Distance Learning During the Corona-Lockdown: Some Psychological and Pedagogical Aspects

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Abstract. The study analyses distance learning experiences in enforced isolation during the COVID-19 pandemic. The aim was to summarize and analyze factors that, to a certain extent, influenced the effectiveness of distance learning for educators. In addition to the individual psychological characteristics of respondents, the study used an author’s questionnaire aimed at collecting information on the teaching characteristics in coronavirus. A valid sample of lecturers from Moscow and St. Petersburg leading universities took part in the research. Profiles were compiled in four age groups: novice teachers - 20–30 years old; experienced teachers - 30–40 years old, professionals - 40–50 years old and teachers before the retirement age - over 50. The data were analyzed through mathematical and statistical methods and SPSS 25. Significant links were identified between professional burnout constructs, distance-learning factors in COVID-19 conditions, procrastination and age. Factors that had a significant impact on distance learning were technical communication problems, the unexpected complete transition to distance learning, lack of live communication and the dramatically increased time teachers had to spend at the computer. Two age groups were the most exposed to professional burnout: teachers between the ages of 40 and 50 and over 50.

Keywords: Professional burnout · Distance learning · Coronavirus · Lecturers

1 Introduction

The education system of any country is a reflection of processes that are taking place or have taken place recently in a society. According to the way, the educational process is designed, organized and practically implemented, one can judge about the situation in a society and its members, the level of development of its social institutions. The recent event, which was yet another test for humanity as a whole and a test of flexibility and
the ability to mobilize quickly under unforeseen complex circumstances, will long
make it necessary to analyze and reconsider what happened, its prerequisites, conse-
quences and actions taken by different systems, including educational ones.

With the threat of coronavirus spreading, most universities and colleges in Russia
decided to switch to distant learning. Therefore, all face-to-face classes, including
lectures, practical classes and even laboratory classes with virtual counterparts, were
transferred to the online environment. The urgent flip of learning to a remote format in
the context of the pandemic differs significantly from a well-designed online learning
through mass open online courses. Educational institutions had to work with students
remotely to reduce the risks of coronavirus proliferation. This atmosphere has also
affected the evaluation of the effectiveness of so-called “online learning” using distance
education technologies (DET).

Teachers were forced to organize the learning process through distance learning
technologies based on different ways of delivering electronic content and available
communication tools for learners and teachers in an electronic information and edu-
cation environment (EIE). However, not all universities were ready for this cardinal
restructuring of the educational process based on impartially different level of infor-
mation infrastructure development, availability of electronic educational resources for
disciplines and teachers’ readiness to use digital platforms and services in the educa-
tional process. The teachers and students themselves proved to be the guarantors of this
situation. They were the ones who had to be transformed and reorganized as part of the
educational process. This affected all spheres: cognitive, emotional, communicative,
organizational and other domains.

The concept of distance learning has been actively developed in the higher edu-
cation sector, where the demand for information technologies has significantly
increased in recent years. According to the scientific research literature, there are many
topics concerning the psychological and pedagogical support of online education [1–4].
Thus, among the most popular and promising trends in the field of distance learning the
following should be noted: methodological, including the formation of basic defini-
tions, identification of basic principles and categories specific to the online learning [5];
instrumental, related to the development of new training programs, educational plat-
forms and resources [6]; applied, focused on various issues of ensuring the participa-
tion of students [7], the effective work of teachers, and the development of effective
training programs; measuring and experimental, based on the development of new
scales, methods and questionnaires concerning the measurement of different states and
processes reflecting distant learning. Psychological and pedagogical direction also
plays a major role [8, 9].

The abundance of online resources, activities and communication tools presented in
online courses may be one of the factors affecting the popularity of e-learning among
students. Research into student preferences for online resources, activities and com-
munication tools is of great interest [10].

But the most important, especially in recent months, which have gone down in
history as the coronavirus period, are the papers on the environmental relationship
between family and school, individual and educational environment [11], which is
reflected in the intensification and optimization of distant learning. Teachers are
encouraged to use digital funds and resources to create innovative learning opportunities and develop creativity and critical thinking in their students [12–14].

One of the important aspects of our study was the issue of the specificity of the foreign language teacher activity. The peculiarity of the teacher’s performance in this area is manifested through the components of professional competence. The key competences of a foreign language teacher are the communicative competence, which includes the actual knowledge of native and foreign languages, psychological and pedagogical competence, which defines pedagogical consciousness, as well as self-education, since without the autonomy of a teacher it is impossible to teach.

Almost every teacher encounters professional difficulties in one way or another, which are most often the consequence of a lack of basic competencies. O. Petunin reveals the concept of difficulty as an expression of the contradiction between the need to perform a certain activity and the lack of knowledge and skills ensuring the success of this activity [15]. It implies that the professional difficulty of a teacher is a discrepancy between the requirements of the profession and the professional and personal level of the teacher’s development. Considering the issue of professional difficulties in pedagogical activity, O. V. Petunin suggested four types of difficulties: difficulties with goal setting, selection of lesson content, selection of technologies and teaching methods, control and evaluation of students’ educational and cognitive activity.

According to M. Palobo, the main difficulties for teachers arise in planning educational activities, developing the basic competencies of students and assessing learning outcomes [16].

Among the main challenges, according to T. Kasim, are the lack of experience and self-confidence; difficulties in choosing appropriate methods of teaching and evaluating students; laboriousness of the educational planning process [17].

However, the data analysis in a number of different studies revealed that psychological readiness to carry out pedagogical activities is considerably inferior to special ones. In assessing the formation of certain qualities of personality, the lowest indicators were flexibility, pedagogical ethics, self-discipline, and the aspiration to self-education and self-development [18].

The teacher today is affected by many factors that affect his condition and ability to teach effectively in different ways. Recent events that have led to an urgent worldwide transition to distance education have more than ever demonstrated the need to preserve teachers’ own resources for flexibility and sustainability.

The process aspect of the sustainability phenomenon is most fully reflected in linear and non-linear models, on the example of which the correlation and interaction of supporting factors (resources) and risk factors can be traced. The model is based on the pattern of their interaction. Linear models include compensatory and protective models [19]. The compensatory model is more frequently mentioned in studies of resistance development. This model focuses on mitigating or neutralizing the adverse effects of stressful situations through supportive factors. Exposure to stress and personality disorders and distortions is smoothed out by the compensatory effect. The protective model works on the buffering effect of supporting factors, thus mitigating and slowing down the negative effects of stressors.

The researchers, especially in recent times, are actively analyzing the positive and negative experiences of educators. Experts in the field of professional burnout have
repeatedly suggested that human behavior is determined by the interaction between personal characteristics and environmental factors that may affect satisfaction, which may eventually lead to burnout [20].

Significant research on burnout has been conducted among teachers in general [21, 22]. It is known that Ch. Maslach and S. Jackson highlight three critical components of burnout: emotional exhaustion, depersonalization, and reduction of own achievements [23]. The presence of any of the constructs suggests the existence of problems in the educational environment.

In our study, we focused on the following questions:

- Has the transition to distance format affected the sustainability of teachers in general?
- Whether age groups of teachers differed by the level of professional burnout during the COVID-19 pandemic?
- Is there a correlation between the individual psychological characteristics of teachers and factors that affected their work during the COVID-19 pandemic?

2 Methods

At the initial stage, the data obtained were subjected to the primary statistical processing and analysis. The secondary processing of the received data is presented by mathematical-statistical processing methods - correlation and factor analysis. Methods of the secondary processing were used for determination of the latent connections between components analyzed in the research.

The survey results were systematized into MS Excel tables for statistical calculations. Factor and correlation analyses were performed using the SPSS 22 Statistics computer program, which showed the links between the studied components.

2.1 Sample

The secondary data processing was aimed at studying the interrelations between individual psychological indicators, data on the results of distant work in a remote format during a pandemic, components of the professional burnout scale (emotional exhaustion, depersonalization, reduction of professional achievements), procrastination and decision-making. Teachers of foreign language of higher educational institutions of Moscow and St.-Petersburg acted in our research as a representative sample. Sixty-two teachers took part in the study. Before the survey, the respondents were given a questionnaire to indicate the information necessary for the survey: gender, age, place of residence, revenge, length of service, specialization, position.

The survey involved 62 teachers, 50 of whom were women and 12 men. The age of respondents ranged from 20 to 50+ years. All surveyed respondents were foreign language teachers (English, French, and Spanish). The experience of teachers was determined from 0.5 to 20+ years. Most of the respondents have a big (20+) and small (0.5–5) experience of work.
2.2 Research Toolkit

The research toolkit consisted of four questionnaires: the author’s questionnaire on distance working during the COVID-19 pandemic and the MBI scale by Ch. Maslach, the Melbourne Decision Making Questionnaire and a procrastination scale. For the empirical part of the study, the main ones were the Ch. Maslach scale and the distance-working questionnaire.

The Internet survey used the MBI scale for teachers. The professional burnout scale for teachers included 22 statements describing the feelings and states of teachers as a result of burnout. The emotional exhaustion component consisted of 9 statements, depersonalization - 5 statements, 8 statements characterized the reduction of professional achievements.

The author’s survey consisted of 34 questions of different types. In the first part, the questions related to the availability of experience in online teaching, the specifics of courses and forms of conducting classes, as well as the specific functions of the teacher and students. There were also questions concerning the quality of IT infrastructure and educational platform of universities. The largest blocks included factors that had a negative or positive impact on teachers and the quality of their work. All questions included the possibility to answer using a scoring scale.

The Melbourne Decision Making Questionnaire was a personal scale with 22 statements aimed at diagnosing individual decision-making styles. Four scales can be extracted from the questionnaire: vigilance (6), avoidance (6), procrastination (5), and over-vigilance (5). The questionnaire of irrational procrastination included 9 affirmations in question forms, related to the process of performing certain duties.

3 Results

At the initial stage, the data obtained were subjected to the primary statistical processing and analysis. The secondary processing of the received data is presented by mathematical-statistical processing methods - correlation and factor analysis. Methods of the secondary processing were used for determination of the latent connections between components analyzed in the research.

3.1 Descriptive Statistics

The primary data processing involved statistical analysis of averages on all scales and questionnaires. The analysis was done in accordance with age groups of respondents. The majority of respondents before the coronavirus period worked with students through educational platforms on a weekly or biweekly basis. Teachers of the first and second age groups mainly conducted practically oriented courses, while the work of teachers of older age groups included both lecture and practically oriented courses. The overwhelming majority of teachers assessed their level of knowledge of distance technologies as intermediate.
The comparison of the survey results by age groups made it possible to identify the most serious problems with distance learning during the coronavirus period in each group. The radar chart shows the average values by age groups (Fig. 1).

![Radar chart of teachers' age groups and factors that influenced the quality of distance learning. Notes: 1 – Technical problems with communication; 2 - The lack of readiness to teach online; 3 - The lack of students’ readiness to study online; 4 - The lack of appropriate equipment at home; 5 - More time to prepare for online lessons; 6 - Shortened classes; 7 - The lack of personal communication, exchange of emotions and energy; 8 - The difficulty of balancing work with family; 9 – The reduction of health-saving resources, sleep disturbance; 10 – The increase of time spent at the computer; 11 - The urgency of the transition to a new educational format; 12 - The development of new competencies, mastery of new tools and technologies; 13 - Time saving; 14 - The ability to restructure lesson content for online lessons; 15 - An opportunity to spend more time on yourself; 16 - Saving money; 17 – The level of Professional Burnout.]

The youngest group felt uncomfortable because they were not ready to work online and did not have live communication and emotional interaction. Young teachers also noted among the negative factors the lack of appropriate equipment at home. Against this background, teachers in the group had one of the lowest burnout rates.
Teachers between the ages of 30 and 40, among the serious problems they faced, noted the need for longer preparation for classes and longer sitting at the computer. On the positive side, this group noted the possibility of restructuring the content of lessons and the possibility of spending more time on themselves.

The third age group, which included educators, aged 40 to 50, highlighted among the negative aspects of teaching during the pandemic the following: students’ inability to learn online; the large amount of time required to prepare for online classes; the lack of live communication; and the long hours of computer work required for distance teaching in the new environment. It should be noted that this group had the largest number of teachers with quite high professional burnout rates.

The last group, with teachers over 50 years old, noted among the negative factors the following: technical problems with communication; increased time spent preparing for classes; lack of personal communication and exchange of emotions with students. Teachers in this age group also experienced problems because of the amount of time they spent working at the computer. Among the positive aspects mentioned were the possibility of developing new competencies, mastering new technologies and the possibility of restructuring the content of their subject courses.

A comparative analysis of the survey results on procrastination and decision-making showed that these characteristics are developed approximately equally in all age groups. No significant relationship between burnout and procrastination was found. However, decision making as an individual characteristic has revealed intersection points with burnout structures. This can be presented more clearly in a factor analysis process.

3.2 Correlation Analysis

The secondary data processing was aimed at studying the interrelations between individual psychological indicators, data on the results of distant work in a remote format during a pandemic, components of the professional burnout scale (emotional exhaustion, depersonalization, reduction of professional achievements), procrastination and decision-making.

Correlation analysis in the present research was carried out on the basis of data obtained from the Internet survey of respondents, which included foreign language teachers. The Pearson correlation coefficient for variables with normal distribution was taken as the main one. The alpha Cronbach coefficient was used to test the reliability of the research tools, which showed on average a high level of reliability with $\alpha = 0.870$. The study examined correlation relations at $p \leq 0.05$ and $p \leq 0.01$. Correlation links between parameters of different methods were considered. Links between parameters inside the scales were identified as redundant.

Correlation links were found mainly in the structure of professional burnout (emotional exhaustion, depersonalization, reduction of own achievements) and in some aspects characterizing the conditions of the teacher’s work in the coronavirus period. Negative significant one-sided correlations were found between emotional exhaustion and the level of knowledge of distance learning technologies ($-0.283\ast$); the quality of IT-infrastructure of an educational institution ($-0.276\ast$); the quality of the online learning platform of an educational institution ($-0.254\ast$). Positive significant
interdependence with the indicators of complexity of work in the framework of distance learning was identified (.397**). Correlation analysis revealed a negative significant interdependence of depersonalization with the quality of IT infrastructure of the university (−.338**) and the quality of online learning platform (−.393**). However, the greatest number of negative links showed the structure of reduction of personal achievements. It turned out that this indicator of burnout negatively correlated with the experience in preparing and conducting online courses before the COVID-19 pandemic (−.446**), the level of knowledge of distance learning technologies (−.353**), the quality of IT infrastructure of the educational institution (−.328**).

All these factors demonstrate the significant impact of the organizational aspects of distance education on the overall condition of teachers, their psychological vulnerability in the working environment during the pandemic and, in some cases, their inability to cope with technical and professional difficulties in emergencies.

It should be emphasized that interdependencies have been identified between certain individual psychological characteristics of teachers and certain aspects of teaching under conditions of involuntary self-isolation. Thus, two-way links were found between the gender characteristics and age of teachers, with indicators of difficulty in working in distance education, the level of mastery of distance education technologies and the quality of the IT infrastructure of an educational institution. The complexity of work in distance learning is related to gender indicators at $r = −.437**$ and age data at $r = .309**$. The level of mastery of distance learning technologies is related to gender characteristics at the level of $r = .337**$, and to the age of teachers at the level of $r = .469**$. Difficulties in distance education have shown a positive one-way relationship with procrastination (.314*). The most significant positive two-way correlation was found between the quality of IT infrastructure and the quality of the online learning platform of an educational institution $r = .768**$.

### 3.3 Factor Analysis

To reduce the number of variables and detect the structure in the relationships among variables factor analysis was held using SPSS 25 software. Extraction method of Principal Components Analysis was applied.

The exploratory factor analysis was carried out at the beginning of data processing. Initially, 7 factors were obtained using the main component selection method, three of which were represented by a single component with weight exceeding .450. They were chosen to be excluded from the subsequent analysis. Let us present them in weight descending order. The first factor with the highest indicators included individual psychological characteristics such as procrastination and decision making with the total indicator 4.663. The second factor is represented to the maximum extent by all components of professional burnout (emotional exhaustion, depersonalization, reduction of own achievements), with the total weight of 3.570. The third factor reflects individual characteristics including gender and age, as well as the complexity of distance learning work, with a total weight of 2.845. The fourth component with the highest weight includes factors that affected teachers to varying degrees during the COVID-19 pandemic, namely technical issues of educational support, weight 2.146.
A confirmatory factor analysis was performed to identify possible hidden variables or factors that explain the structure of correlations within a set of observed variables. This time, attention was focused on individual factors, professional burnout constructs and distance learning factors during the coronavirus period. By means of factor analysis, a large number of variables were broken down into several components that included correlated variables (Table 1).

**Table 1. Components Matrix.**

| Variables                                                                 | Components | 1  | 2  | 3  | 4  |
|---------------------------------------------------------------------------|------------|----|----|----|----|
| The urgency of the transition to a new educational format                  | .788       |    |    |    |    |
| Reduction of health-saving resources, sleep disturbance                    | .741       |    |    |    |    |
| Increase of time spent at the computer                                     | .669       |    |    |    |    |
| Emotional exhaustion                                                      | .670       |    |    |    |    |
| Reduction of personal achievements                                         | .633       |    |    |    |    |
| The lack of personal communication, exchange of emotions and energy        | .611       |    |    |    |    |
| Depersonalisation                                                          | .571       |    |    |    |    |
| The lack of readiness to teach online                                      | .551       |    |    |    |    |
| Technical problems with communication                                      | .534       |    |    |    |    |
| The difficulty of balancing work with family                              | .532       |    |    |    |    |
| More time to prepare for online lessons                                    | .494       |    |    |    |    |
| Time saving                                                                | -.613      | .479|    |    |    |
| Saving money                                                               | -.512      | .444|    |    |    |
| The ability to restructure lesson content for online lessons               | .715       |    |    |    |    |
| The development of new competencies, mastery of new tools and technologies | .663       |    |-.472|    |    |
| An opportunity to spend more time on yourself                              | .468       |    |    |    |    |
| Age                                                                       | .659       |    |    |    |    |
| Proficiency in distance learning technologies                              | -.700      |    |    |    |    |
| The lack of appropriate equipment at home                                  | .679       |    |    |    |    |

Four components were identified at this stage of the research. The first includes factors affecting teachers, the second involves the benefits of working in distance education during the pandemic, the third is represented by the age of teachers and their knowledge of polar-relationship distance learning technologies, and the fourth includes factors of not having the necessary equipment at home and the possibility of developing new competencies in the exact opposite proportion. In general, the most influential variables in the first factor are the emergency nature of the transition to the new format of learning (.788), reduced health resources and sleep disturbance (.741), increased time spent at the computer (.669), emotional exhaustion (.670). The second
block, limited to the benefits of learning during the pandemic, is presented as an opportunity to revise the content of lessons in online learning (.715) and the development of new skills, learning about new technologies (.663).

Thus, on the one hand, we can confirm the validity of the author’s questionnaire presented in the study and, on the other hand, we can highlight the most important components for the health saving resources of teachers and successful learning. These data can help to ensure a quality organization in the subsequent experience of distance learning, whether it is an emergency or a normal course of action.

4 Discussions

In this part of our paper, we will rather try to highlight the most acute and interesting points of the research, as it is still difficult to compare the results with the data of other researchers. In fact, for world education, such an experience was the first of its kind.

When considering a person’s ability to adapt quickly to changing circumstances and successfully work with information technology, it is customary to identify different age groups. The most common classification of IT users involves four groups: Baby Boomer generation (1943–1962), Generation X (1963–1984), Generation Y (1985–2000) and Generation Z (2001–2020). However, in our situation, this classification was not quite appropriate, since the study assumed that respondents had some experience. This was also in line with the common divisions in burnout detection studies among different specialists.

We decided to divide all teachers into four groups, according to their age and years of experience. As the research results indicated, in fact, for all teachers such an urgent transition to remote working mode was unexpected and stressful. Young groups were most likely helped to overcome this challenge by a not worn out organism, older age groups were helped by their experience. However, the presence of professional burnout in experienced teachers at the level of emotional exhaustion and reduction of their own achievements shows the great efforts they had to make in the given context. The relationship of the burnout constructs to distance learning factors during the pandemic has proven that more experienced professional educators are more vulnerable to such abrupt changes in professional scenarios. In fact, for all educators, the lack of live communication with students and the lack of emotional interchange have been a tough test. The difficulty was also in having to sit in front of the computer for a long time and prepare for classes for longer periods. If we remember the fact that all the respondents participated in our research are foreign language teachers, one can understand how emotionally difficult it was for them to adjust in such a short time.

Correlation and factor analyses have identified certain patterns that can help restructure the distance learning process itself. First, it concerns the importance of knowledge and possession of modern distance technologies and well-developed IT infrastructure in preventing emotional exhaustion of educational staff. The teacher’s ability to procrastinate, in some cases, can play a certain role in the issue of adjustment to rapidly changing conditions in the distance mode; sometimes on the contrary, quick decision-making may be crucial. Cognitive flexibility and experience predetermine what and when to prioritize.
Among the benefits, it would be desirable to highlight the teachers’ willingness to see the positive aspects of such a trial. For example, the opportunity to develop new competencies and master new teaching technologies. Teachers’ appreciation of the factor affecting the development of professional competences and introduction to new technologies of distance learning is rather high. The situation in the educational system of virtually the entire world has brought up the necessity to master the skills of using modern communication platforms and new software. Prior to the pandemic, about half of the respondents had used e-learning and face-to-face e-learning, while the other half had used the Moodle educational platform, some of whom had embraced blended learning. During the pandemic, educators began to actively learn and use Google Drive, Moodle, Dropbox, Zoom, MS Teams, Hangouts & WeChat and other platforms. In most universities, the introduction to new communication platforms was accompanied by specialized seminars and consultations. It is also worth mentioning the active educational work of various organizations cooperating with renowned international publishing houses and the organization of specialized courses at universities and academies of postgraduate teacher education. The opportunity to undertake additional professional training online has greatly helped teachers to overcome such a major adaptation barrier.

References

1. Glukhov, V.V., Vasetskaya, N.O.: Improving the teaching quality with a smart-education system. In: Proceedings of the 2017 IEEE VI Forum Strategic Partnership of Universities and Enterprises of Hi-Tech Branches (Science. Education. Innovations) (SPUE), pp. 17–21. IEEE, New York (2017)
2. Necheukhina, N.S., Matveeva, V.S., Babkin, I.A., Makarova, E.N.: Modern approaches to the educational process aimed at improving the quality of highly qualified personnel training. In: Proceedings of the 2017 IEEE VI Forum Strategic Partnership of Universities and Enterprises of Hi-Tech Branches (Science. Education. Innovations) (SPUE), pp. 192–195. IEEE, New York (2017)
3. Aladyshkin, I.V., Kulik, S.V., Odinokaya, M.A., Safonova, A.S., Kalmykova, S.V.: Development of electronic information and educational environment of the university 4.0 and prospects of integration of engineering education and humanities. In: Anikina Z. (ed.) Integrating Engineering Education and Humanities for Global Intercultural Perspectives. IEEHGIP 2020. Lecture Notes in Networks and Systems, vol. 131, pp. 659–671. Springer, Cham (2020)
4. Rostovskaya, T.K., Maksimova, A.S., Mekko, N.M., Fomina, S.N.: Barriers to students academic mobility in Russia. Univers. J. Educ. Res. 8(4), 1218–1227 (2020)
5. Raitskaya, L., Tikhonova, E.: Gamification as a field landmark in educational research. J. Lang. Educ. 5(3), 4–10 (2019)
6. Raitskaya, L., Tikhonova, E.: Skills and competencies in higher education and beyond. J. Lang. Educ. 5(4), 4–8 (2019)
7. Rajabalee, B.Y., Santally, M.I., Rennie, F.: A study of the relationship between students’ engagement and their academic performances in an eLearning environment. E-Learn. Digit. Media 17(1), 1–20 (2020)
8. Almazova, N., Andreeva, S., Khalyapina, L.: The integration of online and offline education in the system of students’ preparation for global academic mobility. In: 3rd International Conference on Digital Transformation and Global Society 2018. Communications in Computer and Information Science, vol. 859, pp. 162–174. Springer, Heidelberg (2018)

9. Krasnov, S.V., Kalmykova, S.V., Abushova, E.E., Krasnov, A.S.: Problems of quality of education in the implementation of online courses in the educational process. In: Proceedings of the 2018 International Conference on High Technology for Sustainable Development, pp. 1–4. IEEE, Sofia (2018)

10. Adanır, G.A., Muhametjanova, G., Çelikbağ, M.A., Omuraliev, A., İsmailova, R.: Learners’ preferences for online resources, activities, and communication tools: a comparative study of Turkey and Kyrgyzstan. E-Learn. Digit. Media 17(2), 148–166 (2020)

11. Hutchison, K., Paatsch, L., Cloonan, A.: Reshaping home–school connections in the digital age: challenges for teachers and parents. E-Learn. Digit. Media 17(2), 167–182 (2020)

12. Robinson, C.C., Hullinger, H.: New benchmarks in higher education: student engagement in online learning. J. Educ. Bus. 84(2), 101–109 (2008)

13. Grelle, W., Santally, M.I., Boojhawon, R., Rajabalee, Y., Sungkur, R.K.: Using learning analytics to investigate student performance in blended learning courses. J. High. Educ. Dev. ZFHE 12(1), 37–63 (2017)

14. Slover, E., Mandernach, J.: Beyond online versus face-to-face comparisons: the interaction of student age and mode of instruction on academic achievement. J. Educ. Online 15(1), 1–8 (2018)

15. Petunin, O.V.: Professional’nye zatrudneniya pedagoga pri vnedrenii FGOS obshchego obrazovaniya [Professional difficulties of a teacher at introduction of FGOS of general education] Sovremennye problemy nauki i obrazovaniya [Modern problems of science and education] 1, (2016). https://www.science-education.ru/ru/article/view?id=24061. Accessed 7 June 2020. (in Rus.)

16. Palobo, M., Sianturi, M., Marlissa, I., Purwanty, R., Dadi, O., Nur, A.S.: Analysis of teachers’ difficulties on developing curriculum 2013 lesson plans. In: Advances in Social Science, Education and Humanities Research, vol. 226, pp. 1319–1324 (2018)

17. Kasim, T.S.A.T., Abdurajak, F.S.: Issues and challenges in teaching and learning: an analysis of Islamic education novice teachers’ practices. Int. J. Educ. Psychol. Couns. 3(12), 99–109 (2018)

18. De Wever, B., Vanderlinde, R., Tuytens, M., Aelterman, A.: Professional Learning in Education. Challenges for Teacher Educators, Teachers and Student Teachers. Academia Press, Gent (2016)

19. Fergus, S., Zimmerman, M.A.: Adolescent: a framework for understanding healthy development in the face of risk. Annu. Rev. Public Health 26, 399–419 (2005)

20. Sunbul, A.M.: An analysis of relations among locus of control, burnout and job satisfaction in Turkish high school teachers. Aust. J. Educ. 47(1), 58–65 (2003)

21. Papastylianou, A., Kaila, M., Polychronopoulos, M.: Teachers’ burnout, depression, role ambiguity and conflict. Soc. Psychol. Educ. 12(3), 295–314 (2009)

22. Valieva, F.: Soft skills vs professional burnout: the case of technical universities. In: Anikina, Z. (ed.) Integrating Engineering Education and Humanities for Global Intercultural Perspectives. IEEHGHIP 2020. Lecture Notes in Networks and Systems, vol. 131, pp. 719–726. Springer, Cham (2020)

23. Maslach, C., Schaufeli, W.B.: Historical and conceptual development of burnout. In: Maslach, C., Schaufeli, W.B., Marek, T. (eds.) Professional Burnout: Recent Developments in Theory and Research, pp. 1–16. Taylor & Francis, Washington (1993)