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Z-Generation and Challenges of Education System in the XXI Century

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Abstract

The authors of this paper present Z-generation of pupils and education system challenges in the XXI century, trying to teach these new learners in the most effective ways.

Keywords

Z-generation, education system, education system challenges

1. Introduction

If we talk about the future generations, is should be considered that the global changes are huge and quick, so that lots of professions will disappear in the future, and new professions will appear. The ways to teach the next generation at schools should be adjusted to future labor market needs.

Z-generation we want to concentrate upon has lots of nicknames in the literature and in life: post-Millennials, the Google generation, Plasma generation, The Silent generation, Internet generation, V (virtual) generation, Community of Contents, Echo-Boomers and Dot-Coms, Generation N (Networks), Nexters, D(Digital), Me generation (Carter, 2018; McCrindle, 2009; Prensky, 2001). McCrindle (2009) points a number of categories to analyze Z-generation:

1. Demographic aspects- this generation will keep working longer, will live longer and will have to finance her retire years longer than previous generations.
2. Generation aspects- this is the most material-oriented generation, which is overloaded by technologies, globally connected to all the world, and has a formal education more than any other generation before.
3. Technology aspects- this generation grew up into the digital era and uses technology in every field of life.

4. Global aspects- this is the first generation who is really global: starting from music products, fashion, food, entertainment and culture and ending with making connections. The globalization characterizes a culture and a social life of Z-generation representatives, who at the same time experience uncertainty, fluctuations and variance more than previous generations.

5. Information consumption aspects- this generation prefers to consume the information in a visual and graphic form rather than reading, so the messages get signals-based and looking like images instead of words. Also, Z-generation prefers to look for information in the internet rather than using books.

6. Educational aspects- education is no more steps-based in a life of individual. There is a life-long learning which never stops. Thanks to smartphones, learning became a constant process for any place, time, age and situation.

7. Social aspects- the term "friend" changes for Z-generation. The post-Millennials have two times more Face Book and other social nets friends than the X-generation representatives. Lots of social friendly connection are international, overcoming geographic distance, social background, language and culture differences, and they develop in a digital space.

2. Special Characteristic of Z-generation School Pupils

Right now, the Z-generation representatives get to graduation of their High School studies and get close to the Higher education and the labor market. Unlike the Y-generation, they were not researched enough. However, a professional literature always points a use of mobile digital technologies, like smart telephones and tablets, more than stationary computers (Carter, 2018; Turner, 2015). For this generation, smartphones use as a central tool to get any information on the internet. If the Y-generation uses mobile phones to send and receive messages as a main communication tool at the adolescence period, Z-generation is much more involved in technological applications of the smartphones, in using non-verbal symbol-based communication (like pictures), and in social relations which goes over limits of their geographical regions, their networking is thus gets to the global level. They still use text messages like the Y-generation, but they also use lots of graphic tools – whole dialogues are managed using pictures (emojies) on the platform of social interaction. Such graphic tools are faster than the ones of the previous generation (Carter, 2018). Z-generation are very good users of the technology and are attached emotionally with a digital environment (Turner, 2015).

The following table presents a comparison between the Baby-Boomers (born between 1946 and 1964) and Z-generation, suggested by McCrindle (2009, p. 17).

Table 1. Baby-Boomer versus Z-generation Characteristics

Baby Boomers	Z-generation
Verbal preference	Visual preference
Learning when sitting and listening	Learning out of experiments and observations
Teacher	Advisor
Contents (what)	Process (how)
Learning based on curriculum	Learning based on pupils
Exams with a closed book	Exams with an open book

One of the main characteristics of the young generations is use of social networks. Professional literature discusses advantages and disadvantages of early exposure to social networks (McCrindle, 2009). Z-generation and even Alpha generation pupils use social networks more and more, in younger ages and in different countries all over the world. Children under 9 years of age use to see short movies, play games, look for information, prepare home work, and connect to their peers using networks. However, it is still not known if the environment of social network is safe enough and has educational advantages. For example, sites for sharing videos are very popular among children at the ages of 9 and more, it is easily available, however some contents may be not suitable for them.

In addition, Z-generation of pupils use social networks not only for making social friendships and keeping them, but also to express their creativity: making short movies, editing pictures and pieces of music, preparing multimedia presentations and publishing their creations (Rosen, 2010). Although it is claimed that Z-generation pupils are not good in writing since they use lots of abbreviations and images instead, Rosen (2010) claims they write more than any other generation, interested in the process of writing and its final product, prefer to work by their own and submit the outcome on the specified deadline date, without intermediate dates. If in 2000-s about 9 out of 15 teenagers (89%) reported about using internet, on average in the OECD countries, in 2009 only 1% reported they never used internet before.

Most of the researches deal with use of internet and social networks among Junior high schools and Higher education institutions' students, so it is worthy to pay a special attention to the research of Perez-Escoba et al. (2016), which was conducted among a primary school pupils of both public and private school in Spain, with a total of 678 respondents. This research examined general characteristics of technological tools usage and time spent in front of computer among pupils. The outcomes demonstrate a frequent use of smart tools: computers, tablets, smartphones and laptops (see Figure 1). Definitely, the pupils of primary school are used to a wide variety of technological tools on every-day basis. For example, 82.7% of the second grade pupils, and 96.9% of the sixth grade pupils answered they use more than one such a digital tool on a regular basis. Most of the pupils studies to use digital tools from the family members (68%), 19.2% learnt from their teachers, the rest- on their own.

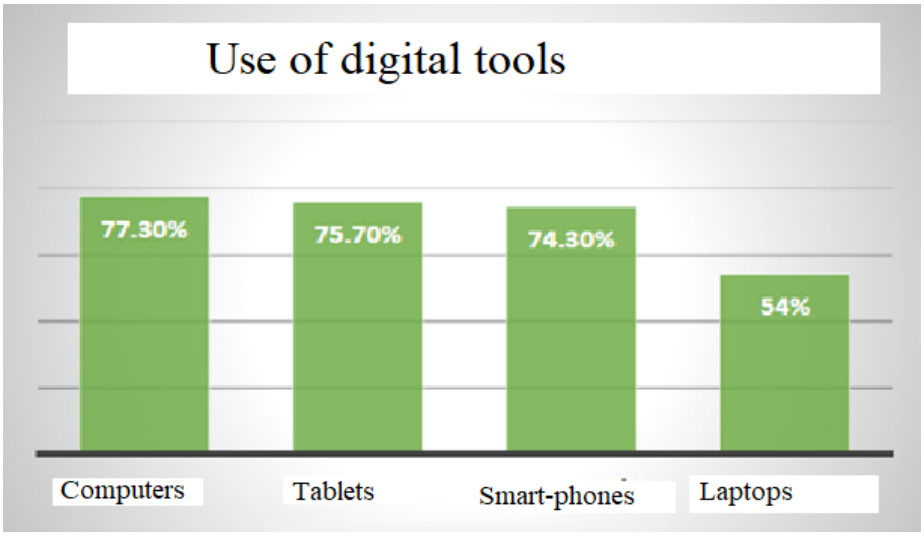

Figure 1. Use of Digital Tools among Primary School Pupils

Source: Perez-Escoba et al., 2016.

The most widespread network activity, according to Perez-Escoba et al. (2016), is games, looking for information is on the second place, looking for videos or pieces of music is on the third. For each one of the activities, another digital tool is used: games and music and video pieces are usually done on tablets, a computer uses for looking information, preparing home works, watching movies. Smart phones are usually used for talking with friends, chats and e-mails.

At the same time, most of the pupils' digital literacy is not high. There is actually no match between the exposure to digital world and development of skills of working with digital tools. Unlike the common agreement that "Z-generation are born digital", there is a need to improve their digital literacy, since many of them are not able to use internet networks efficiently. The exposure is high, however still digital literacy is low (Perez-Escoba et al., 2016). The young pupils do not know how to look for information in the right way, they lack of efficient strategies of search.

Social media consists of sites and services which appeared in the beginning of 2000-s, including social networks sites, sites for sharing video files, blogging platforms and other sites helping the users to create and share their information (Rosen, 2010). Social media is an important part of modern pupils' lives, since it supplies a comfortable space to join other pupils. During the last decade, social networks were developed into systems of sites and services which are at the heart of modern culture, providing opportunities to make social connections, to get updated, to share information and spend time with peers. Today pupils use media in order to express their autonomy and to contact their peers. They create networked publics- spaces created by a network technologies and imaginary community built out of making connections, technology and practice at this space. Unlike previous spaces, network publics present new challenges and opportunities:

- Persistence: a duration of time the digital contents survive at the digital space changes, however the new participants are not aware to this aspect about information they share at the network.

- Visibility: a potential audience of the contents is not known, so there are some concerns about possible damages.
- Spreadability: it is so easy to share contents, which makes it a challenge, since only one press of key might spread all over a sensitive and personal information.
- Searchability: the information is easily found, however there is not ability to evaluate its validity and trustworthiness.

Boniel-Nissim and Dolev-Cohen (2013) conducted their research in Israel among pupils 10-12 years old from two schools from the North of Israel, from families of middle-high socio-economic background. This research revealed that although these pupils are too young to conduct their own active Facebook account, they do have one, which is visited by them at least once a day. The participants described their network activity as social interaction or recreation pleasurable activity. The pupils who are not active at the media, are related by their peers as not-updated ones. This digital activity helps in creating inter-personal relations and development of social skills, altogether with ignoring the legal or technical prohibitions. Boniel-Nissim and Dolev-Cohen (2013) point out it might become dangerous to let the young participants be active at the social networks without any guidance and watching out, since unwanted social phenomena like network bulling may arise.

3. Modern Studies' Environment

The focus changes form the school and its surroundings to the process of learning that does not depend only on physical environment. The term "class" reduces the holistic learning ideas, since it concentrates on studies only within this specific place and within specific time boundaries. In a modern era, learning environment is an organizational form which adapts learning settings for a group of learners in a certain field and for some period of time. This learning environment may exist within an educational institution like school, however it does not have to be based on school, whether the learning takes place fully or partially at school (Istance & Kools, 2013). In this respect, appears a term of "Blended learning environment" which is not new and is widely used in professional literature (Piaget, 1995). In such an environment, the pupils are involved in different levels of a number of teaching sources (digital, printed, peers, teachers), in order to achieve a deep learning eventually. For today pupils, a blended environment of studies contributes to the learning process, since it fits the characteristics of these pupils, like their wish to interact face-to-face, use pragmatic approaches to problems' solutions, tendency to work independently altogether with ability to work in teams, using lots of available sources of information to achieve the desired goals and objectives. Teaching in a blended environment may consist of a class with pupils who work independently with their computers, then discuss their outcomes in little groups to share their knowledge they gained and other aspects, to reveal gaps of knowledge or skills. In such a class, a teacher has a space for meeting with her pupils personally or in small groups to share information about their proceedings, abilities to gather knowledge and skills.

The design to learning spaces as a future trend preoccupies lots of researchers and professionals in the

field of pedagogy. Toll now, for centuries, the education system was focused on teacher who talked in front of pupils and was the only source of knowledge. The switch to teaching with a focus on a pupil demands rethinking not only in the field of methods and paradigms of teaching, but also about the best learning environments and spaces for this new approach. The traditional class that was arranged in columns of tables and chairs in front of the white board, will have to transform to another form, supporting cooperation and dialogue, active learning, creativity, working in small groups and using smart devices. The new classes will have to be more available, flexible, with various work stations, mixed spaced rather than tough environments. So, smart agriculture in designing the schools of future will be very useful and answer new challenges of modern learners (Freeman et al., 2017).

Multi-purpose spaces for group activities, small discussion rooms and blended space for both studies and social activities are needed badly, to answer the modern challenges of young generations of pupils. Since learning is perceived today as the multi-function process, consisting of cognitive, social and empirical elements. The pupils of today prefer learning based on experience, they get advantage of self-involvement for problems solutions, so learning actively in classes will be valuable.

4. Education System Challenges in the XXI-s Century

Education systems today are preoccupied with building up policies about use of digital tools within schools and arranging digital relations between pupils and teachers. Their goal is to set a clear system of norms and rules for the right use of social networks and steps that must be taken in cases of violations of these norms and rules. In Israel, the policy of Ministry of Education in relation to social networks is based on the assumption that behavior of children and teenagers on the net naturally continues their behavior in the physical space. Thus, virtual violence is often a continuation of personal and social behavior in the physical space. Ministry of Education strives to increase the awareness of pupils about positive and negative uses of social networks, in order to develop social values and proper life skills within the networks, and to set standards and rules (Boniel-Nissim & Dolev-Cohen, 2013). There was a try of Israeli Ministry of education to distinguish between educational and general social networks, which failed (Shwartz et al., 2017), since children “live” in some social networks. Another initiatives of the Ministry of Education were made, like “To open a heart” or “Life skills”, trainings on the subjects of tools and means of coping with danger at the networks, safe internet browsing and digital intelligence (Shwartz et al., 2017). The social dynamics at the digital space do penetrate school, so it should deal with them at the system level. If control and monitor systems are missing, it becomes difficult to assist all the pupils in a fair and equal way. If an education system limits its virtual space, it actually signals pupils that it is not relevant and has no impact over them and their decision making at the virtual space (Boniel-Nissim & Dolev-Cohen, 2013). So, the way of creating partnerships of parents, teachers, cultural and academic institutions may lead the education system to a dialogue with modern pupils, showing them in a positive way its readiness to increase their awareness and digital intelligence.

However, in order to lead meaningful changes for today learners, the education system has to examine deeply the methods of learning and teaching. Morgenstern et al. (2019) propose the six following principles of teaching:

1. Personalization: the learning is suited personally for a pupil trough the teacher, the pupils and accompanying technologies;
2. Sharing: development of skill of sharing and cooperation between pupils;
3. Non-formality: studying takes place out of formal frameworks, like social networks and independent organizations of studying communities;
4. Glocality: balance between general trends in the world education and local ones;
5. Changes adaptation: preparing the learners and the system to constant changes, being able to adapt personally;
6. Building up personal identity and goal: development of personal identity and goal by a pupil independently.

5. Summary

Education systems of the XXI-s century all over the world cope with looking for new innovative and efficient methods to teach the new generations of pupils – Z and Alpha. It is a common knowledge that modern pupils are "born digital", and freely use internet, social networks and virtual games. Many of them make friends and "live" within virtual environments.

At the same time, most of the pupils' digital literacy is not high. There is actually no match between the exposure to digital world and development of skills of working with digital tools. Unlike the common agreement that "Z-generation are born digital", there is a need to improve their digital literacy, since many of them are not able to use internet networks efficiently. The exposure is high, however still digital literacy is low (Perez-Escoba et al., 2016). The young pupils do not know how to look for information in the right way, they lack of efficient strategies of search, might be unable to distinguish bullying and deal with it. In the authors' opinion, the education system must be involved in the virtual life of its pupils, increasing their digital literacy and using digital tools as educative ones.

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