All learning groups had about 20 minutes. The first pair of the group, was offered the possibility that during the learning with their desire use rulers, pencils, crayons… and group that was learning with the help of PowerPoint presentation, tools of this application. After learning, it followed identical traditional five-minute test for all respondents.

On this occasion hypothesis (h1) is not confirmed as correct, because the most likely a long-lasting impact of the traditional approach to learning at students left a stronger impact on their learning habits and senses, than IT resources. While in the case of hypothesis (h2), we can conclude that it was fully confirmed, as indicated by the achieved results.

This is corroborated by the knowledge that, e-learning (Educational games, E- animated films...) proved its educational, motivational and functional superiority compared to traditional forms of learning for which there are numerous examples (http://www.ixl.com; http://www.lilibi.si/).

Thanks to the quality and professional-scientific approach to developing, e-learning is becoming increasingly attractive source=choice of acquiring knowledge for students, pupils... This primarily refers to findings from the field of cognitive thinking, principles of multimedia design of educational content (Mayer, 2005), learning theories, principles in making of animated applications as well as imagination, creativity and talents of web, graphic and instructional designers. (http://hrcak.srce.hr/index.php?show=clanak&id_clanak_jezik=118199, http://teme2.junis.ni.ac.rs/public/journals/1/previousissues/teme1-2012/teme1- 2012.html).

According to Hilčenko (2016, p. 394). "Educational contents "inserted" in an attractive form of animated film, have proved their superiority over conventional forms of learning, where no additional motivation for work is required. On the pages of the popular website BreinPOP (http://www.brainpop.com/), has been presented the results of experimental research and the effects of applying animated contents in students learning in comparison with conventional methods of work that did not include such contents".

Black (2007): "The effectiveness of learning by direct manipulation is reflected in the case of functional relations. Students who have learned in this way achieved better results than students who adopt the same material using photos followed with text, a set of slides or film. Namely on the learning outcomes the crucial activity was students activity, manipulation of the parts of animation and learning about their relations, and not "supremacy of technology" (http://edupoint.carnet.hr/casopis/57/clanci/1.html).

4.   Conclusion

The results of this study should not be generalized because they are causally- consequently connected with a large number of variables such as country of origin, character and equipment of the institutions, of the samples, its number and characteristics, socio-economic status of the individual and the countries as a whole. Of course, in some further study these questions should be examined more thoroughly in order to obtain a more objective picture of this subject.

It is believed that at least 80% of the children in the population belong to visual type.

According to some studies, the knowledge of the external world by means of the sensory organs-the anatomical-physiological system is conducted in the following proportions: 83% through the senses of sight, 11% through the senses of hearing, 3.5% through the senses of smell, 1.5% through the senses of touch and 1% over the senses of taste. Only 1/3 of all information we receive comes from some other senses: hearing, taste, smell or touch. When we see something clearly, we know what it is about which is not always the case with the sounds we hear or objects that we touch (Hilčenko, 2014, p. 174). However, the role of the senses cannot be diminished or ignored, they work together in synergy, each in its own way, giving us a more complete picture of the world that surrounds us and that we understand.

On the other hand, research has once again pointed to the need that educational content; have to be deliberately created for each target group in order that learning results would be optimal when compared to traditional, for example. Encouraging of functional thinking... (Hilčenko, 2015a, p. 99; 2015c, p. 41; 2015d, p. 77). We think that this approach of learning and work would be accepted on both sides "department" (children, students + teachers, teachers, professors) from pre-school to university. This is also true for Serbia and countries that have to catch up with the higher quality educational technology and curriculum in the world in order to educate young people like their peers, remained in their country and make it better.

Famous saying that "a picture is worth than a thousand words", we have expanded experientially through practice, and working with multimedia/animation, which reads, "that one animation is worth more than 1000 pictures". Children/pupils/students in this way can do more to identify themself with the material, as multimedia entertainment with the direct manipulation of animated content as opposed to the traditional learning on the paper and the benefits it provides, because it is more vital, heard and closer to their previous experience (Hilčenko, 2012a, p. 308).

Long, long after books have disappeared, but for the senses we are not sure, the results of some similar study, may be different!? Until then, we believe that it is best to combine both approaches to learning!

References

Black, B. J. (2007). Edupoint: (Journal papers), Imaginarni svjetovi e-learninga /online/. 2nd International Conference on e-learning ICEL Retrieved on 27th August 2015 from http://edupoint. carnet.hr/casopis/57/ clanci/1.html

B92 (2006). Info: Srbija zemlja s najmanje studenata /online/. Retrieved on 15th September 2015 from http://www.b92.net/info/vesti/...03&dd=23&nav_id=192438

Beeshaper (2015). izvor: GumBall. Neki novi klinci – Generacija Z /online/. Retrieved on 5th September 2015 from https://beeshaper.com/blog/post/100/neki-novi-klinci-gene racija-z

Chalmers, E. (2008). Healing the Broken Brain, Copyright za Srbiju: Metaphysica

Erstebank (2015). Digitalni kutak: Finansijski i digitalni život mladih u Srbiji /online/. Retrieved on 22nd September 2015 from http://blog.erstebank.rs/sadrzaj-bloga/finansijski-i-digitalni-zivot-mladih-u- srbiji/

Gavrilović, J., Kostić, Kovačević, I. (2011). Trend: Komparativna analiza primenjenih edukativnih metoda u nastavi matematika /online/. Retrieved on 19th October 2015 from www.trend.uns.ac.rs/stskup/trend_2011/radovi/B1- 1/B1.1-1.pdf

Hilčenko, S. (2016). [Instructional Design And Interactive Educational Animated Film With The Methodology Manual - A Single Case Study] - (Scientific Monograph). Subotica: College of Vocational Studies, Subotica, Vocational Training of Preschool Teachers and Sports Trainers, University of Novi Sad.

Hilčenko, S. (2015a). [School customized for the Generation "Z"], 22nd International Scientific Conference "Society And Technology" (p. 91-99). Opatija: International Federation Of Communication Associations – IFCA; Croatian Communication Association – CCA Zagreb; Alma Mater Europaea - European Center Maribor (AMA – ECM);

Hilčenko, S. (2015b). Heuristic-Functional Animated Film "The Boy's Dream" – Number of the first

Tenner, Education – Technology – Computer Science, Main Problems of Informatics and Information Education, 3(13), 111-118.

Hilčenko, S. (2015c). A model: animated logical mathematical tasks for the younger elementary school children, Journal of Research & Method in Education, 5(4), 39-42.

Hilčenko, S. (2015d). An E-model of a Flipped & Heuristic and Functionally & Logical Learning for the Generation "Z" In the Classwork, Journal of Elementary Education, 4(3), 65-79.

Hilčenko, S. (2015e). [To Be Or Not To Be: Technology Or Human?!], 8th International Interdisciplinary Professional Scientific Conference "Horizons", (p. 112-116). Subotica: College of Vocational Studies, Subotica, Vocational Training of Preschool Teachers and Sports Trainers, University of Novi Sad.

Hilčenko, S. (2014). [Educational Technology], Subotica: College of Vocational Studies, Vocational Training of Preschool Teachers and Sports Trainers

Hilčenko, S. (2012a). [Watching Cartoons, and yet learning Maths!] Hrčak Portal znanstvenih časopisa Republike Hrvatske, Journal of Media, culture and public relations, 3(1), 53-57 /online/. Retrieved on 28th October 2015 from http://hrcak.srce.hr/index.php?show =clanak&id_clanak_jezik=118199

Hilčenko, S. (2012b). [Maths + Multimedia = "Bypass" from manipulation to abstraction]. Themes, Journal for Social Research TM G. XXXVI(1), 305-317 /online/. Retrieved on 27th November 2015 from http://teme2.junis.ni.ac.rs/public/journals/1/previousissues/ teme1-2012/teme1-2012.html

Hilčenko, S. (2011). [(In) Humane Information Technologies in teaching Pupils], Scientific Conference "Education For Humane Relations – Problems And Perspectives" (p. 472-475). Niš: Faculty of Philosophy, University of Niš.

Mayer, E. R. (2005). The Cambridge Handbook of Multimedia Learning, New York: Cambridge University Press

Politika online (2013). Društvo: U Srbiji 10 odsto visokoobrazovanih /online/. Retrieved on 2nd December 2015 from http://www.politika.rs/rubrike/Drustvo/U-Srbiji-10-odsto-visoko obrazovanih.lt.html

Radovanović, A. (2015). Electronic book or book on paper: [The Tradition is still tradition], The Education Review, LXX, 17(15).

Rakočević, B. (2014). [South Korea has taken the lead from Finland], Chronicle, The Educational Review, LXX, 22(15).

Valentin Kuleto (2012). Professional Blog: [3 Methods of Learning for a New Generation] /online/. Retrieved on 1st September 2015 from http://www.valentinkuleto.com/ 2012/ 05/3-metode-ucenja-za-nove- generacije

Wikipedia (2015). Moore's law. Retrieved on 12th September 2015 from https://sr. wikipedia. org/sr/Murov_zakon