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Student's Well-Being in the E-School Environment: Selected Research Results

Abstract

The aim of the study was to identify the areas most sensitive to the well-being of students in the e-school environment. The researchers' interest in the field of education most often relates to students' school achievements. It seems reasonable to look at the reality of school from the perspective of the well-being of adolescents. The threat of a pandemic and the transition to remote learning have created unique conditions for understanding student problems. In reference to Allardt's concept, four categories of well-being were distinguished 1) school conditions, 2) interpersonal relationships, 3) means of self-fulfillment, and 4) overall health condition.

The study was conducted online, but through schools, among grades 7 and 8, and the first grade of secondary school students (N = 360). The principal component analysis (PCA) and confirmatory factor analysis (CFA) of the tool have been developed. The criterion validity was determined on the basis of the relationship between the questionnaire and other tests that measure similar problems. Rosenberg's Self-Assessment Scale and the KIDSCREEN-10 Health-Related Quality of Life Questionnaire for Children were used.

The Student's Well-being in the E-school Environment: A Questionnaire is sufficiently reliable and valid. The distribution of low, average and high results

in the sub-scales was more or less even. Low scores in the first sub-scale were reported by every fourth student, in the second and third sub-scale by every third student. The scale can be used to recognise the well-being of students learning in a remote or hybrid system. Well-being translates into functioning in many areas of life activity.

K e y w o r d s: remote learning, coronavirus pandemic, well-being, students, e-school

Background of research

The coronavirus pandemic has brought many areas of life, including the reality of school, into a new dimension. Until now, the use of modern technologies in school education has been an alternative to traditional forms and methods of teaching. With the closure of schools, remote learning has become a necessity for the continuation of the educational process worldwide. The school as a place of education has moved to the student's home, and school interpersonal relationships have been suspended in the virtual space. In a situation where teachers, parents and education experts ask themselves questions about the effectiveness of e-school education, it is worth considering how a student feels in this new school reality.

Well-being is identified with quality of life and, especially in psychology, is often defined as welfare, or, more, precisely as a subjective sense of welfare. Research on mental welfare goes in two directions: (1) the eudaimonic model (living in harmony with oneself – happiness, life full of moral virtues, good experience of one's own existence) (Czapiński, 2012; Dodge et al., 2012; Trzebińska, 2012; Wojciechowska, 2008) and (2) the hedonistic model (satisfaction with life, positive and negative feelings, focus on personal feelings of pleasure – sorrow, fulfilment – non-fulfilment) (Argyle, 2004; Carr, 2004; Czapiński, 2012; Diener et al., 2012; Ryan and Deci, 2001).

The best-known well-being aspects are presented in the works of Seligman, Diener, Ryff, Ryan and Deci. According to Seligman (2011), well-being, as a mental state among individuals, refers to positive emotions, a state of involvement, relationships, a sense of meaning/significance and the achievement/appreciation of what one does. Diener (1999) sought to look at the various dispositional influences, counselling strategies, goals and ways of adaptation that may be relevant to subjective well-being. He stressed the interaction between psychological factors and life circumstances. Subjective well-being (SWB) focuses on three dimensions: (1) satisfaction with life, (2) pleasant and (3) unpleasant emotions.¹⁰ Subjective

well-being consists of cognitive assessments and affective reactions, both positive and negative, that people experience in connection with their lives, themselves, and the events and circumstances in which they live (Diener et al, 2006). There is a dynamic relationship and interaction between these elements.

The six-factor model of psychological well-being is a theory developed by Ryff (1989). She drew attention to factors that affect a person's psychological well-being, satisfaction and happiness. Psychological well-being is influenced by positive relationships with others, control over the environment, autonomy, a sense of purpose, as well as the sense of life, self-acceptance and personal development. An individual can feel well even if he or she suffers temporary setbacks or if he or she does not feel pleasure (Ryf and Keyes, 1995).

Researchers in the eudaimonistic field expose a sense of meaning and self-fulfilment, and the level of well-being is determined by references to the extent to which a person realises the fullness of his/her abilities (Ryan and Deci, 2001). In Ryan's and Deci's theory of self-determination, the conceptualisation of well-being is based on psychological analysis. Well-being is a complex structure, consisting of two general perspectives: hedonistic, which focuses on happiness and defines well-being in terms of achieving pleasure and avoiding pain; and eudaimonic, which focuses on meaning and self-actualization and defines well-being in terms of the degree to which a person is fully functional. Ryan and Deci, when reviewing the study, drew attention to the stability of well-being over time and the importance of cultural circumstances.

The student's well-being is conditioned by many factors, both personal and environmental. Well-being is a point of balance between an individual's resources and difficult life situations (Dodge et al., 2012). If an individual has the mental, social, and physical resources to help him or her meet the challenges they might face, then his or her well-being can be stable. The importance of environmental, school-related factors relating to working conditions cannot be overlooked (Diener et al., 2006). One of the important well-being factors which is relevant to educational achievement is the school atmosphere (Daily et al., 2020). In the case of the e-school environment, the atmosphere is related not only to the physical space of the school, but also to the interpersonal relationships transferred to the Internet space and the home/family situation of the student.

In recent years, interest in the topic of well-being has led to the development of research tools with different dimensions and measurement indicators (Allardt, 1989,1993; Huebner and Gilman, 2002; Karatzias et al., 2001; Keith and Schalock, 1994; Konu and Lintonen, 2005; Opre et al., 2018; Putwain et al. 2020; Reid & Smith 2018; Renshaw et al., 2015; Soutter et al., 2013; Tomy and Cummins, 2011).

There are very few analyses in the literature to date based on proven measurement tools to diagnose the well-being of students and teachers at school. The

current situation associated with the coronavirus pandemic has forced the school to move to a virtual space. Furthermore, social isolation, health concerns, worrying media information, and an uncertain future, justify the need to pay attention to the well-being of students in the e-school environment. The theoretical basis of the research undertaken is Allardt's concept (1993), which was developed in the field of sociology and related to the concepts of welfare (objective dimension) and happiness (subjective dimension). Allardt distinguishes three dimensions of human functioning: having, loving, and being, which are well integrated into the relationship between resources and challenges. Having symbolizes material resources (economic, working conditions, nutrition, but also psycho-physical, as well as social conditions). Loving incorporates social relationships (family, school, peer, employee relationships). Being has a broad meaning – it concerns individual mental well-being (best associated with mental well-being). It reflects satisfaction with life, activity, the level of self-actualization, as well as self-esteem. At the same time, it underlines the need for integration into society and nature (Allardt, 1993). The basic concept of a school of prosperity is the concept of well-being (Konu et al., 2002).

The aim of the research was to prepare a tool for examining the well-being of adolescents in the e-school environment and to check their psychometric properties. In reference to Allardt's concept of well-being (1993), adopted by Konu et al. (2002) to the school situation, well-being indicators are presented in four dimensions: 1) school conditions, 2) interpersonal relationships, 3) means for self-fulfilment, 4) health condition. They correspond to the four dimensions of the author's *Student's Well-being in the E-school Environment: A Questionnaire*.

Methodology of Research

Sample of Research

The survey was carried out online between 15 May and 15 June 2020, using Google Forms applications. Prior to launching the research procedure, consent to participate in the survey was obtained from the parents and legal guardians of underage participants. For reasons of personal data protection, the headmasters of the schools attended by the students in question remain the controllers of these consents. The group of respondents consists of 360 students from grades 7, 8 of primary school and the first grade of secondary school (231 girls, 129 boys; both rural (138 people) and urban (222 people).

Instruments

When preparing the research tool, 36 questionnaire items were created, dividing it into four sub-scales according to the categories corresponding to Allardt's concept. The participants replied by responding to the statements on the five-point Likert scale. In addition to the author's *Student's Well-being in the E-school Environment: A Questionnaire*, the respondents completed *KIDSCREEN-10 Health-Related Quality of Life Questionnaire for Children and Adolescents* (Ravens-Sieberer et al., 2010) and *Rosenberg's Self-Esteem Scale* in the Polish adaptation of Dzwonkowska, Lachowicz-Tabaczek and Łaguna (Łaguna et al., 2007). These additional assessment instruments made it possible to assess the criterion accuracy of the prepared research tool.

Procedure

Structure of the Student's Well-being in the E-school Environment: A Questionnaire – the principal component analysis (PCA)

In order to determine the internal structure of the author's questionnaire, the principal component analysis (PCA) was conducted. Before performing the factor analysis, the correlation matrix determinant was checked (which turned out to be equal to 3.683E-6) and the Kaiser-Mayer-Olkin test was performed, recalling the KMO measure of sample selection adequacy (0.880). The Bartlett sphericity test result was statistically significant ($\chi^2 = 4331.152$; $df = 630$; $p < 0.001$). The correlation matrix determinant does not allow for a factor analysis. The distributions of several variables were not normal. Kendall's tau-b correlation was made between the 36 items of the questionnaire and the overall result. The 12 items with the lowest correlation coefficients with the overall result of the tool (tau-b below 0.3) were discarded.

After rejecting the 12 items, the correlation matrix was 0.001, the KMO measure of sampling adequacy was 0.908; therefore such a result made it possible to carry out a factor analysis, followed by the rejection of a further 7 items with a weak factor load and clearly undefined in terms of the dimension to be distinguished.

There were 17 items left for which the correlation matrix was 0.002 and the KMO measure of sampling adequacy was 0.913. The chi square coefficient in the Bartlett test was statistically significant ($\chi^2 = 2191.186$; $df = 136$; $p < 0.001$). The results obtained allowed for an exploratory analysis of the main components in order to determine the internal structure of the scale. The number of factors was determined using the criterion of the scree plot. It was finally decided to divide the scale into three sub-scales for which the total explained variance is 51.353%.

An analysis of the rotation of factors using the Oblimin with Kaiser normalisation method was performed. The thus separated components, the description of the items and their factor loadings are listed in Table 1.

Table 1

Items and their factor loadings for the sub-scale of the Questionnaire on Student's Well-being in the E-school Environment as identified in the factorial analysis

Item No.	Factor I: State of physical, mental and social health	factor loadings
i35	I have noticed that isolation contributes to the increase in human conflict and physical and psychological violence	0.832
i34	Due to the large amount of time spent in front of the computer/phone, I feel headaches, pains in my spine, eyes, etc.	0.820
i31	In connection with e-school, I spend too much time in front of the computer	0.827
i24	It takes me more time to meet the demands of teachers than before the pandemic	0.832
i17	After working in the e-school system I feel very tired	0.814
i16	I feel uncomfortable about not being able to influence decisions made at school.	0.827
i15	I have sleeping problems due to the current situation	0.831
i14	The current situation makes me feel uncomfortable (mood and energy drop, nervousness and irritation)	0.811
Item No.	Factor II: Learning conditions	factor loadings
i10	Learning at home is more comfortable for me, [it] gives me a greater sense of security, I do not feel excessive control	0.737
i22	I like remote learning – I don't have to leave home, I work at my own pace, I have more free time	0.727
i25	It is difficult for me to focus on learning at home, traditional teaching is more effective for me	0.765
i4	I am satisfied with the current timetable	0.802
i32	Due to the pandemic, I cannot develop my educational opportunities for my future, e.g., by participating in extra-curricular activities	0.799
Item No.	Factor III: Interpersonal contacts and self-fulfilment	factor loadings
i5	Online contact with teachers is a source of stress for me	0.550
i7	Due to the pandemic, I have fewer opportunities to engage in various social activities	0.584
i12	I have the opportunity to be successful	0.502
i21	The presence of the household members disturbs me during my online activities	0.526

Sources: Own work

The first factor concerns the assessment of physical health, which is influenced by prolonged time spent in front of a computer in connection with school tasks. This factor also includes statements relating to an assessment of the mental state and social situation. The second factor is a description of the assessment of working conditions at home, with attention being paid to both the benefits and limitations of such conditions. The third factor highlights the problems of interpersonal contact with teachers and peers and the opportunities for achievement.

Validation of the internal structure of the questionnaire – confirmatory factor analysis (CFA)

Due to the discrepancy between the questionnaire structure expected from the theoretical assumptions resulting from Allardt's concept and the results of the principal component analysis (PCA), a confirmatory factor analysis (CFA) was conducted using the AMOS SPSS. Three models were built for which data matching was tested. Model 1 assumed a 4-factor structure of the questionnaire consisting of 36 items, its construction is based on Allardt's theory of welfare. Model 2 results directly from the principal component analysis (PCA), which left 17 items of the questionnaire, including 3 factors. Model 3 tested the validity of the questionnaire consisting of 17 items selected by the PCA, which were divided into 4

Table 2
Results of the confirmation factor analysis carried out using the AMOS programme

Model	Dimensions	NP	PAR	CMIN	F	P	CMIN/DF	RMSEA	NFI	CFI
Model 1 Null correlation	36 items 4 dimen- sions	76		3200.990	26	<0.001	5.113	0.107	0.287	0.333
Model 1 Existing correlation		77		2506.622	25	<0.001	4.011	0.092	0.442	0.513
Model 2 Null correlation	17 items 3 dimen- sions	51		662.480	19	<0.001	5.567	0.113	0.703	0.741
Model 2 Existing correlation		52		337.368	18	<0.001	2.859	0.072	0.849	0.895
Model 3 Null correlation	17 items 4 dimen- sions	38		1179.677	32	<0.001	8.937	0.149	0.471	0.500
Model 3 existing correlation		39		549.736	31	<0.001	4.196	0.094	0.754	0.800

Sources: Own work

sub-scales according to Allardt's assumptions. The results of the CFA for the three models showed that only Model 2 is sufficiently matched to the data (see Table 2). In the adopted model, the factorial loadings of all the questionnaire items are in the range 1.08-0.75 for the first factor, 1.30-0.97 for the second factor, 1-0.74 for the third factor, with the assumption of correlation (correlation estimated at 0.70).

The fit indices for the Confirmatory Factor Analysis model may be adopted in recognition of the existence of correlation. The quoted criterion of goodness chi-quadrat = 337.368 at $df = 118$; $p < 0.001$ causes the zero hypothesis of empirical equality and reproduced by the model of the covariance matrix to be rejected. However, the chi-quadrat test is about the zero hypothesis, which means that the rest of the standardised empirical and theoretical matrices that the model reproduces are equal to 0. This result suggests that the restrictions imposed in the theoretical model are correct. The test is sensitive to the size of the sample, with large samples there is a growing confidence that the matrices are equal and the significance of these differences may be small. Therefore, alternative tests are recommended (Sagan 2003). However, absolute fit indices such as CMIN/DF, which is 2.859 (absolute fit type at less than 5) and the elemental value of Steiger-Lind's RMSEA average square approximation error of 0.072 (approximation error not exceeding 0.08 is still acceptable) indicate an acceptable level of model match. In addition, indicators relating to the divergence of the model under examination to the analogous measures of the NFI and CFI independence model, which do not exceed 0.9, have been taken into account, which confirms that the model is in line with reality.

Reliability

In order to check the reliability of the sub-scales of the analysed tool (their internal consistency), Cronbach's Alpha index was calculated, which is 0.895 (for 17 items). In addition, the Cronbach's Alpha and correlation coefficients of each of the three sub-scales were calculated, reflecting the three factors of student well-being in the e-school environment with the overall result of the questionnaire.

For factor I (state of physical, mental and social health) Cronbach's Alpha = 0.843 and the correlation coefficient with the overall result $r = 0.926$ ($p < 0.001$). High reliability values were also obtained in Factor II: Alpha = 0.805; $r = 0.847$ ($p < 0.001$). Factor III coefficients are slightly lower, although satisfactory: Alpha = 0.611; $r = 0.757$ ($p < 0.001$). In addition, the value of Guttman's half-life division coefficient, which determines the half-reliability for even and odd positions, is $r = 0.788$ at the relevance level $p < 0.001$. The inter-half correlation coefficient reached $r = 0.363$; $p < 0.001$. These results testify to the internal consistency of the questionnaire and confirm its reliability.

Validity

The coincidental (criterion-based) validity was determined on the basis of the relationship between the questionnaire and other tests that measure similar problems. M. Rosenberg's Self-Esteem Scale was used to assess global self-esteem in young people and adults (Baumeister et al., 2003). High self-esteem does not mean that you consider yourself better than others. The individual is defined as sufficiently good and valuable. People with low self-esteem are not satisfied with themselves and even reject their own "I". A statistically significant relationship was expected between self-esteem and student well-being (Celik, 2014).

The second tool was used to investigate the theoretical validity of the Student's Well-being in the E-school Environment: A Questionnaire was KIDSCREEN-10 Health-Related Quality of Life Questionnaire for Children and Adolescents. It is a one-dimensional, shortened scale of a full version of KIDSCREEN. While low scores indicate a sense of being unhappy, incapable and dissatisfied with family life, contacts with peers and school life; high scores are evidence of a sense of happiness, good condition of satisfaction with family life, peer contacts and school life (Ravens-Sieberer et al., 2010). A statistically significant correlation was expected between the result of the KIDSCREEN-10 questionnaire and the results of the author's Student's Well-being in the E-school Environment: A Questionnaire. The results of the correlation analysis between students' well-being in the e-school environment (total overall score and sub-scale results) and the global self-esteem and health indicator obtained in the KIDSCREEN-10 questionnaire are presented in Table 3.

Table 3
Correlations between students' well-being in the e-school environment, self-esteem and the health indicator measured by the KIDSCREEN-10 questionnaire

Pearson's r correlation	Σ well-being	Factor 1 health	Factor 2 conditions	Factor 3 contacts	SES	KID-SCREEN
Σ well-being	1	0.860**	0.782**	0.765**	-0.339**	0.639**
Factor 1 health	0.860**	1	0.648**	0.587**	-0.292**	0.567**
Factor 2 conditions	0.782**	0.648**	1	0.528**	-0.084	0.370**
Factor 3 contacts	0.765**	0.587**	0.528**	1	-0.288**	0.454**
SES	-0.339**	-0.292**	-0.084	-0.288**	1	-0.600**
KIDSCREEN	0.639**	0.567**	0.370**	0.454**	-0.600**	1

** correlation significant at 0.001 (bilateral)

Sources: Own work

The analysis of data contained in Table 3 showed highly significant correlations (at 0.001). The well-being tested by the author's questionnaire based on Al-lardt's concept was, by definition, of a similar design to the holistically understood health issues diagnosed with the KIDSCREEN-10 tool. Statistically significant correlations can be considered to confirm the criterion validity of the Student's Well-being in the E-school Environment Questionnaire. Only the correlation between learning conditions as a factor of well-being in the e-school environment and global self-esteem has proven to be statistically insignificant. The negative relationship between self-esteem and well-being may also seem somewhat surprising. It can be assumed that students with lower self-esteem perform well in the e-school environment, which may be related to better perceived health conditions (Factor 1, KIDSCREEN), and/or possibilities of self-actualization without direct interpersonal contacts (Factor 3).

Data Analysis

Students' well-being in the e-school environment

In order to define the values of the results as low, average, high, reference was made to indicators of variables, which were prepared by means of a regression method, taking into account the factor loads of individual questions in each factor. The indicators can take both positive and negative values. A negative value indicates that the tested person has a score below the average for the variable, a close to zero indicates an average score and a positive value indicates a high level of the variable (Bedyńska and Brzezicka, 2007). The breakdown into high, average and low scores was made on the assumption that indicators -0.50000 to 0.50000 are close to zero (usually standard deviation $-/+0.5$ is considered).

Table 4
Indicators for each sub-scale

Factor I	-2.28197 to -0.50224	34.4%	Low scores
	-0.48984 to -0.50224	30.9%	Average scores
	0.50017 to 2.14872	34.7%	High scores
Factor II	-1.86061 to -0.51082	35.0%	Low scores
	-0.49489 to 0.49997	31.7%	Average scores
	0.52892 to 2.10482	33.3%	High scores
Factor III	-2.91574 to -0.50493	27.8%	Low scores
	-0.47869 to 0.49884	38.6%	Average scores
	0.52193 to 2.06092	33.6%	High scores

The analysis of the data contained in Table 4 shows that the surveyed students are statistically more likely to show low scores in the area of well-being related to the conditions of remote education (Factor II) than in the area of social relationships and self-actualization opportunities (Factor III). In the area of health (Factor III), the percentage of low and high scores is similar. It can be assumed that contacts through social media (which, regardless of the limitations associated with forced isolation, are a typical form of communication for school-age youth) more than compensate young people for the lack of direct meetings. At the same time, students are more likely to experience discomfort caused by home educational conditions. It is likely that a significant proportion of students would prefer to spend their time at school rather than spend it at home on their own.

Results of the Research

In order to search for differences between the intensity of well-being of the respondents in the analysed sub-scales, weighted means were calculated for the 17-item scale and the e-school well-being factors identified within it (cf. Table 5).

Table 5
Weighted means for the sub-scales Student's Well-being in the E-school Environment: A Questionnaire

Descriptive statistics – weighted means	Min	Max	M	SD	Skewness		Kurtosis	
					Statistics	Standard error	Statistics	Standard error
Σwell-being	1.12	4.94	3.1502	0.889	-0.124	0.129	-0.822	0.256
Factor 1 health/ 8 items	1.00	5.00	3.1170	1.033	-0.065	0.129	-1.009	0.256
Factor 2 conditions/5 items	1.00	5.00	3.1678	0.100	-0.221	0.129	-0.892	0.256
Factor 3 contacts/ 4 items	1.00	5.00	3.1944	0.92137	-0.285	0.129	-0.286	0.256

N=360; M-weighted mean (raw score/number of items)

Sources: Own work

The analysis of the weighted means for the sub-scales of the tool for examining the well-being of students in remote education conditions shows that they do not differ from the average for the total score of the scale. The physical, mental

and social health-related feelings of the respondents build up the well-being of the student in an e-school to a similar degree as the conditions of remote education and social contacts and opportunities for self-actualization in a pandemic situation. Differences in the perception of different well-being factors by the youth respondents are revealed in the percentage distributions of raw scores for individual items of the questionnaire. The surveyed students admit that after the introduction of remote learning in schools they spend too much time in front of the computer (60% of the respondents said “yes” or “rather yes”), and it takes them more time to meet the school requirements than before the pandemic (55% of the surveyed students said “yes” or “rather yes”). At the same time, the students surveyed generally do not experience any sleep problems that may indicate psychophysical or physically ill health (more than 70% of them marked “no” or “rather no”). The majority of the respondents (52%) admitted that learning at home is more comfortable than a traditional school education, while, at the same time, over 53% of the surveyed students are satisfied with the e-school timetable. It should be pointed out that in the group of respondents there is a larger group of those who “liked remote learning” (more than 48% said “yes” or “rather yes”; less than 41% said “no” or “rather no”). The students surveyed generally positively assess their relationship with their household members and teachers in terms of relevance to school education. Moreover, in their opinion, a temporary change in the organisation of the teaching process did not adversely affect their chances of success. At the same time, young people see limited opportunities for self-actualization in the social sphere (Bieganowska-Skóra and Pankowska, 2020).

The next focus is on differences in gender, educational level and place of residence. In order to identify differences in the assessment of well-being between girls and boys, an independent test was used. Statistically significant differences in the well-being of girls and boys occur in terms of physical health $t = -1.925$; $df = 358$; $p < 0.05$. Girls ($M = 24.31$; $SD = 8.434$) feel worse in remote education than boys ($M = 26.05$; $SD = 7.868$).

A statistically significant difference was observed between the pupils of grades 7, 8 of primary school and the first grade of secondary school (ANOVA) in the total result of general well-being in e-school $F = 9.268$; $p < 0.001$. Significantly lower results were achieved by secondary school students ($M = 50.10$ $SD = 15.292$) compared to grade 7 students ($M = 57.69$ $SD = 13.527$).

A statistically significant difference occurred in the assessment of health condition (factor I) $F = 11.773$ $p < 0.001$. Grade 7 students ($M = 27.47$ $SD = 7.566$) compared to secondary school students ($M = 22.81$ $SD = 8.330$) assessed their health status much better.

Statistically significant differences occurred in the assessment of interpersonal relationships and self-actualization (factor III) $F = 5.657$ $p < 0.05$. Significantly

higher scores were reported by grade 7 students ($M = 13.57$ $SD = 3.411$) compared to secondary school students ($M = 12.11$ $SD = 3.815$).

High school students evaluate their well-being in e-school and in pandemic conditions significantly worse than primary school students. The difficulties faced by students of the first year of high school are caused not only by the awareness of health risks, but also by the change of the school structure itself, to which they did not have time to adapt, when they were forced to switch to remote education.

Discussion

Studies on the functioning of students in the conditions of remote education caused by the pandemic constitute a new area of interest for both representatives of the social sciences and experts in education. Since mid-March 2020, schools around the world have been operating in a new reality based on information technology. The use of the media in education, while, at the same time, lacking direct contact between students and teachers and their peers, has forced students to become more involved in individual learning rather than be in a traditional school setting, and, at least in part, parents were forced to assume the role of the teacher. The new form of education has become a kind of pedagogical experiment, the results of which are so far difficult to predict.

The results of the research presented in this study show convergence with similar ones carried out in Poland and e.g., in Germany and Austria. Such an example is the research project „Remote learning and adaptation to social conditions during the coronavirus epidemic”, which shows that the perception of e-school is „heterogeneous and not entirely negative”. Some teachers and students complain about the deterioration of mental well-being. Students notice that remote lessons are less attractive, and teachers lack the technical and substantive preparation for the new working conditions. At the same time, there is a clear determination of teachers to carry out teaching and educational tasks, which in turn is noticed and appreciated by students, especially in the area of teacher-student relations (Ptaszek, et al. 2020). An international study conducted under the guidance of Huber at the turn of March and April 2020 showed that 49% of students feel comfortable in an e-school. The possibility of learning at one's own pace, lack of school stress, and support from parents are just some of the positive aspects of remote education. Only 13% have taken the fact that the closure of the traditional teaching model in connection with the coronavirus pandemic was wrong or very wrong. Almost a quarter of the students surveyed admit that they are currently spending more

time studying than before the pandemic. Most of the students surveyed (53%) value time spent with their families as a positive effect of staying at home. Since the research involved parents and teachers in addition to the students, it could be shown that young people are the most satisfied with education at home, while their parents, educators and teachers are more skeptical about the effects of this form of school functioning (Huber et al., 2020). Researchers from the University of Vienna have shown in their longitudinal research that the well-being of students has changed positively since the introduction of remote learning in early March 2020, at least for the following two months. Approximately 49.5% of the students surveyed rated their well-being better and 20.3% worse than at the beginning of the pandemic. 35.7% of the students examined admitted that they are doing better and better with their schoolwork. 14.8% said that at the beginning of May they were less able to meet school requirements than at the beginning of March. At the same time, it was found that achievements in remote education are linked to the ability to organise one's own learning. Social contacts are an important factor in the well-being of students. About 45.8% of the respondents stated that during the 2 months of remote education, social relations with peers did not change, and in 30.4% – worsened (Schober and Lüftenegger, 2020). The functioning of students in e-school and the well-being of children and adolescents associated with an epidemic cannot be reduced to the results of home learning alone, as highlighted by the students participating in such studies (Andresen et al., 2020). Mental problems associated with the need for isolation, the deteriorating financial situation of many families, fears of the possibility of infection are just some of the factors in the well-being of children and adolescents that require pedagogical interventions and represent new challenges for health education (Imran et al., 2020; Spinelli et al., 2020; Juneja et al, 2020).

Possibilities of using the *Student's Well-being in E-school Questionnaire* and its limitations

The prepared tool for testing the well-being of students in remote education conditions can be used in situations where schools, classes or individual students temporarily move to a distance learning system for epidemic or other random reasons. It can be assumed that the techniques and methods of education developed using modern technologies will be used more widely in schools, and thus, part of school education will be conducted via the Internet. In the event of the spread of such 'hybrid' forms of school education, implemented regardless of epidemic and health-related conditions, it would be worth taking into account the well-being of the student in a traditional school and in education implemented remotely. The restrictions on the use of the questionnaire are due to the fact that it can only be used to examine students in remote teaching at home. In addition, this question-

naire diagnoses the mood associated with the role of the student in an e-school environment. In further research work, it is worth taking into account the wider well-being of children and adolescents, not only in relation to their role as students of a traditional school or an educational institution operating in a remote mode. The study of the well-being of children and adolescents requires particular attention because of the significant increase in the population of problems relating not only to physical, but also psychosocial health. It is also worth trying to design tools for diagnosing the well-being of teachers, both in traditional schools and in the special conditions of distance learning.

Summary and conclusions

1. The analysis of the psychometric properties of the *Student's Well-being in the E-school Environment: A Questionnaire* showed that the tool is sufficiently reliable and valid.
2. The results of the research obtained on a group of 360 students indicate that the surveyed adolescents coped quite well with the challenge of participation in remote education, positively assessing their psychophysical and social health in the new educational situation, the conditions for the implementation of tasks resulting from the implementation of compulsory schooling and the possibility of achieving success and self-actualization.
3. The analysis of our own research results and an attempt to juxtapose them with the reports from other authors' research does not allow for an unambiguous assessment of students' well-being in the e-school environment in terms of good and bad.
4. The young people surveyed report difficulties in self-actualization in the area of social activities. Furthermore, an analysis of the well-being of the young people in a pandemic situation reveals the need to address the welfare of children and adolescents regardless of their role as students. The psychosocial functioning and health risks of the young generation in an epidemic is still an open area of research in the social sciences.

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Samopoczucie ucznia w środowisku e-szkoly: wybrane wyniki badań

Streszczenie

Celem badania było zidentyfikowanie obszarów najbardziej wrażliwych na samopoczucie uczniów w e-szkole. Zainteresowania badaczy zdalną edukacją dotyczą najczęściej osiągnięć szkolnych uczniów. Wydaje się rozsądne spojrzenie na szkolną rzeczywistość z perspektywy dobrostanu młodzieży. Zagrożenie pandemią i przejście do zdalnego uczenia się stworzyło wyjątkowe warunki do zrozumienia problemów uczniów. W nawiązaniu do koncepcji Allardta wyróżniono cztery kategorie dobrostanu: 1) warunki szkolne, 2) relacje interpersonalne, 3) środki do samo-realizacji, 4) stan zdrowia.

Badanie zostało przeprowadzone online, ale za pośrednictwem szkół, wśród uczniów klas 7 i 8 szkół podstawowych oraz uczniów klas 1 szkół ponadpodstawowych (N = 360). Wykonano analizę głównych składowych (PCA) i konfirmacyjną analizę czynnikową (CFA) autorskiego narzędzia do badania samopoczucia ucznia w e-szkole. Trafność kryterialną określono na podstawie

relacji między kwestionariuszem a innymi testami mierzącymi podobne problemy. Zastosowano Skalę Samooceny Rosenberga oraz Kwestionariusz Jakości Życia Związanej ze Stanem Zdrowia KIDSCREEN-10.

Kwestionariusz Samopoczucie Ucznia w E-szkole jest wystarczająco rzetelny i trafny. Rozkład wyników niskich, średnich i wysokich w podskalach był mniej więcej równomierny. Niskie wyniki w pierwszej podskali odnotował co czwarty badany uczeń, w drugiej i trzeciej skali co trzeci. Skala może służyć do oceny samopoczucia uczniów uczących się w systemie zdalnym lub hybrydowym. Dobre samopoczucie przekłada się na funkcjonowanie w wielu obszarach aktywności życiowej.

S ł o w a k l u c z o w e: zdalne nauczanie, pandemia koronawirusa, samopoczucie, uczniowie, e-szkoła

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Самочувствие учащихся в среде электронной школы: избранные результаты исследования

А н н о т а ц и я

Целью исследования было выявить области, наиболее чувствительные к благополучию учащихся электронной школы. Исследователей дистанционного образования чаще всего интересуют школьные достижения. Представляется разумным взглянуть на школьную реальность с точки зрения благополучия молодежи. Угроза пандемии и переход к дистанционному обучению создали уникальные условия для понимания проблем студентов. В отношении концепции Алларда были выделены четыре категории благополучия: 1) школьные условия, 2) межличностные отношения, 3) средства самореализации, 4) здоровье.

Опрос проводился онлайн, но в школах, среди учеников 7-ого и 8-ого класса начальной школы и учеников 1-ого класса средней школы (N = 360). Был проведен анализ главных компонентов (PCA) и подтверждающий факторный анализ (CFA) собственного инструмента оценки благополучия учащихся электронной школы. Достоверность критерия была определена на основе взаимосвязи между анкетой и другими тестами, измеряющими аналогичные проблемы. Использовались шкала самооценки Розенберга и опросник KIDSCREEN-10 по качеству жизни, связанному со здоровьем.

Анкета Благополучия Ученика в Электронной Школе достаточно надежна и точна. Распределение низких, средних и высоких баллов по субшкалам было более или менее равномерным. Низкие результаты по первой подшкале зафиксировал каждый четвертый опрошенный ученик, по второй и третьей шкалам - каждый третий. Шкалу можно использовать для оценки благополучия учеников, обучающихся в удаленной или гибридной системе. Благополучие означает функционирование во многих сферах жизнедеятельности.

К л ю ч е в ы е с л о в а: дистанционное обучение, пандемия коронавируса, благополучие, ученики, электронная школа

Agnieszka Buczak, Izabella Maria Łukasik

Bienestar de los estudiantes en el entorno de la escuela electrónica: resultados de investigación seleccionados

R e s u m e n

El objetivo del estudio fue identificar las áreas más sensibles al bienestar de los estudiantes en e-school. Los investigadores de la educación digital suelen estar interesados en los logros escolares. Parece razonable mirar la realidad escolar desde la perspectiva del bienestar de los jóvenes. La amenaza de una pandemia y la transición al aprendizaje remoto han creado condiciones únicas para comprender los problemas de los estudiantes. En referencia al concepto de Allardt, se distinguieron cuatro categorías de bienestar: 1) Condiciones escolares, 2) Relaciones interpersonales, 3) Medios para la autorrealización, 4) Salud.

La encuesta se realizó on-line, pero a través de las escuelas, entre los estudiantes de la educación secundaria (N = 360). Se realizaron análisis de componentes principales (PCA) y análisis factorial confirmatorio (CFA) de la herramienta patentada de bienestar del estudiante de la escuela electrónica. La validez de criterio se determinó sobre la base de la relación entre el cuestionario y otras pruebas que miden problemas similares. Se utilizaron la escala de autoevaluación de Rosenberg y el cuestionario de calidad de vida relacionada con la salud KIDSCREEN-10.

El Cuestionario de Bienestar del Estudiante en E-school es lo suficientemente confiable y preciso. La distribución de puntuaciones bajas, medias y altas en las subescalas fue más o menos uniforme. Uno de cada cuatro estudiantes encuestados registró resultados bajos en la primera subescala y uno de cada tercero en la segunda y tercera escalas. La escala se puede utilizar para evaluar el bienestar de los estudiantes que aprenden en un sistema digital o híbrido. El bienestar se traduce en funcionamiento en muchas áreas de la actividad de la vida.

P a l a b r a s c l a v e: educación digital, pandemia de coronavirus, bienestar, estudiante, e-school