

## PAPER

# Secondary School Teachers' Attitudes Towards Online Learning Tools: Teachers' Behaviour in Distance Education

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## ABSTRACT

Secondary school teachers' attitudes towards online learning tools have been modified by systemic measures adopted in the school network as a result of COVID-19. This unexpected crisis situation forced schools to quickly implement digital infrastructure and look for optimal methods of online education. The aim of this study is to investigate on which factors (gender, age and subject area taught) the use of online tools for teaching activities depends. The aim is also to explore the subjective emotional experience of teachers when using online tools and the reasons of their perceived stress in distance education in the Covid era. The factors influencing the use of online tools for teaching, teachers' subjective emotional experiences of using online tools, and the reasons for teachers' perceived burden in distance education in the COVID era are analyzed using Welch's ANOVA test and Games-Howell's Post-Hoc test. The correlation values focused on teachers' perceived feelings using online teaching tools are calculated by Pearson's correlation coefficient. The results are directed towards the level of teachers' emotional experience in the context of using online tools for the respective activity. Satisfaction and well-being are experienced by teachers when explaining, activating students, assigning written work, and providing information resources. The study identified a major problem in education, which is the use of online tools for oral examinations. Another problem is the integration of homework into online education. The study has practical impact on the integration of teachers' digital competences. A holistic approach should be developed in teacher training, seeking to fully integrate digital competences, and social and health aspects should also be taken into account.

## KEYWORDS

online learning tools, distance education, emotional experience, high school teachers

## 1 INTRODUCTION

The teaching profession requires a high level of responsibility, professionalism, promptness, concentration, a high level of creativity, flexibility and personal balance, coupled with mental health. Teachers spend a lot of time on administrative

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tasks and bureaucracy. Classes that have larger numbers of pupils with special educational needs can also be a significant stress factor [1]. The general atmosphere among teachers, the competence of supervisors and other teachers, lack of relaxation, loneliness and lack of supervision are also often mentioned as stress factors.

A specific situation arose during the pandemic in 2020, when constant information about the increasing number of infected people from all over the world, combined with isolation and quarantine, caused many teachers to feel overwhelmed and subsequently panic or anxious [2], [3]. There was a lack of social interaction and interpersonal support among colleagues [4]. Long-term stressors in the form of psychological, social, and physical strain can escalate into ineffective rigid teaching, negative workplace relationships, low self-esteem, health problems, leaving the teaching profession, or burnout syndrome [5], [6], [7].

The attitudes of secondary vocational school teachers towards distance education and online learning tools have been significantly modified by systemic measures taken in the school network, according to the above research. The sudden crisis situation forced schools to implement digital infrastructure urgently and to search for optimal methods of online education. Teachers, based on the experience gained in dealing with the COVID-19 pandemic, are now better able to support students' deep learning and are able to use information technology more effectively to present educational content, enrich learning, and optimize the teaching process [8].

This study examines the relationships among the determinants of secondary school teachers' attitudes towards online tools for supporting learning [9]. The empirical paper focuses on the distance learning behaviour of teachers working in secondary schools from the field of economics [10]. The aim of this study is to investigate what factors (gender, age and subject area taught) determine the use of online tools for teaching activities, the subjective emotional experience when using online tools and the reasons for the perceived burden of teachers in distance education during the pandemic. Correlational relationships have also been found between the variables. The need for this research was triggered by the current adverse situation in education caused by the global pandemic crisis. The contribution and at the same time the difference of this study from the existing knowledge consists in its focus on the subjective emotional experience of teachers both in connection with online oral testing and their feeling of well-being in the context of homework assignments. These aspects are crucial in the teaching profession, so it is necessary to find out the correlation between homework assignment and teachers' positive or negative feelings about this activity. The study also focuses on the plane of the use of online tools for oral testing. Through this study, it will be possible to better understand teachers' attitudes towards online tools to support teaching and their behaviour in distance education. The results can be used to help build teaching strategies that will make the teaching process more effective and positively shift the performance of teachers, and consequently students.

The following substantive hypotheses emerged from the research objectives:

- H1: Teachers' use of online tools for learning activities depends on the factors examined.
- H2: Teachers' subjective emotional experience of using online tools to support teaching depends on the factors examined.
- H3: The reasons for teachers' perceived workload in distance education in Covid time depend on the factors examined.
- H4: There is a correlation between teachers' use of online tools for learning activities and their subjective emotional experience of using online tools.

## 2 LITERATURE REVIEW

Based on practice and experience from the pandemic, most education actors now prefer open and distance learning and asynchronous approaches depending on demographic factors and social environment [11]. In contrast, studies [12] point out that teachers perceive time flexibility and, to a lesser extent, space flexibility as useful in distance learning tools. The research identified lower levels of teacher motivation and preparedness for emergency online learning. In addition, respondents expressed the belief that substitute online learning disrupts social interaction. Teachers considered their knowledge of their work style, the times when they are most effective at work, and the length of their concentration. Another study of 30 lecturers focused on the effectiveness of mobile pedagogy in distance education [13]. Teachers often simply replicate “traditional” methods in the classroom, incorporating them into online instruction by uploading instructional videos, organizing activities, and sharing assignments online. This can be done in face-to-face teaching and achieve better results than in a virtual learning environment.

Research focused on teachers of mathematics who had little previous experience with online platforms in the classroom and showed not only understandable uncertainty in using them, but surprisingly positive emotions such as their pleasure [14], [15]. These teachers want to continue to use online learning platforms for differentiation, individualization of the learning process, and better visualization of the curriculum. Respondents recognize that the extent and base of teachers’ influence on the learning process is changing. The determinants of teachers’ adaptation to the increased use of technology in education in the pandemic and the perceived effectiveness of learning through distance education is in the sights of secondary and tertiary education [16]. Research shows that teachers with high levels of personal hardiness perceive and rate themselves as more competent in coping with the daily demands of the teaching profession, and evaluate their mental and physical strength more favourably. As a result of these characteristics, teachers are less prone to subjective negative emotional experiences and will be more willing to use online learning tools. Teachers’ positive attitudes towards online teaching are influenced by the ease of use of online tools to support teaching [17].

A study that focused on intelligent recognition of teacher and student behaviour in blended face-to-face teaching [18] revealed interesting findings. The authors propose a novel Student-Teacher machine learning classification method and auxiliary discrimination rules. Based on the classification of teaching behaviours, they map the relationship between bodily movements and teaching behaviours in the classroom to provide a theoretical basis for automatic recognition and discrimination of classroom behaviours. Many teachers have a general profile of psychosocial limitations, indicating high levels of stress [19], [20]. This can lead to burnout syndrome with detrimental effects on both teachers’ health and the quality of their teaching work. According to the authors of a study focusing on 218 teachers, men are more likely than women to be exposed to serious psychosocial pressures, with the risk of ‘workload’ being 63% for men compared to 38% for women. A higher percentage of male teachers experience high workload, low decision-making freedom and low social support [19]. The above findings and premises lead to our hypothesis H1 and H4.

These findings are consistent with research focused on the emotional resilience of 226 high school teachers as a critical factor in their job effectiveness, as well as

the impact of their behaviour on students' emotional resilience [21]. 34% of teachers experienced very high levels of distress during the pandemic. The findings indicated a correlation between gender and the emergence of feelings of fear, depression and optimism. A relatively larger number of female teachers than male teachers showed high levels of fear and depression. According to this study, teachers are characterized by mental resilience, a fact that can be expected to contribute to their effectiveness as teachers. The findings above show the purpose of exploring hypotheses H2 and H3.

### 3 METHODOLOGY

The research was built as a quantitative study in order to find the key relationships between the variables under study that determine the attitudes of secondary school teachers towards online learning tools and their behaviour in distance education. The research was conducted from March to May 2023.

#### 3.1 Research sample

The research sample was selected from secondary schools in the Czech Republic with a purely economic focus that provides full secondary education with an A-level exam. This type of secondary school was chosen due to the lack of studies oriented to secondary education and monitoring the environment of this level of education with an economic orientation in the context of distance education and support for online learning. The need to investigate such a set stems from their almost quarter share in the total number of secondary schools in the Czech Republic (1285 institutions). All schools of this type were contacted, i.e. 307 institutions [22]. A total of 147 Czech teachers of different professional backgrounds, i.e. social science, science and economics, participated in the research. Teachers from 105 secondary schools of economic orientation participated in the research (Table 1).

**Table 1.** Structure of the research sample

Analyzed Trait	Absolute Frequency	Relative Frequency in %
<i>Gender</i>		
Female	106	72.1
Male	41	27.9
Total	147	100.0
<i>Age</i>		
35 and less	19	12.9
36–45	38	25.9
46–55	35	23.8
56–65	47	32.0
66–75	8	5.4
Total	147	100.0

(Continued)

**Table 1.** Structure of the research sample (*Continued*)

Analyzed Trait	Absolute Frequency	Relative Frequency in %
<i>Subject area of the taught subject</i>		
Social Sciences	66	44.9
Natural Sciences	41	27.9
Economics	40	27.2
Total	147	100.0

The sorting characteristics of the respondents were observed by gender, age and subject area taught. For the purpose of this study, the focus of the subject taught is grouped into larger areas with respect to the classification of teachers into the discipline they are professionally devoted to lifelong. Three basic groups were chosen, which also takes into account the most frequent structure of subjects in vocational secondary schools. Language teaching (mother tongue, foreign) was also included in the social sciences. Mathematical and technical subjects were also included in the science area.

### 3.2 Data and methods

The questionnaire method was used for data collection to meet the requirements for hypothesis testing and is widely used in education for these purposes [23]. The data collection was conducted in online mode. A non-standardized web-based questionnaire was designed for the research purpose. Considering the objectives, purpose of the study and connected research questions, this method and research instrument was considered the most appropriate one. This fact is also supported by other studies on which the methodological part of the paper is based. The conceptual focus of the questionnaire was inspired by research that focuses on teachers and students [24], [25], [26], [27] specifically in the context of using online tools for teaching and learning. In the questionnaire, online tools to support learning were defined in terms of a specific list of tools with respect to the possibility of communication between student and teacher or students with each other, the creation of learning tools, their sharing among learners, the evaluation of student outcomes. Several tools are relevant to the research, the selection of which is based on current studies [27], [28], examples of good practice and the experience of researchers:

1. LMS Moodle
2. MS Teams in basic level (online transmission, material insertion)
3. MS Teams (more advanced control of other applications)
4. Google Classroom
5. Zoom
6. Kahoot
7. Sli.do
8. Mentimeter

The questionnaire reflects the area of teachers' subjective emotional experience of the feelings they perceive when using online tools in teaching. In relation to this variable, it was desirable to include the reasons for the perceived burden of

teachers in distance education during the pandemic [5], [6], [7], [26]. These variables enrich the research in another interesting pedagogical and psychological area. The survey was conducted anonymously and remotely using school email direct communication with teachers or indirect communication through school principals. All sensitive data was encrypted. The questionnaire was divided into three main topic areas on which teachers expressed their attitudes. These areas were chosen because they may influence teachers' behaviour in distance education [28]. The structure of the questions in the questionnaire in relation to the hypotheses and the variables including their contractions used in analyzing the data are shown in Table 2.

**Table 2.** Substantive questions in the questionnaire in relation to the hypotheses

Topic	Question in the Questionnaire, Variable Abbreviation	Response, Type of Variable and Relationship to Hypothesis
Use of online tools for learning activities	I use online learning support tools for the above activities: – interpretation and explanation – <b>EXPL</b> – homework assignment – <b>HOME</b> – written papers/tests – <b>TEST</b> – oral examination – <b>EXAM</b> – sending additional information, links to interesting information on teaching – <b>RESO</b> – consultation – <b>CONS</b> – activation of pupils – <b>ACTI</b>	1-yes; 2-likely yes; 3-likely no; 4-no. (Ordinal variables) Hypothesis 1; Hypothesis 4
Teachers' subjective emotional experience of feelings when using online tools	When using online learning support tools, I experience: – feeling of satisfaction – <b>SATISFACTION</b> – good feelings – <b>WELL-BEING</b> – It takes a lot of strength to look professional – <b>STRENGTH</b> – high tension – <b>TENSION</b> – I enjoy teaching more – <b>FUN</b> – stress that something will go wrong – <b>FEAR_STRESS</b>	1-yes; 2-likely yes; 3-likely no; 4-no. (Ordinal variables) Hypothesis 2; Hypothesis 4
Reasons for perceived teacher burden in distance education	Distance learning during the pandemic was a burden for me because of: – fear of not being able to manage the teaching process – <b>TEACHING</b> – concerns that my digital competences are not sufficient – <b>DIGITAL</b> – worried that I can't keep the active attention of all pupils – <b>ATTENTION</b> – lack of socialization and communication with students – <b>STUDENTS</b> – lack of socialization and communication with colleagues – <b>COLLEAGUES</b> – I didn't feel any anxiety and distance learning was not a burden for me – <b>NO_BURDEN</b>	1-yes; 2-likely yes; 3-likely no; 4-no. (Ordinal variables) Hypothesis 3

The questionnaire contained questions related to the respondents' factual data in relation to the hypothesis testing. These were to determine gender, age, length of teaching experience and subject area taught (Table 1).

Prior to the actual research, a pre-survey was conducted. This stage involved 12 participants to establish the validity of the questionnaire. The research instrument was refined in terms of content and wording based on the respondents' comments. This intervention helped to increase the understanding of the text. It was able to eliminate such errors and limitations that would have led to misinterpretation of the results obtained. Reliability of the questionnaire was measured by computing the Cronbach's alpha. The questionnaire was evaluated as reliable, as the Cronbach's alpha is .758. This test yielded a satisfactory result, therefore other instruments were not used to measure validity and reliability.



### 3.3 Data analysis

The null hypotheses were tested at the 5% of significance level.

- $H_{0-1}$ : Teachers' use of online tools for instructional activities does not depend on the factors examined.
- $H_{0-2}$ : Teachers' subjective emotional experience of using online tools to support teaching does not depend on the factors studied.
- $H_{0-3}$ : The reasons for teachers' perceived burden in distance education in the Covid era do not depend on the factors examined.
- $H_{0-4}$ : There is no correlational relationship between teachers' use of online tools for learning activities and their subjective emotional experience of using online tools.

The original data are of several types, according to which appropriate statistical tests were selected. Statistical analysis was performed using SPSS software. The variables expressing the characteristics of the sample, i.e., gender, age, subject area taught, are nominal variables and are used as a sorting factor to perform comparative analyses. The data contains mostly numerical ordinal variables using a four-point Likert scale of 1 to 4. The scale with an even length was chosen to force the respondents to adopt a non-neutral attitude. This type of variables is commonly treated as a numerical variable. The attitude that research participants reported for each variable is described by the arithmetic mean and standard deviation. It is possible to use a parametric variant of the ANOVA test to compare the arithmetic means of Likert scale variables between groups divided by ordinal factors, regardless of the normality and homogeneity of the variances of the groups [29]. To verify the hypotheses,  $H_1$ ,  $H_2$  and  $H_3$ , Welch's ANOVA tests were chosen to determine whether, between groups, at least one pair of means were statistically significantly different from each other at the 5% of significance level. Using the Games-Howell's Post-Hoc test at the 95% of confidence level, specific statistically significant differences between the groups of respondents divided by sorting traits were subsequently identified. This test can be used to compare all possible combinations of group differences while violating the assumption of homogeneity of variances. The data obtained from the research meet these assumptions. A correlation matrix was constructed to determine the correlation relationships between variables for hypothesis  $H_4$ . The table presented in the Results section shows only part of it. The field inside the body of the table always contains the value of Pearson's correlation coefficient  $r$ , which is usually used for this type of data.

## 4 RESULTS

The results are published by thematic area. These are then linked to the hypotheses that were investigated.

### 4.1 Factors influencing teachers' use of online tools to support teaching

This subtopic area is associated with the null hypothesis  $H_{0-1}$ . Teachers' attitudes towards the use of the online tools we investigated to support teaching were linked

to the sorting features by which respondents are tracked. The use of online tools was first described by arithmetic mean and standard deviation (Table 3).

**Table 3.** Descriptive statistics ( $H_{0,1}$ )

	EXPL	HOME	TEST	EXAM	RESO	CONS	ACTI
Frequency	147	147	147	147	147	147	147
Mean	2.095	1.986	2.796	3.415	1.415	2.395	1.986
Standard deviation	.909	1.007	1.059	.867	.681	1.057	.868

According to the averages, teachers mostly use online tools to send additional information, links to interesting information to students (RESO: 1.415), to activate students (ACTI: 1.986) and to assign homework (HOME: 1.986). They hardly use online tools at all for oral exams (EXAM: 3.415) and written tests (TEST: 2.796).

Welch's ANOVA test was conducted to detect significant differences between teachers depending on the sorting signs (Table 4).

**Table 4.** Significance of differences in attitudes towards the use of online tools to support learning, Welch's ANOVA test ( $H_{0,1}$ )

	Gender p-Value	Age p-Value	Subject Area of the Taught Subject p-Value
EXPL	.350	.988	.593
HOME	.109	.608	.209
TEST	.380	.244	.107
EXAM	.312	.694	.321
RESO	.015	.365	.482
CONS	.703	.591	.493
ACTI	.011	.928	.091

At the 95% of confidence level of the test, at least two means are statistically significantly different from each other for the gender classifier. At the 5% of significance level, we reject the null hypothesis  $H_{0,1}$  in the case of gender. The use of online tools to support learning is gender-specific. In the case of the other features by which teachers were sorted (i.e., age, subject area taught), respondents use online tools significantly equally.

To further determine which specific groups differed from each other, a Games-Howell Post-Hoc test was performed at the 5% of significance level. It was found that females used online tools to send additional information, links to information of interest to students significantly more than males ( $p = .015$ ). Results were further described by arithmetic mean and standard deviation (female, mean: 1.302; standard deviation: .481; male, mean: 1.707; standard deviation: .981).

## 4.2 Factors influencing teachers' subjective emotional experience of using online tools

This subtopic area is associated with the null hypothesis  $H_{0,2}$ . Teachers' subjective emotional experience of feelings when using online tools was linked to sorting features. The variable was first described by mean and standard deviation (Table 5).



**Table 5.** Descriptive statistics ( $H_{0.2}$ )

	SATISFACTION	WELL-BEING	STRENGTH	TENSION	FUN	FEAR-STRESS
Frequency	147	147	147	147	147	147
Mean	2.156	2.190	3.075	3.238	2.306	2.986
Standard deviation	.774	.830	.828	.715	.941	.891

According to the averages found, teachers feel satisfaction (2.156) and well-being (WELL-BEING: 2.190) when using online tools. They hardly have to make any effort to act professionally (STRENGTH: 3.075) or do not experience high levels of tension (TENSION: 3.238). Welch’s ANOVA test was conducted to find out the significant differences among the respondents depending on the sorting signs (Table 6).

**Table 6.** Significance of differences in teachers’ subjective emotional experience when using online tools, Welch’s ANOVA test ( $H_{0.2}$ )

	Gender p-Value	Age p-Value	Subject Area of the Taught Subject p-Value
EXPL	.475	.309	.122
HOME	.970	.474	.088
TEST	.271	.590	.684
EXAM	.842	.662	.916
RESO	.346	.514	.313
CONS	.093	.550	.409
ACTI	.475	.309	.122

Regarding the significance level, there were no significant differences between at least two means for each sorting feature. At the 95% of confidence level of the test, we do not reject the null hypothesis  $H_{0.2}$ . Teachers’ subjective emotional experience of using online tools to support teaching is significantly the same. This experiencing is not dependent on gender, age, or subject area taught. For this reason, the use of the Games-Howell Post-Hoc test was not taken further. According to the arithmetic mean, teachers answered differently in all sorting signs. It should be noted that the difference in subjective emotional experience when using online tools is most evident in the case of age. Teachers up to the age of 35 experience positive feelings when using online tools compared to respondents of a higher age. These include satisfaction (up to the age of 35, mean: 1.789; standard deviation: .855), feeling good (up to the age of 35, mean: 1.895; standard deviation: .875), and the fun that teaching brings to the teacher (up to the age of 35, mean: 2.211; standard deviation: 1.084). Negative feelings (i.e., it takes a lot of effort to appear professional; high levels of tension; stress from fear of failure) are hardly experienced by this age group compared to respondents of higher ages.

### 4.3 Factors influencing the reasons for teachers’ perceived workload in distance education

This subtopic area is associated with the null hypothesis  $H_{0.3}$ . The dependence of the reasons for perceived teacher strain in distance education on respondents’

grading marks was examined. The variable was first described by mean and standard deviation (Table 7).

**Table 7.** Descriptive statistics ( $H_{0.3}$ )

	TEACHING	DIGITAL	ATTENTION	STUDENTS	COLLEAGUES	NO_BURDEN
Frequency	147	147	147	147	147	147
Mean	3.020	2.973	2.286	2.048	2.381	2.735
Standard deviation	.961	.986	.993	.975	1.002	.995

According to the averages found, the reasons for perceived burden by distance education teachers include lack of socialization and communication with students (STUDENTS: 2.048), concern that they cannot maintain the active attention of all students (ATTENTION: 2.286), and lack of socialization and communication with colleagues (COLLEAGUES: 2.381). Among the reasons for perceived stress during distance education, concerns about not being able to manage the teaching process (TEACHING) and concerns about the teacher's digital competence being insufficient (DIGITAL) were not mentioned. Welch's ANOVA test was conducted to find the significant differences among respondents depending on the sorting signs (Table 8).

**Table 8.** Significance of differences in attitudes towards the use of online tools to support learning, Welch's ANOVA test ( $H_{0.3}$ )

	Gender p-Value	Age p-Value	Subject Area of the Taught Subject p-Value
TEACHING	.495	.234	.844
DIGITAL	.001	.341	.120
ATTENTION	.106	.516	.176
STUDENTS	.295	.668	.971
COLLEAGUES	.205	.421	.593
NO_BURDEN	.008	.782	.445

At the 95% of confidence level of the test, at least two means are statistically significantly different from each other for the gender classifier. At the 5% of significance level, we reject the null hypothesis  $H_{0.3}$  in the case of gender for the reason – digital competencies of the teacher are not sufficient and distance learning was not a burden. In the case of the other traits (i.e., by age, subject area taught), respondents answered significantly the same.

To further determine which specific groups differed from each other, a Games-Howell Post-Hoc test was performed at the 5% of significance level. Females, compared to males, perceived their lack of digital competence as the reason for perceived stress during distance learning (female, mean: 2.830; standard deviation: 1.028; male, mean: 3.341; standard deviation: .762). This response is related to the statement that females felt anxious and distance learning was a burden to them compared to the subjective emotional perceptions of males (female, mean: 2.877; standard deviation: .943; male, mean: 2.366; standard deviation: 1.043).

#### 4.4 Correlations between the variables under study

Hypothesis  $H_{0.4}$  was tested by Person's correlation coefficient  $r$ , which was used to find the correlations between the following variables – teachers' use of online tools for instructional activities and teachers' subjective emotional experiences of using them. Statistical analysis was performed at the 5% significance level (Table 9).

**Table 9.** Correlation matrix – Pearson's  $r$  and  $p$ -values ( $H_{0.4}$ )

		EXPL	HOME	TEST	EXAM	RESO	CONS	ACTI
SATISFACTION	$r$	.300	.223	.240	.137	.370	.226	.411
	$p$	<.001	.007	.003	.097	<.001	.006	<.001
WELL-BEING	$r$	.284	.134	.216	.194	.392	.226	.517
	$p$	<.001	.105	.009	.019	<.001	.006	<.001
STRENGTH	$r$	-.064	.124	.057	.185	.042	.021	-.018
	$p$	.441	.133	.496	.025	.616	.802	.832
TENSION	$r$	.049	.014	.074	.182	-.078	.002	.005
	$p$	.554	.866	.376	.027	.350	.983	.950
FUN	$r$	.214	.113	.242	.204	.367	.167	.441
	$p$	.009	.173	.003	.013	<.001	.043	<.001
FEAR-STRESS	$r$	.221	-.038	-.046	.007	-.137	-.060	.035
	$p$	.007	.644	.576	.930	.097	.473	.672

Several significant positive relationships were detected by correlation analysis. At the 5% level of significance, we reject the null hypothesis  $H_{0.4}$  of the validity of the lack of a correlation between teachers' use of online tools to support instruction and teachers' subjective emotional experience of their use. Weaker positive correlations are detected between the variables under study.

The weaker correlation, which was also found to have the highest Pearson's correlation coefficient ( $r$ ), was the good well-being experienced by the teacher when using an online tool to activate students ( $r = .517$ ) and the feeling of satisfaction from using online tools to activate students ( $r = .411$ ). Feeling satisfied is weakly positively correlated with almost all aspects of using online tools to support instruction except for oral testing (Table 9). Similarly, this relationship was demonstrated for sense of well-being with all aspects of using online tools to support learning except for homework assignments. Teachers enjoy teaching more in relation to the use of online tools for the learning activities we examined with the exception of homework assignments. In the case of using online tools to activate students, a positive correlation was found with a higher Pearson correlation coefficient value ( $r = .441$ ). In the other cases, the  $r$  values are in the range of .167 to .367.

The negative emotional feelings that teachers subjectively experience when using online tools for teaching were detected as follows: it costs me a lot of energy to act professionally; a high degree of tension; stress from the fear of failing. A high degree of tension ( $r = .182$ ) and having to appear professional ( $r = .185$ ) is experienced by teachers when using online tools for oral testing. However, this is a weak positive correlation. Stress from fear of failing is experienced by teachers when using an online tool to explain and explain the material ( $r = .221$ ).

## 5 DISCUSSION

The study focused on the relationships among the factors determining attitudes towards online teaching tools of Czech teachers of different backgrounds working in secondary schools of economic orientation revealed several important areas, which are mainly directed to the level of subjective emotional experience of teachers in the context of using online tools for the respective teaching activity. Not surprisingly, teachers in the first wave of the pandemic complained of negative affective responses to the use of online technologies [30]. Gradually, as online tools became an integral part of the learning experience, teachers felt positive emotions, particularly pleasure, satisfaction [14]. This finding from 2022 is confirmed by our study, which extends it with new insights precisely in terms of the existing correlations between the emotional experience of feelings and the use of online tools for learning activities. In addition to the existing studies on which this research is based, it was found that teachers experience a sense of satisfaction, especially with regard to their explanations to students, assignment of written tasks, providing additional information, during consultations, and for activating students. These findings are connected to their usage of online tools for these activities. Simultaneously, they experience a sense of well-being and enjoy their teaching more during these activities. The results suggest that teachers may also be more motivated [30]. Research from 2020 showed a clear link between motivation and the continuation of online learning, whether extrinsic or intrinsic, cognitive or affective, positive or negative.

Study [30] thus highlights a persistent problem in education, the so-called technostress. That is, that teachers have failed to cope with the challenges of using technology to support online learning. Our study is consistent with this premise. Namely, respondents do not experience satisfaction from oral examinations and a sense of well-being is not related to homework assignments. In contrast to that research, our study showed that they experience a high degree of tension during this activity. They also admit that it is necessary to make a lot of effort to perform professionally. There was no correlation between homework assignments and teachers' perception that they enjoy teaching more. That is why our study contributes to a new and fundamental finding that a problematic area in education is related to the use of online tools for oral testing. Technical and ethical considerations may play a role in this activity [31]. Another problem is the integration of homework into online education. Teachers experience stress from the fear of failing something when using an online tool to explain and explain the material. It should be noted that exposure is a crucial phase of learning. Teachers' negative feelings about using online tools detected by our research show the evidence that distance learning was a burden for teachers. This burden was felt more by women than men, who also admitted that the reason for this burden for them was their lack of digital competence. Early awareness of stress levels leads to better emotional self-control and the adoption of more effective coping strategies to avoid the occurrence of burnout dimensions and to achieve a balanced state of mental health [30]. Awareness of the motivational strategies adopted by each teacher can lead to better self-control. There is still a need for a solid teacher training oriented to problem-based and activity-based learning tasks, based on knowledge-based information technology, facilitating a sudden adaptation to a new type of online learning [32].

There are some limitations of the study that point to additional opportunities for future research. In the first place, it is the structure and balance of the research sample that makes it impossible to generalize the results. The respondents were classified according to three basic characteristics – gender, age and subject area taught. In order to demonstrate the influence of gender on some of the variables

under study, the research needs to be repeated on a larger number of respondents. Furthermore, the study did not take into account all the possible factors that may influence teachers' attitudes towards online tools to support teaching, such as differences according to their temperamental characteristics or correlations between the activities used to harmonize mental balance.

## 6 CONCLUSION

The aim of this study is to investigate on which factors (gender, age and subject area taught) the use of online tools for teaching activities depends. The aim is also to explore the subjective emotional experience of teachers when using online tools and the reasons of their perceived stress in distance education in the Covid era. This study has several implications, particularly in relation to the development of positive attitudes towards the use of digital technologies in education. The study has practical impact on the integration of teachers' digital competences. A comprehensive approach should be developed in teacher preparation for the sustainability of quality education, seeking to fully integrate digital competences with a particular focus on providing diverse and progressive experience of students of teaching, cf. [33]. However, in addition to feasibility and usefulness, social and health aspects should also be taken into account when developing new teaching and learning formats. Workshops and other courses on useful technologies should be offered to teachers, taking into account their needs, in order to avoid the occurrence of burnout and to achieve a sustainable mental health balance. The study has also theoretical implications for future research that can extend this knowledge. Future research will be focused mainly on generalizing the results and expanding the range of variables on which the use of online tools in teaching and teachers' subjective emotional experiences may depend.

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