The Impact of the Coronavirus on Competence, from a Generation-Specific Perspective

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Abstract: The range of knowledge, skills and competencies that are considered important and useful is constantly changing. A combination of many factors shape our preferences in learning and how acquired knowledge is perceived. The focus of this paper is to analyze what kind of knowledge and competence levels have been appreciated by the pandemic, as well as how each generation perceives the role and importance of the knowledge elements examined in the research. In the context of primary research, it was demonstrated that the Coronavirus has led to an increase in the value of more conscious behaviors, such as, health orientation and the pursuit of safety (H1). Furthermore, it was proven that, beyond the impact of the pandemic, it is true, that age (generational affiliation) influences the perception of the importance of certain competencies (H2).

1 Introduction

Learning is a long-term and systematic change in human behavior based on previous experience. Learning is a complex mechanism for processing and storing information, which has undergone major changes in recent years, both as a result of macro-influences in infotechnology and the challenges posed by the pandemic.

The system of prioritized skills and knowledge is constantly changing, and higher education institutions need to adapt. They have to respond to labor market challenges and student needs at the same time, and from this perspective the generation-specific challenges are particularly significant.

The pandemic has had a particularly strong impact on education, as it has changed the technological conditions for education – such as the shift to online education – and has also enhanced skills and knowledge that were not or less focused on before the epidemic.

Learning as a psychological process is also a kind of adaptation, a change of behavior. The pandemic has demanded new kinds of knowledge and skills from us in many aspects, and we believe that an understanding and generation-specific

analysis of these skills can provide useful support for professionals in higher education.

It is no coincidence that there is a great interest in research on what solutions, methods and content, can be relevant and experiential, in educating students in times of pandemic, with a particular focus on the advances of online platforms [1-4]. These studies analyze the factors that determine learning outcomes and the impact of the teaching methodology and tools on learning outcomes. Further studies have analyzed competence specifically in the context of online and hybrid education and concluded that cognitive engagement competence is the most determinant of success in the learning process [5] [6] validated a model that, according to their results, helps students to achieve the desired levels of competence in competency-based learning, even in online teaching methods.

Perry et al [7] tested comprehensive online learning tools and services that support students' reflective practice and thereby develop their employability competencies.

2 Theoretical Overview

2.1 A psychological Approach to Learning

Learning theories are a particularly important area for explaining consumer behavior. From the theory of "trial and error learning" to the theory of "intelligent learning", a wide variety of concepts have been proposed. Each theory integrates its own perspective in explaining learning [8].

In psychology, the behaviorist approach is concerned with the interpretation of learning phenomena, analyzing the relationship between stimuli and responses. Stimulus-Reaction Theories (S-R theories) can be linked to 'trial-and-error' learning, explaining classical and operant conditioning [9].

Theories of the cognitive school are relevant in situations where behavior cannot be reduced to a simple stimulus-response pattern, but problem solving is based on a complex understanding of the situation. The rules and strategies between stimulus and response are integrated in the cognitive perspective in these learning theories.

Biological theory, with its focus on the functioning of the nervous system and the brain, provides the third cornerstone for understanding learning.

In psychology, four types [10] of learning are distinguished, as follows:

- Habituation is the simplest form of learning, whereby an individual ignores stimuli that have become familiar and there are no serious consequences for not responding to them. For example, after a while we stop hearing the clock ticking.

- Classical conditioning, which is the formation of associations that lead a person to learn that certain events go hand in hand, is the process whereby one event is always followed by another.
- Operant conditioning, in which one learns the consequence (positive/recognitive or negative/rejective) of a response.
- Complex learning, which goes beyond the formation of associations to the formation of a problem-solving strategy or the construction of a mental (intellectual, mental) "map" of the environment.

The cognitive theory of learning, on the other hand, does not assume learning from responses to stimuli, but rather that we learn by seeing and understanding the situation. Learning, according to this theory, is based on the recognition of possible solutions [11].

Cognitive learning theories emphasize the specificity of the situation at hand and are poorly suited to explaining habitual forms of behavior.

Cognitivism (cognitive science in English) focuses on reason as a subsystem of personality and its cognition [12] [13].

The most complex form of cognitive learning is reasoning, a process also called creative thinking.

2.2 The Importance of Competence in a Complex Approach to Learning

The importance and complexity of learning theories and the acquisition of knowledge (skills) are emphasized in studies and theories which stress the role and importance of competencies [14] [15] in addition to, or in many cases instead of, knowledge.

Competence is a special factor of production: it has a market value, so it is no coincidence that the economic aspect of its study has also gained considerable ground in the literature, both at home and abroad [16] [17].

Several classifications of competencies are known in the literature [18] [19]. We can talk about key competencies (primary, essential for the job) and specific competencies (secondary, acquired in further education and professional training).

According to the level of competence, we can distinguish between threshold and differentiating competence. Threshold competencies are those that everyone should have in order to be able to do a given job, while differentiating competence, being differentiating, show who is better performing and who stands out from the average [20]. Another grouping distinguishes between personal and social competence. Personal are our internal state, our potential resources and social competence are those needed to manage social relationships, such as the ability to cooperate and to handle conflict. Another approach to competence categorization is the distinction

between hard and soft competence, according to which hard, i.e., technical competence, are objective and measurable, while soft competencies are emotional, subjective and difficult to measure [21].

According to [22], competencies are manifested at three levels: individual, group and organizational.

In today's modern information society, the acquisition and development of competence is an active process, as everyone has personalized competence, which enable us to influence the situation at hand [23].

Individual competence play a major role in adapting to change.

The pandemic, which has had a significant impact in recent years, has led to changes that have had an impact on several dimensions: economic, social, societal and psychological aspects, as well as the impact of the pandemic on our daily lives.

In this challenging period, adaptability has become particularly important. And from an educational perspective, it is important to look at what knowledge, skills and abilities have been valued by people.

After all, in pre-primary education, too, there is a need for continuous adaptation: to the needs of the labor market, to student expectations, to the level of knowledge and interests of students, and to relevant macro-environmental influences, trends and challenges.

2.3 New Competence in Digital Education

The pandemic has significantly transformed the everyday life of education, and the transition to digital education has not only meant a change in the way we communicate, but also a major methodological shift in higher education.

The pandemic situation has taught us all to adapt and demanded compliance with rules we had never known before.

Education has undergone a radical change, in recent years, due to digitalization and technological progress. The industrial society has been gradually replaced by the information society and then by the knowledge society, which has completely rewritten the way and the process of communication between people. In the 21st Century, digital literacy not only means access to and use of ICTs, but also includes related and appropriate knowledge, skills and attitudes.

The form of online education and its impact on the methodology of education has been studied by a number of researchers and educators, both at home and abroad, in recent years. In examining its specific forms and the competence required for online education, they have highlighted, among other things, the importance of flexibility [24] [25].

In addition to studies on the impact of pandemic on participants in distance education, the authors of studies specifically examining the results of distance education stress the importance of knowing the communication habits of the student, in particular his or her Internet use habits, in order to provide him or her with an appropriate, adequate and effective form of education and teaching aids on the supply and teaching side of higher education.

As both national and international research has shown that individual competence play a major role in change and change management, one of the key questions of the research is how the perception of the importance of individual competence and knowledge has changed in the context of a pandemic that has never required more adaptation to change [1] [3].

Sources in the literature also suggest that the current generation of netizens, digital natives, have a very different mindset, perception and, in turn, learning perception from previous generations [26] [27]. In other words, both the process of learning and the perception of competence and knowledge as valuable and useful differ from generation to generation or have been little focused on intergenerational differences in the assessment of competence resulting from the pandemic. In the primary research, therefore the impact of the pandemic situation on the perception of competence from a generation-specific perspective is analyzed.

3 Material and Methods

The primary research described in this study was conducted between May and October 2020 and included quantitative and supporting pre-qualitative research.

The main objectives of the qualitative research were to lay the foundation for the quantitative phase, to outline the research objectives and hypotheses, and to refine and test the quantitative tool.

In the qualitative phase, 10 “mini-focus” group interviews were conducted, using a snowball method to select subjects, with our own active students as the sampling frame. The call for qualitative research was distributed among them and the first ten respondents remained in the final sample, and the snowball sampling technique continued with their inclusion until the final number of interviewees was reached. The mini-focuses were group guided interviews with 3-4 participants each, with a heterogeneous composition in terms of gender and age. The main objective of the qualitative research was to establish the quantitative research, finalize the standardized questionnaire and outline the research hypotheses.

In the qualitative phase, a semi-structured guide was used, the main topics of which were: knowledge and perception of different crises, analysis of the impact of the coronavirus crisis on consumer behavior, the impact of the crises on the perception of competence (what knowledge and skills have been revalued as a result of the

crises. In a separate section, we analyzed the different banking services, banking preferences and the demand for digital banking services, which formed the basis for the analysis of customer preferences independent of the impact of the crises.

As a result of the qualitative phase, the quantitative research tool was finalized, and the finalization of the individual response alternatives – pretesting of the research tool – was also carried out in the light of qualitative results. The design of the standardized questionnaire topics was the result of relevant secondary data analysis.

The quantitative data collection was carried out in the form of an online survey. Subjects were recruited through a snowball sampling procedure, using our own active students as the first base, by sharing the online research tool via direct email. This resulted in 6804 evaluable questionnaires. The research tool contained only closed questions, at nominal measurement level (in the form of single-choice and multiple-choice questions), and metric scales (Likert scale and semantic differential scale).

The standardized questionnaire covered the following topics: perceptions of crises, analysis of the impact of crises in the light of perceptions of digital skills, business knowledge and management competence, choice of bank and loyalty to the service provider - conditions for staying in a bank. Only closed questions were used in the questionnaire, at nominal (selective, decisive, combinatorial) and metric Likert and semantic differential scale, ratio scale) levels of measurement.

In this paper we focus on the partial results of the quantitative phase of our research project. Within that, we have also highlighted the perception of the importance of the individual competence and the changes in their role and importance in the light of age differences in the impact of the coronavirus.

To process the quantitative results, we used descriptive statistics, bivariate and multivariate analyses using SPSS 22.0 software. In the present study, in addition to descriptive statistics, the analysis of variance method was used to examine the correlation between nominal and metric scale scores, including the one-way ANOVA method for comparing multiple sample means. The mean of a metric dependent variable was compared between more than two groups. The post-hoc test was used to determine which pairs of groups were significantly different. Significance values were used to determine the existence of a correlation (sig<= 0.05). We analyzed the internal correlations along the comparison of group means using the F-statistic, i.e., the coefficient of variance of the means within samples [28] [29]. For the correlation tests presented in this study, where the significance value according to the ANOVA table was below 0.05, it was confirmed that there is a correlation between the age group (generation) and the variable under study (importance of competence), and thus these data were highlighted and illustrated in the SPSS post-hoc test results.

During the quantitative research phase, the main objective is to investigate how the pandemic affected the perception of competencies, which skills were valorized, and which were overshadowed according to the sample subjects' perceptions.

In addition, we also investigated the extent to which age (generational) influences perceptions of individual competence.

As a conclusion of the secondary research findings and the qualitative phase, the following research hypotheses were to be validated within the framework of the study:

H1: Aspects of more conscious behavior (health orientation, safety orientation) will be enhanced by the coronavirus.

H2: In addition to the changes caused by the pandemic, it is true that age (generational) influences the perception of the importance of certain competencies.

The logical framework for the presentation of the partial results presented in this paper is the evaluation of the above hypotheses.

The main socio-demographic characteristics of the sample are as follows: 50.6% of the 6804 respondents were male and 49.4% female. Only 7.2% of the respondents have a bachelor's degree, 57.2% have a secondary degree, 26.3% have a bachelor's degree and 9.3% have a master's degree. In terms of age, the largest share of the sample (39.4%) is from Generation Z (18-25 years). They were followed by 21.8% of respondents aged 26-35 and 17% of respondents aged 36-45. Respondents aged 46-55 years represented 13.1% of the sample, while respondents aged 55 years and over represented only 8.5% of the sample.

4 Perception of the Importance of Knowledge and Competence in the Context of the Pandemic

In the first stage of the research, I had the subjects assess the importance of the competence under study.

I wanted to know which skills and competence were prioritized and which were pushed to the background, by the crisis situation, according to a Hungarians' perception (Table 1).

Health knowledge was the most valued aspect of the responses, which is not surprising given that the pandemic has given rise to a number of communication messages emphasizing prevention and the importance of hygiene and health protection rules.

Health is also a preferred aspect in the value judgements of Hungarians, as confirmed by several previous studies on value orientation [30] [31].

The impact of the pandemic has also led to an increase in the sample's perception of more conscious decision making and the willingness to be safety conscious and safety seeking (H1 confirmed).

Table 1

Impact of the crisis on competence and knowledge

Competence, areas of knowledge	**Average 1=fully devalued 4=fully appreciated**	**Deviation**
financial competence	2.85	0.89
general economic knowledge	2.78	0.84
health knowledge	**3.09**	0.91
project approach	2.71	0.87
information acquisition and evaluation skills	2.91	0.91
flexibility, agility	2.99	0.90
strategic approach	2.89	0.91
better informed decision-making	**3.00**	0.91
security awareness, security seeking	**3.04**	0.92
social cooperation skills, abilities	2.95	0.92

Source: authors' own research, N=6804

Also, unsurprising results as the pandemic has brought about major changes not only in our health but also in the economic consequences, which clearly expected people to make more conscious and deliberate decisions at the everyday level.

Social and societal networks have been weakened, and the many prohibitions have pushed people further apart, further reducing the sense of security. Today, we know from consumer trend research [32] [33], that security does not only mean security in the physical sense, but rather the security of data and information that is linked to us. Thus, the sample's view that the pandemic has further highlighted the need for security awareness is in line with consumer trends.

In the next phase of the research, analysis of variance was used to examine whether, and if so, how much variation there was between age segments in the importance of the competencies under investigation at the time of the pandemic (Table 2).

Table 2

Generation-specific perceptions of competence and knowledge during the pandemic

Perceptions of the importance of certain competencies during the pandemic in different age groups				
Competence, knowledge	**Age groups**	**N**	**Average**	**Significance value**
Financial competence	18-25	2688	**2.92**	0.0002
	26-35	1490	**2.80**	
	36-45	1156	2.81	
	46-55	882	2.87	
	56-65	349	2.89	

	over 65	239	2.80	
	sample average	6804	2.86	
Average business knowledge	18-25	2688	**2.81**	0.0240
	26-35	1490	2.72	
	36-45	1156	2.77	
	46-55	882	**2.82**	
	56-65	349	2.79	
	over 65	239	2.76	
	sample average	6804	2.78	
Health knowledge	18-25	2688	**3.19**	0.0000
	26-35	1490	2.98	
	36-45	1156	2.99	
	46-55	882	**3.18**	
	56-65	349	3.09	
	over 65	239	3.01	
	sample average	6804	3.10	
Project approach	18-25	2688	**2.64**	0.0000
	26-35	1490	2.68	
	36-45	1156	2.80	
	46-55	882	**2.84**	
	56-65	349	2.77	
	over 65	239	**2.83**	
	sample average	6804	2.72	
Ability to obtain and manage information	18-25	2688	2.93	0.0029
	26-35	1490	2.89	
	36-45	1156	2.87	
	46-55	882	**3.00**	
	56-65	349	3.02	
	over 65	239	**3.00**	
	sample average	6804	2.93	
Flexibility, agility	18-25	2688	3.02	0.0000
	26-35	1490	2.93	
	36-45	1156	2.98	
	46-55	882	**3.11**	
	56-65	349	2.93	
	over 65	239	2.88	
	sample average	6804	2.99	
Strategic approach	18-25	2688	2.91	0.0014
	26-35	1490	2.83	
	36-45	1156	2.92	
	46-55	882	**2.98**	

	56-65	349	**2.99**	
	over 65	239	2.87	
	sample average	6804	2.91	
More conscious decision making	18-25	2688	**3.07**	0.0000
	26-35	1490	2.95	
	36-45	1156	2.93	
	46-55	882	**3.09**	
	56-65	349	3.03	
	over 65	239	2.90	
	sample average	6804	3.01	
Security awareness, security seeking	18-25	2688	**3.12**	0.0000
	26-35	1490	2.93	
	36-45	1156	3.01	
	46-55	882	**3.18**	
	56-65	349	3.06	
	over 65	239	2.90	
	sample average	6804	3.06	
Social cooperation skills, abilities	18-25	2688	2.99	0.0000
	26-35	1490	2.84	
	36-45	1156	2.95	
	46-55	882	**3.14**	
	56-65	349	3.03	
	over 65	239	2.97	
	sample average	6804	2.97	

Source: authors' own research, N=6804, analysis of variance (One-Way-Anova, Post Hoc Multiple comparisons, LSD)

In light of the results, it was found that there is a correlation between the perceived importance of each competence and age (H2 confirmed).

For the 18-25 age group, financial competencies, business and financial knowledge, and the ability to make more conscious decisions, as well as security-oriented behavior were rated as more important than the sample average and compared to other age groups.

The project and strategic approach, the ability to cooperate socially, the ability to obtain and manage information were also rated as the most important by this age group, as was the importance of agile behavior. The project approach was rated as least important by the youngest, which we think is not surprising, since this age group does not account for a large proportion of managers and middle managers who are most in possession of such skills. Young age may explain the marginalization of this competence in their case.

A particular feature of the 26-35 age group is that they were the least important in all areas of competence except security awareness and the ability to obtain information, compared with the sample average and the other age groups.

The 36-45 age group showed the closest values to the sample average, with the only exception being the ability to obtain information, which they rated as the least significant.

Members of the 46-55 age group rated all the competencies assessed as important above average, and in most cases they gave the highest or second highest average scores for all competency dimensions.

This was true for information acquisition and project work for respondents aged 65 and over. The 56-65 age group only rated project approach as a more important competence compared to other age groups. These results are, in our view, explained by the more extensive experience, work experience and possibly empirical experience in management that characterize these two age groups.

Summary and Conclusions

The pandemic has changed our lives in many areas. In Higher Education, major technological and content changes have taken place and are still taking place, in response to the challenges posed by the pandemic. It is important to understand the knowledge and competence levels that people think are most important, to adapt well and effectively to the numerous challenges [34] [35]. As a result of this research, it was found that protecting our health and safety and being more aware of our behaviors, are the skills that are most valued. It is also worth focusing on developing these skills in an everyday educational environment. The emergence of digital education has further enhanced the role of security in data protection and information management, which has been further exacerbated by the pandemic. Health knowledge has become the absolute top priority, which is not surprising, as our daily lives have been affected in an unprecedented way, by information on health risks and protections. The pandemic situation has led to a pattern of more conscious thinking and behavior, which is also believed to be a key factor for successful adaptation.

As a result of this research, it was possible to demonstrate that the perception of the importance of each of the areas of competence and knowledge examined, carries generation-specific traits. Young people, from Generation Z, consider business and financial knowledge, and security-oriented behavior, to be the most important.

In particular, the members of Generation Y did not feel that security awareness and the ability to obtain information were particularly valued, in the wake of the pandemic, which is not surprising, as these competencies are essentially prioritized by this generation.

Generation X members were the least likely to perceive the impact of the pandemic on competence as being positive or even negative for them personally. This

generation seems to have a stable competence preference, which has not been significantly reshaped by the pandemic situation.

Respondents from the Baby Boom Generation rated project approach, as particularly important, which can be explained mainly, by their broader experience.

One limitation of the research is that a structured list of competencies was used for the analysis. Although this was validated in the pre-qualitative phase, we consider it advisable to extend and enhance the list of competencies, during the next phase of research.

In the continuation of this research, we intend to focus on the key areas of competence of entrepreneurship. Due to generation-specific differences, we also consider it appropriate to examine the importance of competence in relation to individual value orientation in the future. The main reason for this, is that the strongest bond of belonging to a generation, is the values that characterize that particular community.

We believe that the results of the present research, highlight the key areas of competence, skills, knowledge and attitudes, which have been enhanced, in the wake of the pandemic, and illuminated the generational specificities of perception of individual competencies, that can help higher education professionals differentiate skills and knowledge development.

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