

Implications of Teacher Motivation in the Digital Age: Does Teacher Motivation Contribute to the Adoption of E-Learning Tools

Ivana Načinović Braje *, Josip Topčić

Faculty of Economics and Business, University of Zagreb, 10 000 Zagreb, Croatia

Abstract: Modern technology has changed the traditional education system as we know it. This has been especially evident during the pandemic, when, as an emergency response to COVID-19 lockdown, the wave of intense digitalization of education and teaching methods spread around the world. However, e-learning tools have been developing intensively ever since 1990s and many teachers used them before, and continued to use them after the lockdown. This paper tests whether educators' motivational factors are in any way related to the use of new digital tools in classrooms. Empirical research was conducted among 140 elementary school teachers in Croatia.

Keywords: Teacher Motivation, E-Learning Tools

1. Introduction

Teacher motivation has attracted a lot of research interest. Motivation has been defined as the energy or drive that moves people to do something by nature [1]. With respect to teacher motivation, Sinclair [2] defined it as something that determines “what attracts individuals to teaching, how long they remain in their initial teacher education courses and subsequently the teaching profession, and the extent to which they engage with their courses and the teaching profession” [2, p.37]. The level of teacher motivation has important repercussions for educational system, such as student motivation and performance, but also educational reform and teaching practice [2]. Research on teacher motivation for the job showed that sources of teacher motivation include a mix of internal and external motivation sources, from desire to be successful, and teachers' autonomy in managing curriculum and course times as internal ones, to external sources of motivation related to national education policies, school principals' or colleagues [3]. Specifically, extrinsic factors related to teachers' profession such as salary, job satisfaction, the perceived status and career prospects of teachers, and schools as a working environment will often be less favourable for teachers compared to other professions [4]. Not surprisingly, many countries report teacher shortages thus understanding motivation to teach may be important for engaging candidates in this profession.

In the last few years, and especially after the lockdowns and home schooling, teaching has been experiencing a form of digital revolution which required teachers to adapt

to new digital tools. In addition to computer literacy, digitalization required high teacher engagement, which came to the real test during the wave of the COVID-19 pandemic when teachers had very tight deadlines to prepare for the distance learning and the use of e-learning tools [5, 6]. Although there are numerous definitions of e-learning in the literature, for the purpose of this work we use a broad definition defining e-learning simply as learning and teaching facilitated through network technologies. During the period of online teaching supported with technologies, it became clear that the involvement of teachers in the use of modern technology aids varies greatly and that not everyone is embracing new teaching tools with the same level of motivation. Motivated behaviour shown by teachers, along with professional learning and teaching, can be positively influenced by motivational factors [7]. This paper uses the assumption that the use of e-learning tools depends on the instructor's attitude and examines whether teacher motivation was among key factors that determined their use new digital e-learning tools.

2. Theoretical background

Teaching is perceived as a career high in demand, but low in return [8], which makes teacher motivation a complex multi-facets issue, ranging from motivation to choose teaching profession (e.g. see [9]) to motivation with respect to specific frame of reference, for example, teaching itself. Previous research mostly grouped teacher motives into three distinctive groups: intrinsic motives (e.g. person's liking and interest in teaching and gaining

* Corresponding author: ivana.nacinovic@efzg.hr

satisfaction from teaching), extrinsic motives (e.g. pay or career growth) and altruistic motives (e.g. related to the aspects of the profession that are not derived from the job itself, like long holiday) [4, 9]. Among these, many researchers emphasize the importance of intrinsic motives for teachers' commitment and the choice of teaching as a career [4], for example: interest in teaching, self-efficacy, passion for the profession and working with children [e.g. 9-12]. High rated motivators for the choice of teaching as a career include perceived teaching ability, intrinsic value of teaching, acquisition of new experiences, the desire to make a social contribution, the satisfaction of working with children/adolescents, having positive prior teaching and learning experience and the feeling that the individual is learning something new every day and improving themselves [8, 9, 11]. When it comes to sources of motivation to teach, a research by [9] on the motivation for choice of teaching as a career by using "FIT-Choice" (Factors Influencing Teaching Choice) Scale showed that no great differences have been found depending upon contextual country features. Still, motivation to teach may vary between different groups based on gender, minority groups, differing academic achievement [2].

Often mentioned theoretical framework for explaining teacher motivation is self-determination theory (SDT) [13]. SDT, as a broadly used theory, proposes that in studying motivation towards physical activity, for a behaviour to be self-determined, three psychological needs that have to be fulfilled: autonomy, competence and relatedness. In other words, teacher's perception of autonomy with respect to an action (e.g. absence of external pressures or student pressures), leads to motivation, just as feeling of competence with respect to a certain action [14]. Central to SDT is the idea of autonomous motivation, denoting that a person is free to initiate and regulate one's behaviour [12]. Ryan & Deci [13] further developed the dichotomous intrinsic-extrinsic view of motivation into a more elaborated framework where extrinsic motivation is broken down into external (behaviour regulated by external forces such as monetary rewards), introjected (behaviour is regulated by internal pressures such as a sense of obligation or feelings of guilt and anxiety), and identified motivation (based on the self-endorsed value of a task). Roth et al. [10] further developed and tested this model specifically for teachers, concluding that teacher motivation has an impact on student performance.

Motivation leads people to act to reach their goals and to make efforts toward their aims. Teacher engagement in professional learning activities can be supported by several motivational factors, such as expectancy, value, and affective components where teachers' sense of self-efficacy was found to have greatest effect [15, 7]. Self-efficacy in this context denotes expectancy about the level of competence that a person will display in a given situation. As argued by [7], when teachers have a high sense of self-efficacy, they tend to exhibit greater levels of planning and organization, are more open to new ideas and more willing to experiment with new methods, work longer with students who need additional help, intensify their efforts when their performance falls short of their goals, and persist longer. In the same vein, it could be

expected that teachers will also be more motivated to learn new digital tools and use them in their classrooms. In addition to expectancy about professional development, transformational leadership also supports the innovation of teaching practices [15, 16].

3. Methodology of research

Present research took place among teachers working in several elementary schools in Croatia. After non-probability convenience sampling based on geographical proximity and existing contacts, a total of 140 filled questionnaires were collected during 2021. The subject of the empirical research was to determine to what extent do teachers use modern e-learning tools and whether the rate of use is related to their motivational factors. All of the variables in the research model were operationalized as close-ended questions. For the purpose of conducting this research, a three-part survey questionnaire was created. The first part of the questionnaire referred to the sociodemographic characteristics of teachers, the second part used [10] instrument to measure the sources of teacher motivation with four subscales assessing external, introjected, identified, and intrinsic motivations, and the third part consisted of several closed-end questions intended to collect information on the use of modern e-learning tools (which tools they use, whether they are educated about new technologies and their use, whether they have adequate equipment for the use of e-learning tools etc.). Profile of respondents is shown in Table 1.

Table 1: Socio-demographic profile of respondents

Variable	%
Gender	91.4 % female, 8.6% male
Age group	11.4% age group 20-30, 32.9% age group 31-40, 37.1% age group 41-50, 17.1% age group 51-60and 1.5% of respondents 60+
Household members	1 (5.7%), 2 (17.1%), 3 (27.9%), 4 (32.1%), 5+ (17.1%)
Teaching experience	< 5 years (13.6%), 5-10 years (10.7%), 11-20 years (41.4), 21-30 years (23.6%), > 30 years (10.7)
Mostly teaching	Junior classes, 1-4 (37.1%), Upper classes, 5-8 (62.9%)

Table 1 shows that sample was biased with more women (91.4%). Most respondents are middle-aged between 40 and 50 (37.2%), and living in households of 3 (27.9%) to 4 (32.1%) members. The propensity of teachers to use new technologies was examined with three questions, by using a using a Likert type scale of 1 (less use of new technology)-5 (most use of new technology).

Table 2: The propensity to use new technologies among teachers

Age group	Men			Female			Average		
	Average	Min	Max	S.d.	Average	Min		Max	S.d.
20-30	3.23	1.0	5.0	1.3	4.31	3.0	5.0	0.4	4.04
31-40	3.75	2.7	4.7	0.2	3.17	2.3	4.7	0.1	3.68
41-50	3.67	3.0	3.7	0.0	3.56	1.0	5.0	1.2	3.74
51-60	3.67	3.0	4.0	0.3	3.31	1.0	4.7	1.3	3.63
60+	5.00	5.0	5.0	0.0	2.00	2.0	2.0	0.0	3.50
Average			3.66	Average			3.74		

The highest recorded average value per age group for the tendency to use new technologies is 4.04 and refers to the age group from 20 to 30 years old (s.d.= 0.92). The highest percentage of teachers (60.7%) reported that they spend between 2-3 hours daily at the computer for the purpose of developing new teaching materials or assessing student assignments.

4. Research results

This research examined the use of e-learning tools. Based on previous findings on often used e-learning tools in Croatia, all respondents were asked to select from the offered list which tools they used while teaching recently.

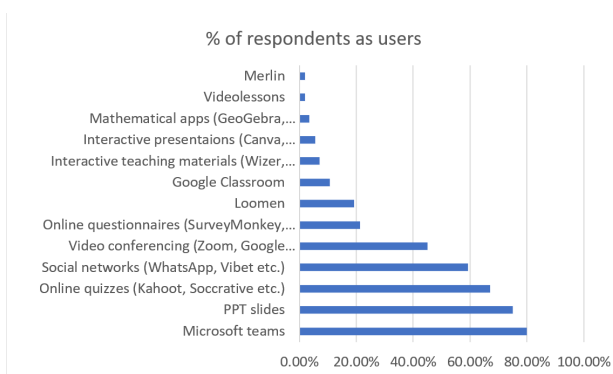


Figure 1: The use of e-learning tools

Most often used e-learning tool is Microsoft teams, used by 80% of respondents. Microsoft Teams for Education was obtained by the Croatian Ministry of Science and Education for all schools when they were forced to implement distance learning, so such high percentage was

expected. Relatively high percentage of teachers uses PPT slides (75%) and online quizzes (67.1%), but other technologically more advanced tools like interactive presentations or interactive teaching materials are used by less than 10% of respondents.

The second part of the questionnaire referred to the sources of teachers' motivation, where Roth et al. [10] classification of teachers' motivation sources was used (external, intrinsic, introjected and identified motivation).

Table 3: Sources of teacher motivation

Motivation source	External	Intrinsic	Introjected	Identified
Average (s.d.)	2.31 (0.97)	4.26 (0.68)	3.70 (0.78)	4.17 (0.61)

Most important source of motivation for the examined group of teachers were intrinsic and identified motivation, whilst external motivation was rated lowest, although with highest standard deviation. In the second step, the use of e-learning tools was correlated with different sources of motivation. Surprisingly, no statistically significant correlation coefficients were detected, indicating that the use of e-learning tools on the sample of teachers in elementary schools in Croatia is not strongly related to their motivation, but the consequence of some other factors.

Table 4: Correlations between sources of motivation and the use of e-learning tools

		Number of used e-learning tools	External	Intrinsic	Introjected	Identified
Spearman's rho	Correlation Coefficient	1.000	.100	.130	.058	.043
	Sig. (2-tailed)	.	.241	.126	.499	.612
	N	140	140	140	140	140

** . Correlation is significant at the 0.01 level (2-tailed).

5. Discussion and conclusions

Teacher motivation has provenly important role when it comes to adopting teaching practices, but even more supremely, it impacts teachers' and students' performance [1]. On the other hand, teachers have a crucial role in the efficient implementation and use of ICT and e-learning tools in the educational process. This paper thus specifically focused on teacher motivation in the context of using e-learning tools. Research results analysing the sources of motivation among teachers are fully aligned with previous research results indicating teachers are dominantly intrinsically motivated (e.g. [9-12]. In addition to intrinsic motives, examined teachers in Croatia

show a relatively high identified motivation. According to [10] this sort of motivation results from identifying with the importance of the behavior vis-a-vis the person's own values and goals („because it is important to the teacher“). Research results do not provide evidence for the initial assumption claiming that teacher motivation might be the key driver leading to implementation of e-learning tools in classrooms. Most likely, other reasons such as the level of teacher's digital skills, readiness and confidence in using technology have more important role than the motivation itself. For example, similar research among primary school teachers found that teaching skills, teachers' beliefs, and the appropriate infrastructure are all critical factors for the successful implementation of information technology in the educational process, and that teachers often lack appropriate skills and equipment for a more extensive use of e-learning tools [5]. Also, this paper is grounded in SDT view of motivation, while there are also other theories that can be used to explain teachers' work motivation (e.g. see [6]). Additional reasoning for the lack of correlation between teacher motivation and the use of e-learning tools might be related to the profile of sampled teachers, as they are mostly mid-aged and have moderate readiness to use new technologies. Future research on this topic could include more younger employees that have more favourable attitude to technology.

Research results could be used by schools' management, as they indicate that the use of e-learning tools can be supported by numerous factors and is not dependent only upon teacher's motivation.

This research has several limitations. Sample was biased and included more female respondents. Sample included only elementary school teachers so the use of e-learning tools can be determined by students' digital skills. Sample is not representative for all teachers in Croatia as majority of respondents come from central Croatia. All information about motivation was self-reported so socially desirable responses might have occurred.

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