

# Opportunities of Digital Technologies in Leveling Financial and Socio-economic Exclusion Problems

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**Abstract** – The article reflects the current problems of society, in the direction of using digital technologies. The authors pay special attention to the possibilities of attracting digital technologies in the process of levelling financial and socio-economic exclusion among people with disabilities. The authors analysed modern methods of obtaining information when a person does not just receive educational services, but programs his brain to further produce it in a particular area. The authors came to the conclusion that the prevailing global goal of hedonism, with the inability to build images of the future, leads to the fact that society becomes less tolerant and counts on quick and easy success. Therefore, the rules of digital hygiene should become the legislative norm of the life of a modern person.

**Keywords** – digital technologies; integration; financial problems; socio-economic exclusion; society.

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## 1. Introduction

Obviously, a person consists of chemical elements, most of which he uses from the environment with food. In this case, it is customary to say: "we are what we eat". But a similar analogy can be used for the mental sphere of human activity.

In other words, "we are what information we consume." That is, the quality of mental development at the moment is significantly affected by changes in the information environment.

Today, representatives of the media industry are competing among themselves for specific kind of information and how to make it easier, more accessible for the consumer. This is done in order to facilitate the task of consuming information and introducing the necessary marketing position. Such actions are based on the physiological aspects of the human brain. Namely, the human brain is designed in such a way that, first of all, it perceives colorful information that does not require large energy intensity and a lot of effort to process it. Confirmation of this is the increased escalation of accessible and primitive content. That is, today, humanity is undergoing a fundamental transformation of perception, and the formation of consciousness is on its basis. In other words, from the civilization of texts and conclusions, a person moves with his own efforts to the civilization of visual images, where there is no analytical and systemic thinking [1].

That is, a young man, receiving information by various methods, using various sources from the outside world, is not just formed, he, in fact, programs his brain to further produce it in a particular area. Today's young people find themselves in a situation where a hyper-informatized environment is crowded around them and continues to become complicated, overflowing with content of various quality and orientation. First of all, this directly affects their ability to think.

The integration processes of the development of the modern economy have a direct impact on the quantitative and qualitative changes in its components. Not an exception is the labor market, in which the study of employment problems of the most vulnerable categories of the population – people with disabilities, changing social and labor relations, increasing discrimination in the field of employment of the least competitive category of the population and the transformation of the processes of modern society that accompany the problems of poverty and inequality of Ukrainian society, become archival.

It is estimated that in the world more than one billion people suffer from various forms of disability. This is a social phenomenon, which cannot be avoided by any country. Persons with disabilities are a group of people who include people with disabilities because of the health features. Today there are quite a lot of such people. The study of disability legislation suggests that only 45 countries have laws against discrimination and other laws relating to people with disabilities. In Europe and in the world laws and rehabilitation programs aimed at eliminating discrimination against persons with disabilities have long been in force. Almost 80% of people with disabilities in Ukraine are people of working age. More than 2.6 million people in our country have the status of a person with a disability. This is 6.25% of the total population. Unfortunately, the number of people in this category is increasing every year. Recently, this is due to the situation in the country, which is formed in ATO; the majority of young people become disabled. In Ukraine, issues related to their activities and active rest, rarely rise. People with disabilities in Ukraine are still faced with neglect, prejudices and fears that during the history of mankind have been holding back the social development of this category of members of society and isolating them from it. Now, according to the recognition of the people with special physical needs, the attitude towards them from both the citizens and the state is noticeably improving. Although there are many barriers, the need to eliminate them is indisputable, which is an indispensable condition for the integration of such people into society. The following are the main barriers to the safe placement of people with disabilities, and the strategic imperatives of the solution of vocational rehabilitation, attempts to the integrations of people with disabilities into active social life do not find constructive solutions on the part of business structures, state authorities, and remain on the surface of words and promises. Thus, the current situation requires additional research and the introduction of certain recommendations.

## 2. Identification of the Use of Digital Technology and Brain Activity

Ashley Chen, a Korean researcher, cites very interesting empirical evidence that suggests that when a person activates the brain region responsible for identifying significance (structuring information), the brain systems responsible for thinking are suppressed [2]. This means that if a person constantly consumes new multidirectional information, he constantly tries to structure it, while the brain energy for the area of thinking (analysis) is not received. That is, in fact, the brain goes into an inactive state. This is also confirmed by the fact that people who are constantly on electronic social networks think in a stereotyped and stereotyped way, without the ability to produce and generate their own ideas. If we talk about adolescents (Table 1), then, based on research by Kaspersky Lab [3], 40% of children from 3 to 10 years old are almost always online all over the world.

Table 1. Online nearly all time [3]

Country	Children under 10 years old, %	Country	Teenagers 14-18 years old, %
Ukraine	30	Ukraine	54
Japan	55	Japan	74
Russia	40	Russia	68
USA	41	USA	60
Germany	9	Germany	58
France	7	France	32
All word	40	All word	68%

As smartphones and other mobile devices have become more widespread, 28% of American adults now report that they go online “almost constantly”, up from 21% in 2015, according to a Pew Research Center survey conducted Jan. 8 to Feb. 7, 2019 (Fig. 1). Overall, 81% of Americans say they go online on a daily basis. That figure includes 28% who go online almost constantly, as well as 45% who say they go online several times a day and 9% who go online about once a day. Some 8% go online several times a week or less often, while 10% of adults say they do not use the internet at all [3].

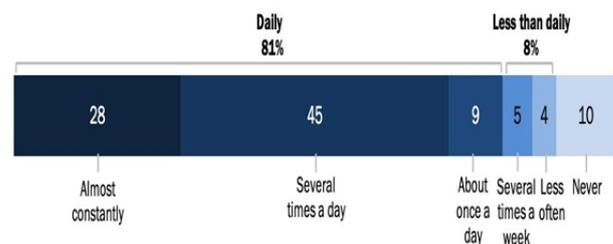


Figure 1. Quantity of adults betraying online [3]

Adults with mobile connectivity are especially likely to be online a lot. Among mobile internet users – the 86% of Americans who use the internet at least occasionally using a smartphone, tablet or other mobile device – 92% go online daily and 32% go online almost constantly.

Younger adults are at the vanguard of the constantly connected: Roughly half of 18- to 29-year-olds (48%) say they go online almost constantly and 46% go online multiple times per day (Fig. 2). By comparison, just 7% of those 65 and older go online almost constantly and 35% go online multiple times per day [3].

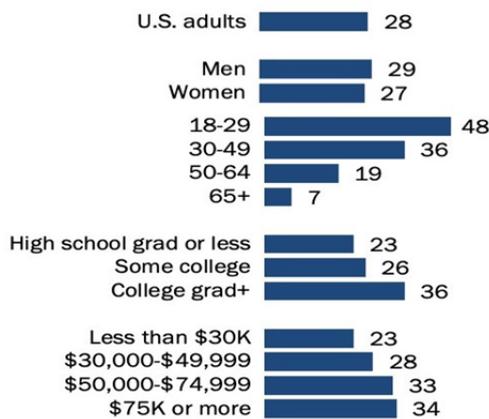


Figure 2. Quantity of adults almost constantly online [3]

Already in 1997, the amount of screen time (chatting online, via smartphone) was equal to the amount of time when a person talked to someone face to face. With the advent of the iPhone in 2007, the situation even more outweighed toward screen time, and in the future this trend only intensifies. As a result, society is already facing the latest problems of digital autism – a condition in which people cannot maintain long-term psychological contact, are not interested in the inner world, and the problems of another person, when it is difficult for a person to find verbal, non-verbal tools for direct interpersonal communication.

### 3. Theoretical Aspects of Involvement of Persons with Disabilities to Active Life

In the world more than one billion people (13% of the population) have various kinds of disability. According to the research of the World Health Organization (WHO) the number of persons with disability grows. It happens because of the aging of the population – elder people are more likely to be at risk of disability and also because of the global growth of chronic states, such as diabetes, cardiovascular diseases and mental diseases, which create additional factors for the spread and growth of disability [4]. Persons with disability or also called "persons with limited opportunities" are groups of

the population in the world treat the most isolated. They are characterized by a lower results of health, achievements in the field of education and indicators of participation in economic development and higher rates of poverty, than characteristic of people without disability. Disability is not just a problem with health, it is a difficult phenomenon that reflects interaction between features of a human body and features of society in which this person lives. For overcoming difficulties which disabled people needs, it is necessary to implement measures for removal of obstacles in the environment and social barriers. The person with limited opportunities is the person with the steady disorder of functions of an organism caused by a disease, a trauma (its consequences) or congenital disorders of intellectual or physical development that leads to activity restriction [5]. Disability reasons are: blood circulatory system diseases, malignant new growths, injuries and poisonings, diseases of nervous system, diseases of sense organs, diseases bone muscular system and connecting fabrics. There are different types of disability: general diseases, labor mutilation, occupational diseases, disability since the childhood, and disability since the childhood owing to wound (a contusion, a mutilation), disability with fighting in the period of the Great Patriotic War, disability, associated with the Chernobyl accident, consequences of radioactive effects and personal participation in activity of divisions of extra risk [6]. The main barriers of safe stay in the territory of the city regarding people with disabilities are: the physical barriers obstructing the traffic, especially uneven surface, streets, sidewalks which also limit effective use of the equipment (carriages, walkers) necessary for movement of such people, architecture of buildings which does not correspond to free movement of this category of people, the state and private means of communication which equalize all do not allocate them as people with disabilities and so forth.

One of the priority areas of activity of governmental and public organizations should be the creation of an enabling environment for people with disabilities. The involvement of digital technologies in this process will create the conditions under which persons with disabilities can receive a quality and competitive education, which will expand their opportunities for participation in the economic, cultural and social life of society [7]. Providing access to modern technologies and innovative tools will allow people with special needs to increase integration into the social and educational environment. It will also bring significant benefits to the state, as it will reduce the financial burden of custody of persons with special needs, promoting investment in education for people with disabilities instead of providing passive support.

Digital inclusion implies empowering people through information and communication technologies. Digital inclusion activities aim to promote the accessibility and use of information and communication technologies for the social and economic development of people with special needs, including people living in rural areas, persons with disabilities and special needs.

- Problems in education

Starting from the middle school, children with disabilities are limited in their abilities to study with healthy children. Although the legislation of our country creates certain conditions, we are talking about the "Law on Inclusive Education", and the number of schools with inclusion has increased for 2.5 times over the past three years and reached 3788 today. There are more than 11,000 special children studies in these schools, and this number has tripled during this period. In these schools, with the efforts of many funds, citizens and officials the special elevators, ramps were built together with arranged call buttons, specially equipped toilets, lifts for special children, etc. The government began to allocate additional money for the education of such children, and to create inclusive-resource centers as well (more than 500 IRCs were created and about 200 more will appear this year).

In kindergartens in Ukraine, the number of inclusive groups has increased from 732 in 2016 to 1318 in early 2019, where 2190 special children are raised. Of course, such children in the future will be able to adapt in society better than before, to receive appropriate education and to work. But this is a tiny fraction (more than 13 thousand children - disabled people have the opportunity to integrate into the society dissimilarly from children with normal development) in the total number of children with disabilities (according to the data of the Ukrainian Ministry of Health at the beginning of 2018, their number was 159.0 thousand people), namely – 8%.

Higher educational institutions are also not adapted for the training of people with disabilities; they do not allow realizing themselves and have many disadvantages. According to the Ministry of Education and Science of Ukraine, the number of people with disabilities among students of higher educational institutions at the beginning of 2017 school year was 13216 people.

Higher education establishments have some educational privileges, but their educational buildings are not adapted to the needs of people with special physical needs. By the way, the most disabled students refuse privileges, they want to join on a general basis, because they have knowledge and ability, but the problem with architectural "barriers" remains unresolved. Inappropriateness of buildings

for studying, dormitories for living, libraries limit students with disabilities from distance learning [8].

The main problems of employment are: discrimination of persons with disability in labor market; the offered services in the sphere of vocational guidance and professional rehabilitation for persons with disability do not conform to requirements of labor market; the help that is offered to persons with disability is characterized by closing of the standard of jobs over advance of professional abilities of the seeker of work with disability [9]; quoting of jobs for employment of persons conflicts to disability with a competitive system occupation of vacancies in public sector.

#### 4. Diagnostics of Problems of Employment Among Persons with Disabilities in Business Structures

In Europe the laws and rehabilitation programs are directed to eliminating discrimination of persons with disability already for a long time work and to help them to integrate into society. Employment, communication with people and equality in the rights therefore the European systems of social protection perfectly prove to be in practice, which is necessary for any person for emotional and physical health, and deserve special attention.

Based on European statistics, aspects of social security and provision of citizens of the EU countries really affect the directions of economic policy, in contrast to Ukraine.

From the following Table it is possible to make a conclusion that in the given countries all measures of support regarding persons with limited opportunities are applied, and only in some countries, such as Great Britain, the USA, Germany and Poland, delivery of free wheelchairs and cars is carried out partially, or partially paid. And also, in France to visit various buildings, to use the WC is partially possible because of the existence of ancient architecture, but this problem is already solved.

Nearly 80% of physically disabled people in Ukraine are people of working-age. More than 2.6 million people in our state have the status of the person with disability. It makes 6.25% of the total number of the population. Unfortunately, the number of persons of this category annually grows (Table 2). Recently, it happens in connection with a situation in the country which takes place on the East, most of young people, who are in a combat zone, become disabled people.

Table 2. Growth of number of persons with disability during 2016-2018 [10]

Groups	2016	2017	2018
	Quantity thousand people	Quantity thousand people	Quantity thousand people
All, thousand people	2614,1	2603,3	2635,6
I groups	250,3	240,6	235,4
II groups	919,0	900,5	899,2
III groups	1291,2	1306,2	1341,9
Children with disability	153,5	156,1	159,0

From this Table it is visible that the number of persons with disability in 2018 grew by 1.2% in comparison with 2017 and by 0.8% comparing with 2016. As from January 1st 2018, the specific weight of the persons who belong to I group of disability made 8.94% (235.4 thousand people), the II groups - 34.12% (899.2 thousand people), the III group - 50.91% (1341.9 thousand people). Now more than one billion people with disabilities live in the world. At the same time, in the developed countries thanks to more widely criteria their percent is usually bigger.

At the same time in China 80% of persons work with disability, in the USA - 29%, in the Russian Federation - 10%, in Ukraine officially of 30%, however according to human rights activists, the real quantity is 13% [11]. Standards of the International Labour Organization demand that it was employed at least a half of the total number of the persons with disability living in the country. As the statistics (Table 3) show, the number of people with disabilities decreased from 2013 to 2017, with a sharp drop of 263.2 thousand people to be observed in 2014, but for various reasons of disability (common disease, childhood disability), industrial accident (occupational injury or other damage to health), occupational disease, wounded, injury, injury, illness) in 2017 compared to 2015 increased by 21.5 thousand people

Table 3. Dynamics of main indicators of inclusive employment in Ukraine, 2013–2017 [11]

Name of indicators	Actually in a year					In the middle
	2013	2014	2015	2016	2017	
Population, thousand people	45260	42831	42675	42503	42316	43117
Number of disabled people, thousand people	2832	2569	2614	2603	2636	2651
Change to last year	-	0,907	1,018	0,996	1,012	-

The share of disabled people in the population, %	6,26	5,99	6,13	6,12	6,23	6,15
Share of able-bodied disabled in their number, %	88,7	88,9	86,8	84,4	81,5	25
Share of disabled workers in working age, %	35,8	34,8	36,2	30,4	31,2	33,7

If we consider the age groups of persons with disabilities employed, then in Ukraine the greatest percent of the employed persons with disability (about 20%) is the share of age group of 30-40 years (that is in working age). But also in this case their share is much less, than the employed people without disability (by 2.5 times). The biggest separation (by 4 times) occurs among aged up to 30 years, and the smallest - at a retirement age (twice).

Percentage of employment of persons with disability and people without disability in the countries of Europe with distribution on age groups is shown in Fig. 3 [9].

From this chart it is visible that in Europe the greatest percent of the employed persons with disability (more than 60%) is the share of age group of 35-55 years (that is at mature age). But also in other cases their share is quite considerable, and a gap with the employed persons without disability is at minimum (by 0.4 times). The biggest gap (by 0.4 times) happens in group of 35-55 years, and the smallest - in young (up to 25 years) and a retirement age.

Employment of persons with disability as the sphere of state policy concerns three groups of interested parties: State institutes, the private sector - employers with the bulk of the obligations of modern employment policies for persons with disabilities, and the non-governmental organizations working for the benefit of target group.

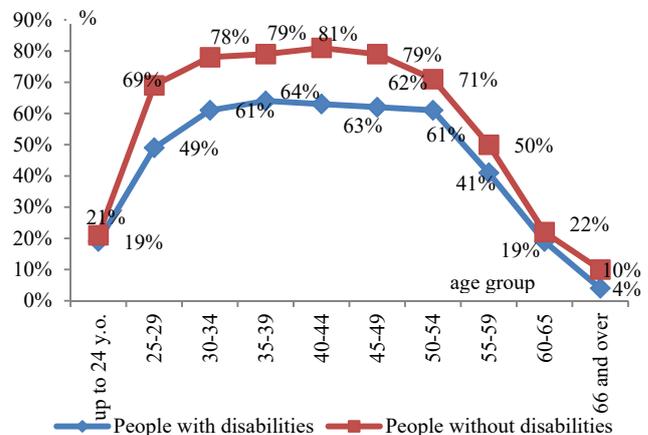


Figure 3. Percentage of employment of persons with disability and people without disability in the countries of Europe with distribution on age groups [9]

Enterprises, as well as individual entrepreneurs who provide the main job for 8 or more people, are required to register with the Fund for Social Protection of Disabled People. Registration takes place at the location of the enterprise, which is required to submit an annual report on the employment of disabled people. The standard of employment of persons with disability depends on the average number of permanent members of staff registration structure in a year. The average number of permanent members of staff in a year is estimated in summation of average number of the permanent members of staff for all months of work in the enterprise that passed from the beginning of year while reporting monthly inclusive and division of the received sum on 12. The allowance for each unemployed person caused by an involuntary disability received at the enterprise is determined annually in the amount of the average annual salary at the given enterprise. The research base is the public joint stock company "Kremenchuk Steel Foundry" (Table 4).

From this Table it is possible to make the following conclusions: the average number of permanent members of staff registration structure in 2016 was reduced by 20.7% in comparison with 2013, after 2016 increase in number of persons by 42.2% till 2018 is observed;

Table 4. The number of workers and wage fund for 2013-2018

Name of indicators	Actually in a year			
	2013	2016	2017	2018
Average number of permanent members of staff registration structure, persons	5062	1047	1937	2479
From them: Average number of permanent members of staff, which according to the current legislation disability is established, persons	210	44	84	119
The number of disabled people - permanent members of staff who have to work on the jobs created according to requirements of Article 19 of the law Ukraine "About bases of social security of disabled people in Ukraine", persons	202	42	77	99
Wage fund of permanent members of staff (thousand UAH)	274997	47606	188490	336824
Average annual salary of the permanent member of staff (UAH)	4527	37896	97311	135871

the average number of permanent members of staff to whom according to the current legislation disability in 2016 is established was reduced by 20.95% in comparison with 2013, and grew by 36.9% till 2018; the number of disabled people - permanent members of staff who have to work at the workplaces created according to requirements of Article 19 of the Law "About Bases of Social Security of Disabled People in Ukraine" of Ukraine were laid off by 20.8% in 2016 in comparison with 2013, and increased by 42.42% till 2018; it is possible to observe the same situation connected with wage fund and the average annual salary of permanent members of staff which is exposed reductions from 2013, and from 2016 up to 2018 starts over again increasing.

### 5. Solution Problems of Employment of Persons with Disabilities Using Digital Technologies

To solve problems of persons with disabilities, including their employment, to create the whole competitive market of professions for this category, it is necessary to connect all fields of activity and to get the help and support of the state. For this purpose it is necessary to develop strategy: to define actions, a task, the purposes and measures which will help to realize it. Strategic reference points out the assistance for employment persons with disabilities: support of people without employment in regional labor market; support of continuous training of persons with disability; professional activization of graduates with disability; the organization of seminars and trainings in the sphere of methods of active job search and the introduction of key competences; assistance to work for young people with disability by training and job search; increases in employment of people with the considerable and moderate level of disability by receiving new qualification and professional development; compensations of obligatory social contributions for persons with limited opportunities; providing accompanying help; development and dissemination of information on offers on work, possibility of participation in trainings and training. Thus, it is possible to formulate measures which will help to integrate physically disabled people to society [12]: 1) To improve infrastructure of the cities, to set it up under needs of this category of the population, namely to establish convenient descents for a congress to roadway in places of crossing of streets and intersections; to modernize public transport the latest platforms and a door; to equip a city architecture for visit with her faces with disability (wide elevators, comfortable ramps, the systems of the notice for accompanying persons); for development inclusive tourism to develop guides with routes for persons with limited opportunities; 2) To create the operating effective education system

and employments: to provide comfortable conditions for education in educational institutions at the level with healthy pupils; to equip higher educational institutions with additional rises for students with disability, special teachers (for students who have shortcomings of sight or hearing); to enter privileges for taxes for the enterprises at which persons work with limited opportunities; 3) To provide the guaranteed state support which will provide free rehabilitation, rendering psychological assistance, a privilege for the majority of medications, delivery of free food, drinks and the necessary equipment, including wheelchairs and cars, by investment of money from the state budget and from sponsors; 4) To improve personnel potential in services industry for work with special category of the population (to conduct advanced training courses of workers on care of persons with disability; the use of the services of job coaches to help dispel fears of both disabled people and employers); 5) To accept national strategy and the action plan for improvement of living conditions of persons with limited opportunities and to realize it. The action plan concretizes strategy in the short-term and medium term, expecting concrete measures and schedules of their implementation, defining the purposes, appointing the specialized organizations responsible for their achievements and also carrying out planning and distribution of necessary resources; 6) It is advisable to combine the system of employing people with disabilities by quotas with a set of measures to provide jobs with everything necessary for the work of people with disabilities, since now the vast majority of employed people with disabilities work in unsuitable conditions. In general, taking into account the improvement of the working methods of the employment service, with employers and the use of forms of support for people with disabilities in the workplace, the employment of people with disabilities may increase.

Unfortunately, the organization of employment of people with disabilities for certain jobs does not include an expert assessment of jobs for people with disabilities [13]. Standardized information on working conditions, loads on the psychophysiological systems of a person, which are also agreed upon with medical recommendations, is extremely necessary when solving employment issues. Therefore, it is advisable, along with the information base on the disabled, to contain all the information necessary for the organization of labor activity, thus, to create a database on these jobs for the disabled in the region.

In the employment service of the regions of Ukraine, a sufficient base of employers has been formed, containing mainly information on the number of enterprises that provide jobs for people

with disabilities, but there is no qualitative characteristic of the available jobs [14]. There is a situation when the employment service sends a disabled person to the workplace of a particular enterprise, not having an idea about the workplace itself, its compliance with the requirements and capabilities of the disabled.

The authors propose is to form a single base that allows the use of information about workers and workplaces for the effective work of employment of the unemployed with disabilities.

## 6. Conclusion

Based on the foregoing, one can draw the following conclusion: the category of people with disabilities is also people who seek a healthy, morally calm, full and modern life. They have the same dreams and desires as healthy people, for example, to study their favorite profession, to devote her/his life and thus help their country, to actively spend their free time, to travel, and to develop. But they restrain themselves through the barriers that happen on their way. Nowadays, at a time when Ukraine is on the path to development and integration, it is necessary to take advantage of the experience of countries that have overcome these barriers and take all measures to address most of the problems faced by people with disabilities.

Tourism for people with disabilities has a lot of names, although they all mean one thing - affordable tourism for the limited people. Many Western countries highly appreciate the prospects for the development of affordable tourism and are actively working in this direction. In Europe and in the world, a lot of things have been done for a long time to comprehensively integrate people with disabilities into society. Due to the growing demand, accordingly tourist product and service are adjusted.

In the analyzed countries (Israel, Spain, Germany, France, USA and others), there is a well-developed infrastructure that allows persons with disabilities to travel with minimal inconvenience. The same cannot be said in full about Ukraine. A number of factors have been identified, which complicates the development of international tourism for people with restrictions in Ukraine.

Thus, the problems of provision for people with disabilities with good living conditions and their inclusion in active work are formulated, the experience of other countries is analyzed on the way to integration of such a category of the population into society, and measures are taken that will help to attract people with disabilities to active work. This study provides an opportunity for further study of changes in the state of the economic efficiency of enterprises by attracting people with disabilities to work.

In fact, already today, personalities in relation to each other become interchangeable, since people do not hang the values of each of them individually. To further aggravate the situation, this is the loss of motivation and determination of one's own goals for further development and the meaning of existence. Already, there is a change in the structure of social interaction (in particular, perceptions and reactions to people with disabilities), the lack of vertical management systems and the transition to a horizontal society leads to the fact that certain sections of the population lose their learning skills. That is, intensive changes in communication methods lead to the emergence of new negative trends in the development of society - digital autism, a decrease in emotional intelligence and an increase in digital dependence.

The prevailing global goal of hedonism today [15], for pleasure, with the inability to build images of the future, leads to the fact that people become intolerant of their mistakes and count on quick and easy success. All this will not work in the best way for the economy and civilization as a whole. The main problem is precisely the atrophy of cognitive skills. Therefore, the rules of digital hygiene should become the legislative norm of the life of a modern person.

Future research by the authors will be aimed at developing methodological approaches for conducting face-to-face and distance learning trainings for teachers and specialists who are involved in the process of teaching people with special needs, as well as creating electronic educational and methodological materials for educating teachers, encouraging them to use digital technologies in their practice.

It is necessary to create resource centers equipped with standard and specialized software and hardware that provides people with special needs access to information and knowledge, and is also used as supporting material for the training of teachers. These resource centers should be hosted on an online platform on which the database with best practices and experience in implementing digital solutions in training people with special needs will be concentrated.

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