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# The contradictory role of technology in Finnish young people's images of future schools

## ABSTRACT

The aim of this study is to analyse the views of young people belonging to Generation Z about the role of technology in future schools in 2030. Without listening to young people's voices, it has been stated that there is a strong need to increase the use of technology and digitalization in teaching and learning. Based on the essays collected from 89 Finnish young people aged 15 – 18 years from four different regions, this paper presents four qualitatively different future images of technology in future schools. Our results show that the representatives of the same generation are divided into different units with different response to the rapid technological change and hence one of the key formative experiences of their generation.

*Keywords:* Young people, Generation Z, future images, education, technology

## Introduction

This paper explores the role of technology in Finnish young people's images of the schools of the future. While there have been pressures to increase the use of technology and digitalization in teaching and learning in Finland (Finnish Government, 2018), recent generational studies and theories suggest that particularly young people's relationship with the technology is the key factor that separates them from previous generations (e.g. Levickaité, 2010; Turner, 2015; Priporas, Stylos & Fotiadis, 2017). Drawing on a classic theory on social generations by Mannheim (1952), the term 'generation' is used in this paper to refer to a group of relatively same aged individuals, who collectively share similar historical and societal experiences as well as the general atmosphere of the particular era, which in turn affects their values, attitudes and behaviour. We share the view of Woodman and Wyn (2015) who argue that Mannheim's theory, although dating back to the beginning of the last century, continues to be valuable when considering the youth and generations of today. In contrast to popular and policy discourses on generations that tend to minimise the differences between young people, in Mannheim's theory a generation is divided into *generation units* with differing forms of response to the experiences shared in common (Mannheim 1952). In this paper, to avoid

‘crude generationalism’ (Wyn & Woodman, 2015) we particularly utilize the idea of generation units when interpreting the contradictory role of technology in young people’s images of future schools.

Focusing more on the intra-generational similarities than differences, the generation of today’s young people is commonly called Generation Z (e.g. Jones, Jo & Martin, 2007; Levickaitė, 2010; Ozkan & Somaz, 2015). The formative, identity-shaping experiences (Mannheim, 1952) of individuals belonging to this generation has said to be primarily related to globalization and the rapid technological changes in particular (Beck & Beck-Gernsheim, 2009; Levickaite, 2010). They are the first generation born into a digital world where instant access is constantly available everywhere (Bassiouni, 2014). The increasing use of You Tube, applications and different forms of social media are so common that everyone seems to be equipped with technology.

Today, the technology is changing our ways of being connected and consuming (Priporas et al., 2017). It also has an impact on the methods of teaching and learning (Jones et al., 2007; Cilliers, 2017). As a reflection of this trend, there have been pressures to increase the use of technology and digitalization in teaching and learning. Digitalization has been on the agenda of Finnish schools for many years and increasing digitalization in learning was also one of the main goals of the Finnish government between the years 2015–2019 (Finnish Government, 2018). In general upper secondary schools, which is the context of the present study, the role of technology in teaching and learning has been emphasized particularly after the national core curriculum restructuring in 2016, when the first age group, who had their matriculation exam entirely in a digital form, started their studies. Nowadays, using laptops and the internet are part of everyday life in Finnish general upper secondary schools. Public debate about the new teaching and learning technologies has, in turn, focused mostly on the demands of future working life (e.g. TEM, 2013) or teachers’ additional training in digital skills (e.g. Hietikko, Ilves & Salo, 2016, 13–20). Additionally, there has been critical public discussion about the negative effects of using technological devices, such as increasing screen-time and the impairment of concentration skills (e.g. YLE, 8.7.2019). However, the public debate has failed to notice the opinions of the adolescents about digitalized learning. Without listening to young people’s voices, it has been claimed (e.g. Berg, 2009, 3) that young people of today are so adapted to technology that they are “born with a chip” and they face cultural shock if the learning environment lacks technology.

This article presents the results of the first stage of an interdisciplinary research effort that aims to investigate young people’s images of future schools in 2030. In this paper, we examine how young people belonging to Generation Z perceive the role of technology in future schools. We will look

more closely at the change and consequences in future school brought about by technology by first examining young people's general attitudes towards technological development and change, concentrating secondly on their perceptions of the consequences of technology on teaching and learning. Our examination starts by providing an overview of the concepts of social generation and future images. Next, the data and the methods are described and the findings presented in the results section as narratives on young people's future images (see Kaboli & Tapio, 2018). A summary of the results in connection with previous research, as well as theoretical reflections and interpretation on the findings, can be found in the discussion. Lastly, the limitations and future research areas are discussed.

## **Social generations**

The concept of *generation* became established in sociological discussion after Karl Mannheim's famous essay 'The problem of generations' in 1923. The crucial aspect of Mannheim's theory on *social generations* is that it challenges the way the term 'generation' is typically perceived in everyday thinking. Instead of emphasizing the biological continuity of generations, Mannheim built his theory on the interplay between the biological and the social: a social generation consists of the relatively same-aged individuals, who share certain *formative experiences* in common as well the awareness of the uniqueness of their own age-group (Mannheim, 1952). Although each social generation is contemporaneous with other social generations, they have a distinctive historical consciousness which leads them to experience the same social and cultural phenomena and significant historical and political events differently (Pilcher, 1994). Unlike family-generations, social generations are formed on an irregular basis: the faster the tempo of social and cultural change, the more frequently new social generations will appear. Youth as a stage of life has a special role in Mannheim's theory; individuals are significantly influenced by socio-historical contexts and changes they experience in their youth, which is the crucial period of their identity construction (Mannheim, 1952).

While emphasizing the significance of common formative experiences as a factor that links together the individuals belonging to a certain generation, Mannheim (1952) also calls attention to how the very same experiences stratify the generation into different *generation units* based on their differing forms of response to the particular socio-historical situation experienced by all in common. That is, the common formative experience is reacted and interpreted differently depending on, for instance,

the individual's social and cultural position. While in Mannheim's theory the concept of a generation unit is used to refer to a concrete group, formed of a kind of generational forerunners, who channel the common generational experience into a political action; we use the term without the aspect of mobilization to describe the differentiation of a generation into units with different reactions to the formative experiences shared by all the members of a generation. The differentiation of generations, in turn, has been argued as being the clearest under circumstances of rapid social change (Elder, 1975).

Although still widely utilized today, Mannheim's theory has also been criticized for its tendency to limit the possibilities of formative experiences particularly in the years defined as youth. It has also been questioned as to whether the theory is still relevant to describe the experiences of younger cohorts who have grown up in an individualized and globalized world. (e.g. Purhonen, 2007.) On the other hand, it has been argued that the social changes and the political and material conditions of the last decades have particularly created a breeding ground for the new generations whose formative experiences are related to the changes in youth as a life stage itself, as well to the establishment of a 'new adulthood'. This 'new adulthood' is framed by the economic and cultural processes and social conditions that are very different from those experienced by previous generations. (Wyn & Woodman, 2006.)

It has transpired to be particularly challenging to draw the line between the generations based on years of birth. While there is a relatively strong international agreement on the existence of the baby boomers' generation born after the World War II, it has been more difficult to reach an understanding of where to draw the lines between the subsequent generations. (See e.g. Jones et al. 2007; Ozkan & Solmaz, 2015; Turner, 2015). According to the critics (e.g. Wyn & Woodmann, 2006), the accounts of generations, particularly those that come from popular media are typically anecdotal and may be based on common stereotypes. Both in scholarly circles and popular media, those born at the turn of the millennium are typically named as Generation Z. These young people are argued to be fully technology communicators whose historical environment is the world without time and space limits (Levickaité, 2010). At the same time, the popular concepts used to characterize the young people of today such as 'digital natives' and 'digital generation' have been critically scrutinized by researchers. The target of criticism has particularly been the assumption of digital natives as a united generation, the representatives of which are claimed to have more advanced knowledge of the use of information technology in comparison to previous generations (Bennett et al., 2008). According to the research, there are remarkable differences, particularly on global level, in both the competence of using

information technology and the opportunities related to access to learning and interaction opportunities provided by the new technology (Palfrey & Gasser, 2011). It seems, therefore, that although one of the crucial formative experiences of the generation, whose members were born at the turn of the millennium is most likely related to the rapid technological change, the generation is divided into units with different response to this social phenomenon, and thus one of the key formative experiences of their generation.

## **Future images**

A sense of time is one characteristic of humanity, especially awareness of the future. While exploring the literature, one can notice that separate scholarly fields, such as psychology, sociology, and futures research have been interested in humans' capability to think, imagine and plan the future. This has created divergent approaches, resulting multiple concepts with slightly different nuances that are used to discuss the phenomenon. For example, *mental time travel* (Suddendorf & Busby, 2005) and *possible selves* (Hamilton & Cole, 2017) are used in psychology, *imagined futures* in sociology (Beckert, 2016), *futures consciousness* (Ahvenharju, Minkkinen & Lalot, 2018) and *future images* (Rubin, 2013) in futures studies and *future orientation* (Trommsdorff, 1983; Seginer, 2009) across disciplines. In this study, young people do not think about their own future, but reflect their experiences and views while envisioning the future of schools in general. Thus, the concept of *future images*, used commonly in futures research, was chosen because it is not limited to a single perspective or theme.

Future images mean the mental representations directed to the future state, which together with our expectations and values connected to future, play an important role while setting goals and choosing the means to promote the goals (Rubin & Linturi, 2001). They contain contradictory elements and are both conscious and hidden at the same time (Rubin, 2013). As Rubin (2013, 40) expresses, future images are "inconsistent and illogical by nature", the premise of which includes that the future is not predictable but that future outcomes can be influenced (Amara, 1981). Therefore, when studying future images the aim is to form perceptions of the future by identifying different images of the future that exist, to see alternative futures as a base of responsible planning and acting (Dator, 1998). Approaching schools of the future from the viewpoint of young people is important, since previous studies of school-related future images have focused on adults' views, and school staff (Rubin & Linturi, 2001; Béneker, Palings & Krause, 2015) or other decision-makers (Rubin & Linturi, 2011).

Research on young people's future images have revealed the dissonance between the visions of personal and global futures (e.g. Mikkonen, 2000; Cook, 2015). Individuals' see their own personal future positively but the global future negatively. This is explained by the fact that there is more empowerment to affect to one's own future but not the global one (Rubin, 2000), because cognitive schemas make future orientation more focused on internal than on external causes of future events (Trommsdorff, 1983). The annually published Finnish Youth barometer showed in 2016 that young people saw their own future rather positively and only a quarter saw the future of the world optimistically. (Myllyniemi, 2017.) While one of the key findings of the barometer in 2016 was the rapid growth of cynicism and mistrust among young people, the barometer of 2018 found instead that optimism has increased and young people have more trust in the institutions of society. (Pekkarinen & Myllyniemi, 2018.)

### ***Formation of future images***

The term 'future images' embodies a multitude of aspects and thus it is necessary to understand how they are formed. Future images are formed both at the level of individuals and communities or social institutions. Drawing on a previous scholarly literature (Polak, 1973; Zimbardo & Boyd, 1999; Rubin & Linturi, 2001; Dator, 2009; Rubin, 2013; Demneh & Morgan, 2018) Figure 1. summarizes the aspects of future images and factors related to them. These are discussed below.

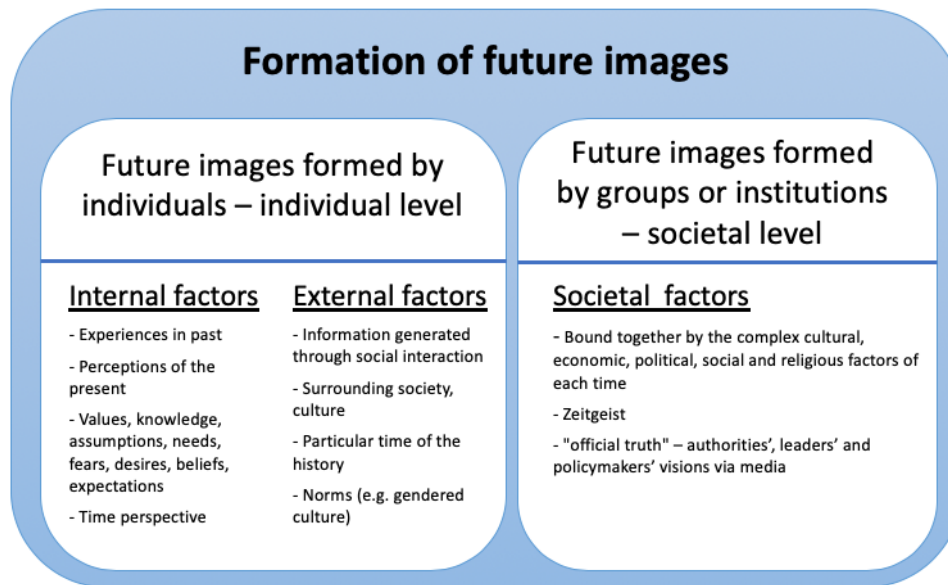


Figure 1. The levels and related factors contributing to the formation of the future images (Polak, 1973; Zimbardo & Boyd, 1999; Rubin & Linturi, 2001; Dator, 2009; Rubin, 2013; Demneh & Morgan, 2018)

On an *individual level*, the future images are influenced by the factors related to the individual's personality and perceptions, as well as the social and interactive factors related to the environment. In this paper, these are called internal and external factors. *Internal factors* are related to the individual's past experiences, their values, knowledge, assumptions, needs, fears and desires and their perceptions and interpretations of the present (Rubin & Linturi, 2001); hence as Rubin (2013, 40) describes it, future images are "formed from knowledge and flavoured with imagination". Further, an individual's time perspective influences future expectations (Polak, 1973, 7). The individual's psychological orientation towards time may be in the past (defined as more pessimistic, more traditional, and not interested in reform and change), in the present (current environmental, biological and social aspects affect to decisions) or in the future (includes alternative goals that weigh the positive consequences and disadvantages and assess different opportunities) (Zimbardo & Boyd, 1999). *The external factors* of the individual-level are the information generated through social interaction. This is influenced by, for example, a particular time in history as well as the culture, traditions and norms of the surrounding society (Rubin & Linturi, 2001; Demneh & Morgan, 2018). In Finnish studies (e.g. Mikkonen, 2000, 171 - 172; Kaboli & Tapio, 2018) it has been noticed that young people's views of the future are described in relation to and compared to the present and thus,



it can be assumed that the differences and contradictions in future images between individuals may be the different interpretations of the same phenomena in the society. Individuals can also have many different future images at the same time (Rubin, 2013).

Gender has been proposed to impact future visions (Hicks, 1996; Eckersley, 1999). Eckersley (1999) discovered that males were more optimistic about the future than females, especially regarding science and technology, while females preferred a more ‘greener’ society. In a study by Hicks (1996), girls were less optimistic but still showed more interest in the future, and were more likely to talk about it to others. Thus, Hicks believed that girls are more realistic about the future, whereas Eckersley (1999) argued that boys tend to be less mature. However, from the perspective of personal futures Seginer (2009) discusses the contextual nature of gender differences and states that girls’ future orientation is less gendered in late modern societies than it was in the mid-twentieth century when the first future orientation research was conducted.

The nature of future images cannot be fully understood unless the issue is also examined at the *societal level*. Future images are also developed by groups and institutions (Polak, 1973, 14). The images of the future reflect the zeitgeist and are bound together by complex cultural, economic, political, social and religious factors of each time period (Demneh and Morgan, 2018). Additionally, it has been pointed out (Dator, 2009; Rubin, 2013) that society might have an “official truth” about the future, propagated especially by those who have power, such as authorities and leaders. The result of this may be that the visions of the future they present are not questioned, but only accepted as such (Rubin, 2013). This may blind people to consider other future options. In this article, we take a perspective used in the tradition of futures research and explore the schools of the future through alternative futures. Our view is that young people’s future images will reflect both individual and societal levels of future images.

## **Method**

In the present study, young people’s (n=89) images of future schools was examined based on their essays entitled ‘The Future School in 2030’. A qualitative research design was used to obtain an open and interpretive approach, since future images are complex and it is not known beforehand what kind of envisionments respondents will produce. The essays were collected in four Finnish general upper secondary schools in 2017. During the years 2006-2016, after nine-year compulsory education a bit more than half of the Finnish students continued to academically oriented general upper secondary

schools while a slightly over 40% proceeded to vocational tracks (Statistics Finland, 2017). Participants were from fifteen to eighteen years old. Altogether 35 stated they were male, 50 female, and 4 non-binary. The schools were selected by their representation of different areas in Finland. Two of the schools were located in two large cities in the south of Finland (n=57) and the other schools were located in two smaller municipalities in the western Finland (n=32). Two of the schools (one from the cities and one from the small towns) were specialized general upper secondary schools, which means that they have received a special mandate from the state to emphasize particular subjects in their curriculum. They also have the right to set special criteria for student enrolment. (Järvinen, 2003). Even though study participants may not represent typical students in general upper secondary schools, the crucial point here is that the special mandates held by the schools were not technology-related.

The study was designed to capture the thoughts of adolescents about future schools. A time span of approximately 13 years ahead was chosen so that it would clearly be far enough away from the present situation for the changes to have occurred, but would not be too distant in the future either. Before gathering the data, the writing assignment for the essay was tested with three young people. After testing, the assignment was as follows:

*Write your thoughts freely about what kind of schools there will be in 10-15 years in the future. Consider the issue as extensively as possible from different perspectives. What will the general policies and principles be? For example, you can envision what will be studied, in what kind of ways and with whom? What kind of learning environment will there be? Who will be doing the teaching?*

Before data gathering, both students and their parents were informed by a letter about the purpose of the study, the nature of the voluntary participation to the study and the researcher's contact information. Study permission was also received beforehand from the principals and contact teachers. Material was gathered on the premises by first author which made it possible to provide similar instructions to each group and answer any questions. It was emphasized that it was important not to just directly answer the suggested questions in the assignment but to write any visions freely. The adolescents wrote the essays anonymously, only the name of the school, gender and permission to use the essay as research material was recorded. The time allowed to write the essays after the instructions was about 60 minutes. The length of the final essays were approximately 200 words.

This study used inductive content analysis, as it was seen useful to approach the qualitative data from specific items to a larger whole (see Hennink, Hutter & Bailey, 2011, 234–245). First, the essays were read repeatedly to become acquainted with the material and to make open coding. This process meant that notes and various headings were made to describe all aspects of the content while reading the data thoroughly several times. The aim was to avoid presumptions and be content sensitive. At this stage, technology emerged as a major theme (mentions in 83 out of 89 essays) forming the focal point of the present article. After this description phase, the data analysis was continued by coding similar attributes into broader categories (Hennink et al., 2011, 237–247). Analysis was guided by the questions on the foreseen changes in technology, attitudes towards technological development and change, consequences of technology in teaching and learning as well as educational and societal consequences of technology. On this basis, we formed four future images related to technology in schools, which are expressed as narratives to provide insightful visions for alternative futures. These images do not represent individual views but they are formed from single extracts in the texts. In other words, since it has been noticed that future images contain contradictory elements (Rubin, 2013), which also occurred in this study, a single essay may not be positioned as such in any of these visions, but these four future images are a compound of similar factors that emerged from different essays.

## **Results**

In the following, the results are presented through four qualitatively divergent images: 1) High tech centres, 2) Familiar and safe, 3) Humanity is important and 4) Something else than pressures, please! The results show that the young people's visions related to the role of technology in future schools are contradictory and heterogeneous. The four images formed of future schools and their qualitatively different qualities (Table 1) are described in the following as narratives (see Kaboli & Tapio, 2018) and illustrated with citations from the essays. In these alternative future images one was clearly positive and one clearly a nostalgic viewpoint, while the others had a more critical approach. We start with the positive image, for which most extracts were coded from the essays.

Table 1. Classified elements of the images of the future school

CLASSIFIED ELEMENTS	IMAGES OF THE FUTURE SCHOOL			
	I High tech centres	II Familiar and safe	III Humanity is important	IV Something else than pressures, please!
<b>Foreseen changes in technology</b>	Major, fast and goal-oriented changes	Minor changes	No clear standpoint whether the change is minor or major	No clear standpoint whether the change is minor or major
<b>Attitudes towards technological development and change</b>	Strong faith in technology. Change is needed.	Finnish schools were considered to be of good quality and significant changes will not be needed  Technological programs were seen as confusing and unpleasant to use	Although some benefits of technology are recognized, there is a great deal of concern about the reduction in social interaction	Critical view of technological change because it is perceived to cause pressures and increase demands  Digitalized learning is seen dull
<b>The consequences of technology in teaching and learning</b>	Latest technological innovations replace old teaching methods and learning tools; learning results will be improved  Other forms of learning places will make studying more independent, individualized and flexible, this will reduce the importance of school buildings  Social interaction is promoted by technology	Only minor impact: mostly e-learning materials  Change at the level of schools by 2030 will be limited and slow because: 1) short time-period, 2) already high level of technology, 3) the static nature of schools and the bureaucratic Finnish system  Preferred subject-based teaching	The forms of teaching and learning will change: digital learning and teaching tools will diminish group work and increase independent studying  Increasing use of technology will have a negative impact on the learning of many important skills such as social skills  In preferable future school cooperation skills are promoted and real people remain as teachers	Teaching becomes method-oriented as using technology is the main goal  Traditional forms of teaching and learning will disappear  Increased use of technology will have a negative impact on the learning of many important skills such as those related to arts and creativity  Teacher's work will be easier, which will add to young people's workload at schools
<b>Educational and societal consequences of technology</b>	Technological development will benefit school and society  The relationship between schools and working life will strengthen  Future adolescents will be more intelligent  Education will be more efficient economically  Reduction of consumption and the use of natural resources	The consequences of technological developments will be greater outside schools, in the surrounding society	There is a fear that the power of technology will be too strong in future, because it will reduce human agency and social interaction	Technological development will put more pressures on young people and alienate them from real life  Inequalities and health problems among young people will increase  Due to climate change, using technology is mandatory

### *Image 1. High tech centres*

In the image 'High tech centres' the technology has been progressed rapidly by the year 2030 and the changes are major. Technological advances benefit society and change the structure and forms of learning throughout the schools. The latest technological innovations are used: school environment is thoroughly digitalized with the most modern equipment, virtual reality, holograms and robots. Technology has replaced old teaching methods and distance learning is common in the year 2030. Some schools are completely virtual or online.

“...the future school looks like an environment that is calm, easy and comfortable to study. Future school uses the latest technology to make it easier for young people to study. ... So the future looks very different from the present, but it should not be afraid of because change is a good thing. With the change, the current society can be improved.” (school 4, female 39)

“The learning environment will also become more distant and young people are rarely going to real school building to study, as all courses are done independently in distance or online courses. There will be some kind of online schools based entirely on the Internet. It is the right school, but there is no school building, all teachers, mentors and tutors are online and the school is on their own computer. So one does not even go to school because the school exists only on the net.” (school 1, non-binary 2)

Remote teaching increases the opportunities for students to learn more individually and flexibly. Technology enables students to study globally under the guidance of experts in different fields, regardless of their place of residence. New opportunities brought about by technology are facilitating the work of students and making it fun, as well as easier and faster. Moreover, adolescents are more intelligent than before, because technology enables to do more work. While teaching is done by robots, at least in some of subjects, teachers are guiding students more individually and remotely behind the screens. However, technology is not a barrier to social interaction or physical activity but promotes them.

“When you take the course remotely, you'll need to buy a "hologram transmitter" to help you see your teacher. In 2030, artificial intelligence is already so sophisticated that robots can do teaching.” (school 1, male 10)

“Even if digitalization in networks would increase, it does not mean that socialization in school environments would stop. We can learn socially, but electronically.” (school 2, female 23)

In this image, technological innovations are a source of hope and the solution to solve societal problems. Schools gain economical savings when the group sizes are not limited and fewer teachers are needed. Additionally, school buildings have diminished and some of them have been transformed

into factories where robots and machines work. Using the latest technological innovations and implementing new subjects (such as coding and robotics), the schools answer the demands of working life as well as reduce consumption and the use of natural resources.

### *Image 2. Familiar and safe*

In the image 'Familiar and safe' just minor changes have occurred in schools by the year 2030. The use of technology has increased a little during the past ten years but it has only had a slight impact on the teaching, learning or the schools' structure. The desire was that no changes should be made too quickly, as moderation was seen to be necessary while implementing reforms. Traditional elements such as teachers are still present in schools but the learning materials primarily are in an electronic form.

“...I believe that there will not yet have been a radical change in the main ways and principles of teaching. The teacher teaches in the classroom, the pupils do homework, and mostly written tests are organized to measure knowledge. I think that such methods, which today and for several decades have been at the core of schooling, will preserve their role even after 10-15 years.” (school 3, female 30)

“...the changes should be made in moderation. Too much digitalization do not, in my opinion, facilitate the learning.” (school 3, male 19)

The long-established traditions in Finnish schools of a sound educational culture and good quality teaching are considered to be so effective that no great changes have been thought to be necessary. In this image, it is seen as important to cherish traditions, use established and well-tried methods as well as the subject-based curriculum structure. Young people are happy about this situation as they see that using technology in school is confusing and unpleasant. Digital programs (for example e-books) are disorganized and awkward to use. Therefore, paper books are preferred as a means of promoting learning.

“In my dream school in the future it would be quite similar system as it is today. I think the Finnish school system is well designed and implemented.” (school 1, female 10)

“The school of the future looks bad and there is nothing good - and luckily I don't have to stand it. Many things are already digitalized and it is enough.”(school 4, female 35)

In this image, technology has not developed very much by the year 2030, although there have been considerable changes during the earlier decade. However, some suspect that there is more

technological development in society, but that the schools have still remained the same. They explain this by assuming that the change has been limited because schools are static and the Finnish system is bureaucratic.

### *Image 3. Humanity is important*

In the image 'Humanity is important' the use of technology has increased. This means more distance studying and therefore students no longer encounter teachers or other students as much as before. However, some schools have a special emphasis on promoting cooperation skills. Therefore, special opportunities are provided to learn the skills of social interaction.

"Assignments are always done at home, but it has not been possible to replace social interaction by technology and therefore the lessons are mainly conversations" (school 1, female 7)

"...always at the beginning of the school year, there is a month-long grouping event, including a camp where I get to know my new fellow students." (school 1, female 4)

Other young people are less fortunate. Some students experience inconsistency between working on their own and the guidance of teachers. These young people express fear of being left alone with their studies because the traditional role of the teacher has diminished and students are required to teach each other and study things by themselves. In some schools, teachers have also been replaced by robots, guided videos or ready-made notes and adolescents hope that teaching would retain a human side. According to them, the presence of teachers and real-time teaching contributes to their learning.

"I hope that real people will not be replaced by robots, or just video tutorials. The teacher that is present sees the level and potential problems of the pupils and the ability to teach the students is better. In addition, everyone needs humanity. We do not want robots to replace consciously thinking people, do we?" (school 3, female 33)

"I believe teaching will still be done by people. From my experience, it is much more interesting to listen real people, because you can participate in the lesson and teachers may have their own stories and mnemonic, which might be helpful." (school 1, male 11)

In this image, young people see the importance of joining together with other people and belonging to communities. Joining together is an emotional experience. On the other hand, there is a fear that the power of technology is too strong and that it will reduce the agency of individuals and social interaction.

#### *Image 4. Something else than pressures, please!*

In the image ‘Something else than pressures, please!’ the technological progress and the changes it has brought about as regards learning in 2030 has given rise to a critical standpoint being taken by the young people, who feel more is expected from them because of the technology. While the use of the latest technology is seen to have made teachers’ work easier, the young people feel that the same time their own workload has increased.

“...school will be much more difficult than it is today, as young people are required much more because of technology.” (school 4, male 29)

In this image, young people prefer to use other learning methods than those that are technology-based. Teaching is more method-oriented, meaning that the use of technology has become the main goal and machines are measuring the learning of the students. Adolescents perceive digitalized learning as dull and lonely. The increased technology has also reduced art subjects in schools and young people miss the arts, creativity and learning by doing in their school life. In this image, adolescents worry that technology alienates people from real life.

“Continuous testing is demanding, just looking at the goal and not the process... the assessments are made by machines... leads to the fact that already from the young age you need to study full-time and always be at your best.” (school 1, male 12)

“Common sense disappears. Practical things need more emphasis.” (school 3, male 18)

By 2030, due to climate change, using technology has become mandatory. However, young people are worried about the inequality between students, which is enhanced by the increased use of technology. Moreover, the longer time spent on computers has made health problems more common as technological advances have led to reducing physical education in schools and people exercise much less frequently than needed. Adolescents are also worried about the pressures and distorted perceptions that social media places on children. They are disturbed that childhood has begun to disappear because of the pressures faced via technology.

“Because of climate change, schools have been given laws to reduce consumption, using only computers as tools.” (school 1, female 2)

“What I am most afraid of in the future is that children will no longer children. They will become non-social, because they will always be on their phone or tablet. Excessive obesity will also increase as people



move less and spend less time outdoors. Children will no longer go out just to play on swings or climbing frames, but they will sit down on the stairs, nose to their phones, playing video games against their friends. They will forget what it is like to be a child.” (school 1, non-binary 2)

Concern and outward regulation is described in this future image: a narrowing of learning that over-emphasizes technology thus increasing pressures on young people and making them feel victimized.

## **Discussion**

A general objective of the broader study, which this paper is a part of, is to identify young people’s future images of the future of schools. In this paper, we focused on examining how young people belonging to Generation Z perceive the role of technology in future schools. Previous research (e.g. Bassiouni, 2014) has highlighted technology as one of the key determinants of Generation Z. Our results challenge this view of Generation Z, which is also familiar from popular media and policy discourses. Even though the importance of technology for young people of this generation was supported in this study, this does not mean that the attitudes were unconditional. Our results show that one final answer cannot be found but that the heterogeneity and complexity of the issue was revealed. Therefore, the results provide insights of possibilities and the desired state of future schools and provide a basis for further discussion.

Four qualitatively different perspectives on the schools of the future were formulated in the narratives of future images. The images were targeted at different levels of schooling: from official forms of the school system to social interaction and students’ self-realizations. In addition, participants also pointed out that societal factors, such as the economic state of society, the demands of future work, environmental issues and globalization, all have an influence on schools. The images contained several contradictory phenomena, which is a common characteristic of future images (Rubin, 2013). In these alternative future images, ‘High tech centres’ was clearly the positive one and ‘Familiar and safe’ had a nostalgic viewpoint, while the others, ‘Humanity is important’ and ‘Something else than pressures, please!’, had more critical approaches. ‘High tech centres’ was marked by the vision of major and rapid change. As well as in Mikkonen's study (2000, 162), also in this future image, the young people had a strong faith in the possibilities of technology and they saw it as bringing both educational and wider societal benefits. Additionally, Jones et al. (2007, 891) has claimed that the “techno-hungry” new generations need the latest technology in schools, but instead, in the second image the change was seen to be limited and not necessary. This rather contradictory result may be

explained by how some young people reflect the societal level of future images, discussed earlier in literature review, by accepting the thought “technology fixes all” as an official truth (see Selwyn 2016, 8). Nonetheless, the third and fourth images reveal that young people also hold critical standpoints towards increasing use of technology in schools. In similar vein as Selwyn (2016) highlighted, adolescents might have first-hand insights how the usefulness of technology is praised outside of the school, although technology has just a minor contribution to the quality of the learning.

The other contradictory result in this study emerged from the relationship of technology to social interaction. In the first image, technology was seen to promote co-operation of the young people. These results are in line with those previous studies, which state that social contacts (Thulin, 2018) and gaming systems (Kuusi & Linturi, 2014) used in future schools will promote both mechanical and social skills. However, the third image revealed that this is a one-sided view, similar to that the articles by Ozkan and Solmaz (2015), and Cilliers (2017) presented, which showed that social contacts and a social environment is important for Generation Z. Likewise, the third image in our results confirms that the schools should place a special emphasis on promoting cooperation skills.

Theories of social generations have been criticised for neglecting the societal continuities between generations, as well as intra-generational inequalities based on other social factors such as class or ethnicity (France & Roberts, 2015). While being aware of this criticism, we consider the role that class or ethnicity might play in young people’s future images as an empirical question, which we are not able to thoroughly answer with the data at hand. Hence, in this paper, in line with Mannheim’s theory we have focused more on intra-generational *differences* than *inequalities*. The differing and conflicting images of the role of technology in future schools support the view according to which the very same formative experience, in this case the rapid technological change, not only unites but separates individuals belonging to a same generation into different units. The young people in this study, the representatives of Generation Z, seemed to respond differently to the particular socio-historical situation they all share in common. Although Generation Z may consist of “instant online” young people, who adopt the latest trends in technological development more easily in comparison to previous generations (Levickaité, 2010), the representatives of the generation also have a critical standpoint particularly towards the de-humanizing effects of technology. In these critical views one can sense the signs of insecurity, which is argued to have become a global key experience of those young people who have grown up in the post-recession years (Beck & Beck-Gernsheim, 2009).

In this study, reflections on both individual and societal level factors of future images (see Figure 1.) can be seen. Similar internal factors to those in previous studies (Rubin, 2013; Kaboli & Tapio, 2018),

such as experiences, hopes and fears, can be found in the future images as they were not only driven intellectually but also emotionally (see Polak, 1973, 13). The individual level was most clearly reflected in the time perspective of individual participants. Even though the gender was not the primary focus of the analysis in this research, we noticed some differences between the genders in time perspective in terms of pessimism and optimism. However, the nature of the qualitative research precludes any generalization of the results and further studies would be needed. Nevertheless, it seems that technology is a gendered space, but it should also be approached with consideration to socio-cultural and economic factors (see e.g. Calvani, Fini, Ranieri & Picci 2012). Intersectional analysis of gender and its interplay with other identities, for instance age and class should also be taken into account.

The images of technology in future schools (specific theme) reflected the same feelings of hopelessness that has been noticed previously (e.g. Mikkonen, 2000; Myllyniemi, 2017) in more general examinations of future images. In the same way that images of global futures are based on scattered and superficial information, and thus often negative (Rubin & Linturi, 2001), our results may be indicative of a similar factor i.e. a hope for constancy when young people experience challenges to face change. In accordance with the present results, previous studies have demonstrated that as a public institution education has been highlighted as reflecting all the phenomena of society, and thus the school cannot be seen as a separate system (Baum, 2002). Furthermore, it has been suggested that young people are very responsive and can anticipate global change and transition earlier than older generations (Rubin, 2000, 7) but also immature as regards thinking about the future (Eckersley, 1999). However, the present study demonstrates that young people have good skills when envisioning the future. They cannot be said to be generally future focused, and their views were influenced by their time perspective, similar to the view stated in previous literature (Polak, 1973, 7). Our results show that young people were not only sensitive to envisioning the future, but also able to consider societal factors affecting school life.

The results of this study will create new questions and possibilities for future studies. The student's selection through the application process to the two specialized schools involved, limited to investigate the regional differences in the present research and it would be interesting to explore whether there is polarization or regional equality in education with regard to technology. Although the main findings of this research can most likely also be applied to a wider context in Finland, due to the nature of qualitative research and the style of the research data we cannot generalize the results as such. Participants were students from general upper secondary schools and their future images of

schools reflect that context. Further studies carried out with adolescents, for example from vocational school, could produce divergent views.

## References

- Ahvenharju, S., Minkkinen, M., Lalot, F. (2018). The five dimensions of Futures Consciousness. *Futures*, 104, 1–13.
- Amara, R. (1981). The Futures Field. Searching for Definitions and Boundaries. *The Futurist*, 25–29.
- Bassiouni, D.H. (2014). ‘Generation Z’ children adaptation to digital consumer culture: A critical literature review. *Journal of customer behaviour*, 13(2), 113–133.
- Baum, H.S. (2002). Why School Systems Resist Reform: A Psychoanalytic Perspective. *Human Relations*, 55(2), 173–198.
- Beck, U. & Beck-Gernsheim, E. (2009). Global generations and the trap of methodological nationalism for a cosmopolitan turn in the sociology of youth and generation. *European Sociological Review*, 25(1), 25–36.
- Beckert, J. (2016). *Imagined futures*. Massachusetts: Harvard University Press.
- Béneker, T., Palings, H., Krause, U. (2015). Teachers envisioning future geography education at their schools. *International Research in Geographical and Environmental Education*, 24(4), 355–370.
- Bennett, S., Maton, K.A., & Kervin, L. (2008). The ‘digital natives’ debate: a critical review of the evidence. *British Journal of Educational Technology* 39(5), 775–786.
- Berg, R.A. (2009). Teaching strategies for the net generation. *Transformative Dialogues: Teaching & Learning Journal*, 3(2), 1–24.
- Calvani, A., Fini, A., Ranieri, M. & Picci, P. (2012). Are young generations in secondary school digitally competent? A study on Italian teenagers. *Computers & Education*, 58, 797–807.
- Cilliers, E.J. (2017). The challenge of teaching generation Z. *PEOPLE: International Journal of Social Sciences*, 3(1), 188–198.
- Cook, J. (2015). Young adults’ hopes for the long-term future: from re-enchantment with technology to faith in humanity. *Journal of Youth Studies*, 19(4), 517–532.
- Dator, J. (1998). Introduction: The Future Lies Behind! Thirty Years of Teaching Futures Studies. *American Behavioral Scientist*, 42(3), 298–319.
- Dator, J. (2009). Alternative future at the Manoa school. *Journal of Futures Studies*, 14(2), 1–18.
- Demneh, M.T., Morgan, D.R. (2018). Destination identity: futures images as social identity. *Journal of futures studies*, 22(3), 51–64.
- Eckersley, R. (1999). Dreams and expectations: young people’s expected and preferred futures and their significance for education. *Futures*, 31, 73–90.
- Elder, G.H. (1975). Age differentiation and the life course. *Annual Review of Sociology* 1(1), 165–190.
- Finnish Government (2018). *Implementation of the Government Programme*. Retrieved 8.6.2019 from <https://valtioneuvosto.fi/en/implementation-of-the-government-programme>

- France, A., Roberts, S. (2015). The problem of social generations: a critique of the new emerging orthodoxy in youth studies. *Journal of Youth Studies*, 18(2), 215-230.
- Hamilton, J., Cole, S.N. (2017). Imagining possible selves across time: Characteristics of self-images and episodic thoughts. *Consciousness and Cognition*, 52, 9–20.
- Hennink, M., Hutter, I., Bailey, A. (2011). *Qualitative research methods*. Los Angeles: SAGE.
- Hicks, D. (1996). A lesson for the future. Young people's hopes and fears for tomorrow. *Futures*, 28(1), 1–13.
- Hietikko, P., Ilves, V., Salo, J. (2016) *Askelmerkit digiloikkaan* [Roadmap to digitalization]. OAJ:n julkaisusarja 3:2016. Retrieved 25.10.2019 from <https://www.oaj.fi/globalassets/julkaisut/2016/askelmerkitdigiloikkaan.pdf>.
- Jones, V., Jo, J., Martin, P. (2007). *Future Schools and how technology can be used to support millennial and generation-Z students*. ICUT 2007 (Proceedings B, pp. 886-891), 1<sup>st</sup> International Conference of Ubiquitous Information Technology, Dubai, February 12–14, 2007.
- Järvinen, T. (2003). Urheilijoita, taiteilijoita ja IB-nuoria. Lukioiden erikoistuminen ja koulukasvatuksen murros. [Athletes, artists and IB-youth. The specialisation of upper secondary schools and the new direction of education in Finland.] Helsinki: Nuorisotutkimusverkosto & Nuorisotutkimusseura.
- Kaboli, S.A., Tapio, P. (2018). How late-modern nomads imagine tomorrow? A Causal Layered Analysis practice to explore the images of the future of young adults. *Futures*, 96, 32–43.
- Kuusi, O., Linturi, R. (2014). Oppimisen uudet teknologiset mahdollisuudet vuoteen 2030 [New technological opportunities for learning by 2030]. *Futura*, 33(3), 63–66.
- Levickaitė, R. (2010). Generations X, Y, Z: How social networks form the concept of the world without borders (the case of Lithuania). *LIMES*, 3(2), 170–183.
- Mannheim, K. (1952). The problem of generations. In P. Kecskemeti (Ed.), *Essays on the sociology of knowledge*. London: Routledge & Kegan Paul, 276–320.
- Mikkonen, A. (2000). *Nuorten tulevaisuuskuvat ja tulevaisuuskasvatus* [Future images of young people and futures education]. Joensuu: University of Joensuu.
- Myllyniemi, S. (Ed.) (2017). *Katse tulevaisuudessa. Nuorisobarometri 2016* [Looking ahead. Youth Barometer 2016]. Valtion nuorisoneuvoston julkaisuja. Verkkojulkaisu nro 56. Grano Oy. Retrieved from [https://tietoanuorista.fi/wp-content/uploads/2017/03/Nuorisobarometri\\_2016\\_WEB.pdf](https://tietoanuorista.fi/wp-content/uploads/2017/03/Nuorisobarometri_2016_WEB.pdf)
- Ozkan, M., Somaz, B. (2015). The changing face of the employees- Generation Z and their perceptions of work (A study applied to university students). *Procedia Economics and Finance*, 26, 476–483.
- Palfrey, J., Gasser, U. (2011). Reclaiming the Awkward Term: What we might learn from "digital natives". *Journal of Law and Policy for the Information Society*, 7(1), 33–55.
- Pekkarinen, E., Myllyniemi, S. (Eds.) (2019). *Vaikutusvaltaa Euroopan laidalla. Nuorisobarometri 2018* [Influence on the edge of Europe. Youth Barometer 2018]. Valtion nuorisoneuvoston julkaisuja 60. Nuorisotutkimusseuran/ Nuorisotutkimusverkoston julkaisuja 216. Retrieved from [https://tietoanuorista.fi/wp-content/uploads/2019/03/NB\\_2018\\_web.pdf](https://tietoanuorista.fi/wp-content/uploads/2019/03/NB_2018_web.pdf)
- Pilcher, J. (1994). Mannheim's sociology of generations: an undervalued legacy. *British Journal of Sociology*, 45(3), 481–495.
- Priporas, C.-V., Stylos, N., Fotiadis, A.K. (2017). Generation Z consumers' expectations of interactions in smart retailing: A future agenda. *Computers in Human Behavior*, 77, 374–381.
- Polak, F.L. (1973). *The image of the future*. (E. Boulding,trans.). Amsterdam: Elsevier.

- Purhonen, S. (2007). *Sukupolvien ongelma. Tutkielma sukupolven käsitteestä, sukupolvitietoisuudesta ja suurista ikäluokista* [The Problem of Generations: Essays on the Concept of Generation, Generational Consciousness and Baby Boomers]. Helsingin Yliopisto: Sosiologian laitoksen tutkimuksia nro 251.
- Rogler, L.H. (2002). Historical generations and psychology: The Case of the Great Depression and World War II. *American Psychologist*, 57(12), 1013–1023.
- Rubin, A. (2000). *Growing up in social transition in search of a late-modern identity*. Turku: University of Turku.
- Rubin, A. (2013). Hidden, in consistent, and influential: Images of the future in changing times. *Futures*, 45, 38–44.
- Rubin, A., Linturi, H. (2001). Transition in the making. The images of the future in education and decision-making. *Futures*, 33, 267–305.
- Rubin, A., Linturi, H. (2011). *Toinen koulu, toinen maailma. Oppimisen tulevaisuus 2030* [Another school another world. The future of learning 2030]. Tutu-julkaisuja 1/2011. Turku: Uniprint Suomen yliopistopaino.
- Seginer, R. (2009). *Future orientation: Developmental and ecological perspectives*. New York, NY: Springer.
- Selwyn, N. (2016). *Is technology good for education?* Cambridge : Polity Press, UK.
- Statistics Finland (2017). *Koulutukseen hakeutuminen 2016* [Applying to education 2016]. Official statistics of Finland. Retrieved 25.10.2019 from [https://www.stat.fi/til/khak/2016/khak\\_2016\\_2017-12-13\\_fi.pdf](https://www.stat.fi/til/khak/2016/khak_2016_2017-12-13_fi.pdf).
- Suddendorf, T., Busby, J. (2005). Making decisions with the future in mind: Developmental and comparative identification of mental time travel. *Learning and Motivation*, 36(2), 110–125.
- TEM (2013). *21 paths to a frictionless Finland*. Report of the ICT 2015 Working group. Publications of the Ministry of Employment and Economy. Innovation 18/2013.
- Thulin, E. (2018). Always on my mind: how smartphones are transforming social contact among young swedes. *Young*, 26(5), 465–483.
- Trommsdorff, G. (1983). Future orientation and socialization. *International Journal of psychology*, 18, 381–406.
- Turner, A. Generation Z: Technology and social interest. *The Journal of Individual Psychology*, 71(2), 103–113.
- Woodman, D., Wyn, J. (2015). *Youth and generation. Rethinking change and inequality in the lives of young people*. London: Sage.
- Wyn, J., Woodman, D. (2006). Generation, youth and social change in Australia. *Journal of Youth Studies*, 9(5), 495–514.
- YLE (2019). *Tuhoako älypuhelin keskittymiskyvyn, mielenrauhan ja lapsen aivot? "On meneillään ihmiskoe"*. [Does the smartphone destroy concentration, peace of mind and the brain of the child? "Human experiment in progress"]. Retrieved 25.10.2019 from <https://yle.fi/uutiset/3-1086259>.
- Zimbardo, P.G., Boyd, J.N. (1999). Putting Time in Perspective: A Valid, Reliable Individual-Differences Metric. *Journal of Personality and Social Psychology*, 77(6), 1271–1288.