Futuristic Research Methods as an Encouragement for Predicting The Teaching of The Future

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EDUCATION AND TRAINING AS BASIS FOR FUTURE EMPLOYMENT

Faculty of Education
Josip Juraj Strossmayer University of Osijek
Croatia
&
Faculty of Economics, Wakayama
Wakayama University
Japan

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EDITORS

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Faculty of Education, Josip Juraj Strossmayer University of Osijek, Croatia

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Preface

The way of working is dramatically changing in our society. Development of globalization and financialization drives companies to a fierce competition, demanding workers to work more productively and efficiently. Digitalization, which includes popularization of AI, IoT and robotics changes the employment base and diversifies work styles of workers radically. Workers need to develop their human resources and knowledge much more than ever before in order to attain Work-Life balance. A requirement to work more creatively in order to create new values by cooperating with computers can also be observed. Therefore, Education and Training are essential as basis for future employment. Exactly this is the reason this topic was chosen as the theme of this Croatia-Japan symposium.

In the symposium, researchers from Croatia and Japan made reports and discussed together beyond their own research fields. This international and interdisciplinary cooperation bore rich fruit and resulted in the deepening of mutual understanding. In order to record the discussion undertaken in the symposium, it has been decided to publish this book of proceedings. We would be delighted if it could be of some reference to further study regarding Education and Training in the future.

Editors

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2. FUTURISTIC RESEARCH METHODS AS AN ENCOURAGEMENT FOR PREDICTING THE TEACHING OF THE FUTURE

Abstract

The paper emphasizes the importance of researching, studying and predicting the future of different occupations, especially those related to education. It provides an overview of a predicted scenario in education from a futurological point of view, but also attitudes of teachers to be as a reaction to the scenarios mentioned.

Research results show that teachers to be still do not think about the role of a teacher in the future that much, they are discussing about possible classroom scenarios insufficiently, moreover they lack knowledge of futuristic research methods which could help them. The solution to this problem is a set of research competencies of researchers to be, the harmony of researchers' interest with local and global ones, the emphasis of the importance of predicting and researching the future of all occupations, especially those related to education and upgrading the contents connected to futuristic research methods at faculties of teacher education within obligatory or elective courses. What is more, the aim of the paper is to affirm futuristic research methods and put them in equal context with other research methods which are used in social sciences, especially in pedagogy.

Key words: *futuristic research methods, research competencies, teaching, predictions, the role of a teacher in the future*

2.1. INTRODUCTION

Today, the future appears to be more complex and difficult to predict than ever before, but people today feel a tremendous need to know what lies ahead of them (Malhotra, Das & Chariar, 2014). Every institution that takes care of the present and plans for the future is more resilient to the needs of society, both in the present and in the future. Toffler (1975) points out that if we teach children and young people around the world about the past, why wouldn't we teach them about the future as well?

Suzić (2012) believes that the predictability of the future is possible, but only if we do not look linearly. Interest in the future increases intensively in times of social crises, which in itself give rise to thinking of the future. According to the thesis written by Segan and Drajan (2005), which claims that monkeys can not predict the future, we could assume that this could mean that people at a lower intellectual level can less easily predict the future. But before accepting such data, it would be good to conduct several studies that could confirm such assumptions.

Toffler (1983a) emphasizes that those who feel that the future should not be explored or taught will always expect with confidence that the future should serve as an extended hand of the present. Ulrich and Dash (2013) point out that in the future researchers should also possess research competencies, regardless of the area in which the research is being conducted. They also emphasize the reorganization of research activities and bigger involvement of state authorities in defining research topics and projects as well as better cooperation (related to research) in relation to the private and public sector, but also a better interconnection between universities and faculties. In addition, Ulrich and Dash (2013) note that the size of research is also important: the more research participants and more institutions and countries get involved, the better representation of this research will be in public and, consequently, a greater influence on changes.

Indeed, reflecting on researches is no longer of personal nature or focused only on personal research interests, but instead this reflection should entail social, global and local interests as well. Ulrich and Dash (2013) cite the research results in which the assumption was made that researchers will have the following research competencies by 2020: a well-developed capacity for analysis, the ability to work and cooperate in interdisciplinary environments, the ability to develop research networks, language skills and management skills, awareness of the pertinence of the research and the ability to assess its impact on the environment. In

addition to what the authors stated, it is also important for the researcher to think about research methods and their suitability for research.

We know that the most wanted professions in the world nowadays are those which have not even existed in the last few years. Keeping this in mind, the question arises how to educate young people to successfully deal with their future job with acquired diploma in the next 40 years? The answer can be found with the help of futurology and futuristic research methods.

On the importance of predicting change in education was previously written by some of the most prominent futurologists (Toffler, 1975, Kahn, Brown & Martel, 1976, Naisbitt, 1985). Today, the prediction of changes in education is further emphasized by Cromwell (1998), Vrcelj and Mušanović (2001), Suzić (2012) and Dubovicki (2017).

2.1.1. EARLY FUTURISTIC PREDICTIONS OF POSSIBLE EDUCATIONAL SCENARIOS

Toffler (1975) advocates that education policy should contribute in the future to a bigger number of constructed individuals that would differ from the mass, with more original ideas, and political and social subgroups. Flechtheim (1972) writes that our programs of history in schools end with the current school year, and the same is true for the knowing of society, economics, psychology and biology. The pupil is directed towards the past and not to the future (Flechtheim, 1972 and Toffler, 1975).

Using the ideas of Kahn, Brown & Martel (1976) and based on earlier research, we can predict which challenges related to the role of teachers, school children and teaching processes could appear in the future. When anticipating such important scenarios, it is of utmost importance to first and foremost realize the necessity of planning, reflecting on the future, social opportunities and the future of the personal profession represented from the angle of the predicted future. In the focus of such a scenario we include the teaching process and all its participants. Such a context requires deliberation on content, methods, evaluation, new media (technology) in teaching, changed roles of teachers and school children, social, emotional and pedagogical competencies, teaching materials and communication.

Given the importance of the teaching process for the future of humanity in mind, many futurologists were offering to us different educational scenarios. Some of

the provided scenarios (which we can expect) regarding education in the future can be seen in Table 1. The predictions in Table 1 are chronologically arranged for us to follow the development of individual ideas from 1975 to 2012.

Table 1. Predicted Scenarios in Education from the Perspective of Futurologists (1975 - 1985)

AUTHOR	YEAR	PREDICTING CHANGES IN EDUCATION
Alvin Toffler	**1975**	- the future needs people with critical spirit, - the main goal of education is to increase a man's adaptability, the abilities he needs to cope with continuous changes, - highly educated parents will partially[25] begin to exclude their children from public education and teach them at home, - inclusion of mentors[26] in teaching, - lectures should be replaced by activities like role play or "simulated activities", - learning abilities may be improved in the future with the help of a particular diet or drugs (to increase IQ, the reading speed and concentration of attention), - establishing "tips of the future" whose main goals would be: dispersion, decentralization, mutual interpenetration of school and society, suspension of the system with school time tables and classes[27], - when creating new curricula, it is necessary to establish a balance between uniformity and diversity, - diversity in education increases the chances of society to survive, - each school should provide school children with greater possibility of choice (in all areas) and possibility of having options for what they are interested in, - school children need to learn how to discard old ideas and how and when to replace them with new ones (they need to learn how to learn), - it is necessary to awaken the sense of the future in school children, - the task of education is to awaken curiosity among all participants in the teaching process.

[25] *Partial exclusion* from school implies that parents would conclude with local schools the so-called " "Learning Contracts", according to which their children would attend only one part of the teaching (for those subjects that can not be mastered by themselves), and would especially be involved in group- and sport activities (Toffler, 1975).

[26] Mentors would be chosen from the ranks of citizens, and their main task would be to show how theoretical knowledge can be applied in life (Toffler, 1975).

[27] In planning the future curriculum of a future school, we shouldn't assume that each educational subject is taught with reason but it is quite opposite. There isn't a thing to be included in the necessary curriculum unless it is justified from the aspect of the future (Toffler, 1975).

AUTHOR	YEAR	PREDICTING CHANGES IN EDUCATION
Herman Kahn, William Brown and Leon Martel	**1976**	- greater importance is given to theoretical and academic formulations of knowledge, as opposed to experience and work experience, - the trend of accumulation of scientific and technical knowledge, - less importance is given to primary and secondary occupations, there is the rise of occupations yet to come in line with new emerging technology, - the presence of increasing "brain-drain" - the problem of unemployment in underdeveloped countries, and the problem of the lack of labour in developed countries, - free time re-organization.
Alvin Toffler	**1983 a,b**	- people who are not functionally literate will be relocated from their jobs, - in the future, it will be important to do the work, but not where it is done (at home, at the faculty, at work or school ...), - we can see the future through the presence of a *third wave* in which for any job is the most important precondition is electronic communication, - education does not necessarily have to be acquired in a classroom, and needs to be more linked to work, political struggle, community service and play, - better nutrition is likely to raise the level of intelligence and functional abilities while simultaneously it will increase energy and motivation, - to the *third wave* civilization, information is the most important raw material (which can never be exhausted), - the presence of astonishing changes in new generation values that will reflect on education as well, - in future education, it is necessary to invest more effort in teaching on organization of time, usefully spent money, getting by among social structured and other, - compulsory education will be shortened, - "young" and "old" school children / students will attend classed mixed.
John Naisbitt	**1985**	- the increase of private schools, - the increase in the number of families who teach their children at home (the number of such families would grow even bigger if it weren't for a compulsory schooling legislation presenting a main obstacle); today it is manifested in the form of private tuition hours/instructions, - a rise in the number of intellectuals, - a second-hand knowledge[28] is mentioned as being contrary to direct, personal experience.

[28] Under the term 'a second-hand knowledge', Kahn, Brown, and Martel (1976) imply: books, expert reports, lectures, etc.

Kahn, Brown and Martel (1976), based on the research of the past, provide for an even greater representation of the teaching of factual knowledge in the future, which will contribute to new scientific and technological knowledge. However, Toffler (1983a, b) considers that it would be most important to reorganize leisure/free time because it would not be necessary any longer to "sit in the classroom" to get education, and knowledge would not come exclusively from the teacher. In addition to predicted scenarios, futurologists also offer some of the proposals that would go hand in hand with the upcoming changes in education. Toffler (1975) points out some of the qualities that should be encouraged in the educational system, namely: encouraging critical thinking, creativity and student curiosity. We also note that emphasis is also placed on changing school curricula, plans and programs (with particular emphasis on increased choice), time tables and classes. The number of predicted scenarios (Table 1) points to the need for reflecting on one's own future, social contexts and personal profession.

2.1.2. CONTEMPORARY EDUCATION SCENARIOS IN FUTURE

At the end of the 20th century we are the witnesses of the domination of technology and new technological tools which are used more and more in teaching. For that reason, new teaching scenarios are more focused on giving consideration to the symbiosis between technology and the teaching process (Table 2).

Table 2. Predicted Scenarios in Education from the Perspective of Futurologists (1998 - 2012)

AUTHOR	YEAR	PREDICTING CHANGES IN EDUCATION
Sharon Cromwell	**1998**	- computers become an important "ingredient" in the "recipe" for an effective school, - school children/students will have access to the classroom from their homes, - school children/students will be taught at the time that best suits them, - school children/students will be physically present in teaching only to develop appropriate social skills, - sophisticated technology represents support for school children/students in the search for knowledge, - the goal of teaching is to show that with the help of different types of resources real life can function, - the success of a teacher is based on solving creative tasks and using the portfolio, - encouraging innovation,

AUTHOR	YEAR	PREDICTING CHANGES IN EDUCATION
		- respect for individual values and diversity, - creating more and more communities of parents and teachers.
Vrcelj i Mušanović	**2001**	- the school children's attitude towards the school will change (from passive to active), - the school of the future is created by the school children themselves, - it's a *school of life* and a *school for life*, - encouraging individual, individualized and group work in accordance with constructivist theories of learning, - emphasis on cooperative learning, - specialized spaces, - encouraging school children to become independent, - an individual-oriented curriculum; introducing an electoral part of the curriculum, - multimedia and networking, - dehumanizing the impact of technology on school children's health, their socialization, development of mental abilities and programming of children's lives, - the problem of overweighted students will become bigger, - transformation of the teaching profession, - increased exchange of teachers and school children between schools, - the school of the future will not be feminized and will be rejuvenated (30-40 years).
Nenad Suzić	**2012**	- in curricula, it is necessary to teach about futurology and futuristic research methods, because in our education so far we have mostly had contents which was predominantly in connection with history, - the school should not ignore the lifestyles of young people because their strong, personal motivations are hidden there.

From Table 2, we can see that the predicted changes in the educational process largely rely on changes driven by curriculum (curriculum-directed to the student[29]) and curricula at all levels of education. One of the main tasks in the future will be to change the school children's attitude toward the school and emphasize practical skills whereas learning success will be based on solving creative tasks. Dubovicki (2016) wrote about the importance of creativity in teaching.

The mentioned predicted future scenarios of education in the future have been a trigger for this research.

[29] Interestingly, some of the aforementioned scenarios are already happening today. The student-oriented Teaching Book "Nastava usmjerena na učenika" (Matijević & Radovanović, 2011) is the proof.

2.2. THE METHOD

The research was conducted in 2017 with the help of one of the futuristic research methods considered to be the most suitable for this kind of research, which is the Focus Group Method. For the past decade, this futuristic method has found its way from researching in other areas of science (mostly in politics and economics) to research in education (Rajić, 2017), and this research contributes to the changes that encompassed a new view (approach, paradigm) to the research of education in the future. Bearing in mind the contributions and limitations of the Focus Group Method to which Morgan and Krueger (1993), Krueger (1994) and Rajić (2017) warned us, special attention was paid to the data collection and analysis. The study was carried out with the help of the steps shown in Figure 1.

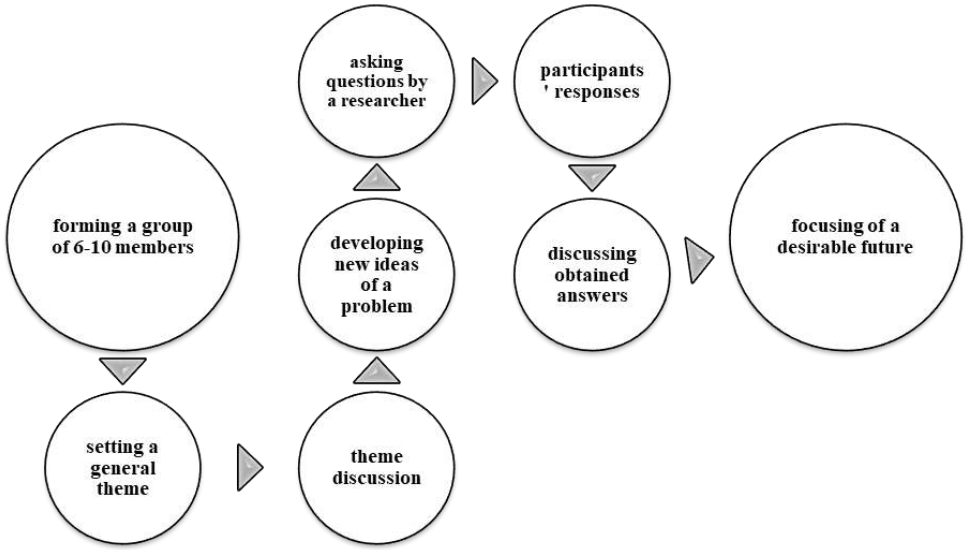

Figure 1. Steps of the Focus Group Method (taken from Dubovicki, 2017, 208)

The group consisted of 6 members[30]: (1) a student with 5 years of teacher education in Osijek, (2) a student with 5 years of teacher study in Slavonski Brod, 3) a primary school teacher in Osijek with less work experience, (4) a class teacher from the elementary school in Otok with more seniority, (5) a university professor from the Faculty of Education of the Osijek University, (6) a university

[30] represent certain perspectives from which we want to get an insight into the investigated phenomenon.

professor from the Faculty of Philosophy of the Osijek University. It was important that all the participants were related to the teaching profession because that is precisely the area which they will discuss. Group members did not know each other so they would not influence the response.

The discussion took place 90 minutes[31] and each participant, in respect of his/her own perspective and knowledge of the teacher's profession, was expected to provide as clear, concrete and arguable answers as possible. The questions asked by me personally as the focus group moderator: Have you ever thought about the future? In which context? Have you heard about futuristic research methods? Do you know any of them? What are your predictions regarding the role of teachers (and school children) in the future? What changes do you predict that will happen in the classroom?

The Aims of Research are: *affirm futuristic research methods and put them into equal context with other research methods which are used in social sciences, especially pedagogy, contemplate the future of a teachers' calling, contemplate the teaching in the future, examine the attitudes of the participants about predicting the development of the personal profession.*

Research results show that participants (100%) were not acquainted with futuristic research methods, and in respect of the future, they largely reflected in general by thinking of their private life and plans related to it. On questions related to predicting the role of teachers and school children in the future as well as changes in teaching as a consequence of changed roles, the obtained and summed answers are presented in Table 3.

[31] The conversation was recorded with the help of the dictaphone with the consent of all the participants of the research, and the course of the discussion was based on the answers given earlier by the moderator with the help of the questions asked but also the questions that were asked to get a more complete and concrete answer.

Table 3. Predicted Changes in Education in the Future

	Students of the Teacher's Study	Class Teachers	University professors
The role of teachers	- fewer teachers - the wealthy have private teachers - virtual teacher - robot-teacher - micro chipping teachers	- supervisor - coordinator - focused on research - not authority figures as before	- immediate communication with students is indispensable - possessing a wide range of knowledge - continuous education - new technologies decreased teachers' roles - teacher's creativity is important - teacher is a coordinator - teachers lead small, specialized teams
The role of students	- fewer students - earlier starting of school - micro chipping students	- gaining knowledge by travelling across the worlds - awareness of nature conservation	- teamwork is indispensable - learning through audio-visual aids - minimal use of books
Changes in teaching	- greater computer literacy - online learning - online textbooks - grading via a machine	- virtual studying - raising more important than studying - teachers teach students how to develop emotions and control them	- application of practical knowledge - online classes - using new, creative methods that enrich the classes - creative classes

By analysing Table 3., it can be concluded that all research participants predict scenarios of social circumstances similar to those we can see today in SF movies, with only a few original ideas. Regarding the development of a personal profession, the participants mainly predict negative scenarios, only a few predict positive scenarios. Participants did not encounter future research methods that would help them think and predict the future.

It is important to point out that the results of this research will be used as a basis for further research (ongoing) of this issue with the help of other futuristic methods, but also of a more complex pattern.

2.3. DISCUSSION OR CONTRIBUTION OF FUTURISTIC RESEARCH METHODS IN PLANNING AND PREDICTING THE TEACHING OF THE FUTURE

Over the last 20 years, the scientific public has started to think more intensely about the future of its scientific fields. Over the past few decades, the list of futuristic methods and predicting techniques has increased in relation to existing methodologies and certain recent approaches (Malhotra, Das & Chariar, 2014). Vrcelj and Mušanović (2001) built the most important foundation for futuristic methods (in Croatia), but their application today has not reached the extent that these methods have presently in the world. Through the historical cross-section and earlier use of futuristic methods we can see that they can make a significant contribution in planning and researching the teaching of the future. Some of the futuristic research methods which are considered to contribute most likely to the research of educational issues in the field of pedagogy are: Delphi Method, Focus Group Method, Future Wheel Method, Sixth Sense Method, Backcasting Method, Forecasting Method, Trend Analysis Method, and Technological Development Prediction Method. More information on the mentioned methods is provided by Vrcelj and Mušanović (2001), Suzić (2012) and Dubovicki (2017).

Recently, there have been modifications of some futuristic methods, and among them, the most frequently modified futuristic method is the Delphi method. Sourani and Sohail (2015) point out that lately the Delphi method is used more in the form of a questionnaire than in the form of asking one question to experts, which is the original Delphi method. It is also used for structured and semi-structured interviews. Also, Deblonde, Van Oudheusden, Eversm and Goorden (2008) describe the use of futurology and futuristic research methods (the Delphi Method) in researching nanotechnology. The mentioned authors see an advantage in *futuristic visions* and technological-scientific imaginations (daydreaming) that represent the starting points for critical investigation of the relationship between present and possible future in which nanotechnology should play a dominant role. Since the authors have predicted the dominance of nanotechnology in 2008, and today is 2018, we can add up by saying that the domination of nanotechnology has taken a very high place, and its full bloom is yet to happen.

Malhotra, Das & Chariar (2014) claim that the futuristic research methods so far rely on prediction of people (experts) who are thought to have more "feeling" for predicting the future. They divide them into: (1) methods based on obtaining opinions from experts and (2) mass opinion based techniques based on collective

intelligence. The use of future methods enhances the predicted awareness that acts faster on prediction, making the organization or individual more effective in resolving changes (Glenn, 2000, Malhotra, Das & Chariar, 2014).

First and foremost, it is necessary to focus on the study and projection of future possible scenarios in education so that, in the years ahead, young and educated people can deal with future challenges, and the results of the research have shown to us that we still need to work a lot in that area (especially in education). The use of futuristic research methods will surely contribute to this goal. How can we encourage school children/students to think about the future? We can use some of the above-mentioned futuristic methods, but we can also use creativity (we have already noticed their connection) and with the help of different creative activities to "have them do the practice" in thinking about the future. One of these activities can be a "future autobiography," also mentioned by Toffler (1975), and we can send a letter to ourselves from the future. In this context, we are creating a new concept of time and meaning for tomorrow. As Toffler (1975, 344) stated "The educational system has to be moved in the future."

2.4. CONCLUSION

All research participants predict scenarios of social circumstances similar to those we can see today in SF movies, with only a few original ideas. Regarding the development of a personal profession, the participants mainly predict negative scenarios, only a few predict positive scenarios. Participants did not encounter futuristic research methods that would help them think and predict the future

Teachers to be still do not think much about the role of a teacher in the future. They discuss possible classroom scenarios insufficiently. Moreover they lack the knowledge of futuristic research methods. It is interesting that research results show that respondents have more ideas and scenarios about the future, the longer they spent time in practice and in academic profession.

Some of the solutions to this problem is a set of research competencies of researchers to be; the harmony of researchers' interest with local and global ones; the emphasis of the importance of predicting and researching the future of all occupations, especially those related to education and upgrading the contents connected to futuristic research methods at faculties of teacher education within obligatory or elective courses.

2.5. REFERENCES

Cromwell, S. (1998): ***The school of the future***. http://www.educationworld.com/a_curr/curr046.shtml, (accessed. 18 December 2016)

Deblonde, M., Van Oudheusden, M., Evers, J. & Goorden, L. (2008). ***Co-creating Nano-imaginaries***. Bulletin of Science, Technology & Society, 28(5), pp. 372-389. doi: 10.1177/0270467608322591.

Dubovicki, S. (2016): ***Kreativnost u sveučilišnoj nastavi***. Sveučilište u Osijeku, Fakultet za odgojne i obrazovne znanosti, Osijek.

Dubovicki, S. (2017): ***Futurološke metode istraživanja***, in: Opić, S., Bognar, B. and Ratković, S., ed: Novi pristupi metodologiji istraživanja odgoja. Učiteljski fakultet Sveučilišta u Zagrebu, Zagreb, pp. 203-221.

Flechtheim, O. K. (1972): ***Futurologie - Der Kampf um die Zukunft***. Hamburg.

Glenn, J. C. (2000): ***Introduction to the Future Research Methods Series***, AC/UNU Millennium project 2000.

Kahn, H., Brown, W. & Martel, L. (1976): ***Slijedećih 200 godina***. Stvarnost, Zagreb.

Krueger, R. A. (1994): ***Focus groups: A practical guide for applied research*** (2nd ed). Sage, Thousand Oaks, CA.

Malhotra, S., Das, L. K., & Chariar, V. M. (2014): ***Design Research Methods for Future Mapping***, International Conferences on Educational Technologies 2014 and Sustainability, Technology and Education, pp. 121-130.

Matijević, M. & Radovanović, D. (2011): ***Nastava usmjerena na učenika***. Školske novine, Zagreb.

Morgan, D. L. & Krueger, R. A. (1993): ***When to use focus groups and why***, in: D. L. Morgan (Ed.), Successful focus groups: Advancing the state of the art. Sage publications, Newbury Park, CA, pp. 3-19.

Naisbitt, J. (1985): ***Megatrendovi***. Globus, Zagreb.

Rajić, V. (2017): ***Focus Groups: Contributions and Limitations to Educational Research***, in: Opić, S., Bognar, B. and Ratković, S., ed: Novi pristupi metodologiji istraživanja odgoja. Učiteljski fakultet Sveučilišta u Zagrebu, Zagreb, pp. 190-202.

Segan, K. & Drajan, E. (2005): ***Seni zaboravljenih predaka***. Laguna, Beograd

Sourani, A. & Sohail, M. (2015): ***The Delphi Method: Review and Use in Construction Management Research***. International Journal of Construction Education and Research, 11, pp. 54–76. doi: 10.1080/15578771.2014.917132

Suzić, N. (2012): ***Futurologija u pedagoškim i socijalnim naukama.*** EKTOS, Banja Luka.

Toffler, A. (1975): ***Šok budućnosti***. Otokar Krešovani, Rijeka.

Tofler, A. (1983a): ***Treći talas I.***, Beograd.

Tofler, A. (1983b): ***Treći talas II.***, Beograd.

Ulrich, W. & Dash, D. P. (2013): ***Research Skills for the Future: Summary and Critique of a Comparative Study in Eight Countries***. Journal of Research Practice, 9(1), Article V1.

Vrcelj, S. & Mušanović, M. (2001): ***Prema pedagoškoj futurologiji***. Hrvatsko pedagoško-književni zbor, Rijeka.