

EFFECTIVE STRATEGIES TO MANAGE TEACHER INTELLECTUAL WORK PRODUCTIVITY IN DISTANCE LEARNING

Natalia Kharadze

Ivane Javakhishvili Tbilisi State University, Georgia

Maia Giorgobiani

Ivane Javakhishvili Tbilisi State University, Georgia

Tina Melkoshvili

Ivane Javakhishvili Tbilisi State University, Georgia

Lia Dzebisauri

Ivane Javakhishvili Tbilisi State University (TSU), National Statistics Office, Georgia

Dea Pirtskhalaishvili

Ivane Javakhishvili Tbilisi State University, Georgia

ABSTRACT

This article aims to empirically determine effective strategies to manage intellectual work (IW) productivity (IWP) in distance learning (DL) using the example of university teachers in Georgia. Based on expert assessment methods, indicators for assessing the level of Teacher Intellectual Work Productivity (TIWP) of three large universities in Georgia and its current level were analyzed using the method of integral assessment. The main factors influencing the TIWP at DL were determined using the ANOVA method. We used the decision tree to systematize the factors of influence to TIWP and substantiate effective management strategies, taking into account teachers' qualifications, age categories, and competencies to ensure the continuity and quality of DL. The results allow flexibility in managing the TIWP in DL conditions and determining the most effective management strategies, considering the characteristics of teachers and the current level of development of the TIWP.

Keywords: Georgia, university, intellectual work, productivity, management, strategy, distance learning

DOI: <http://dx.doi.org/10.15549/jeecar.v8i4.840>

INTRODUCTION

In 2020, travel restrictions throughout Georgia were established, and public places and

institutions, including educational organizations, were closed due to the COVID-19 pandemic (Husch Blackwell, 2021). Since the spring of 2020, the Ministry of Education has officially

approved the requirement for the forced transition to online education for all the country's educational organizations (Garda World, 2020). The Georgian's education system was highly improved by international partner organizations (Microsoft and the Organization for Economic Co-operation and Development, OECD), but in actuality, access to education in the higher education system was not ensured (OECD, 2019a). In 2020, the Government of Georgia used about 80% of 1.8 billion lari, to finance preschool and secondary education spheres, with the remaining money invested in professional and higher education (Owens, 2021). The rate of enrollment in higher education in the country is overgrowing. Still, the funding level remains relatively low in comparison with international standards (around USD 442 PPP in 2016, compared to over 105,000 USD PPP across OECD countries) (UNESCO-IUIS, 2021). This low spending was one of the main reasons the higher education system was unable to effectively respond to the challenges of the pandemic by transitioning to DL.

The economic development of the regions of Georgia strongly depends on geographical location. Therefore, the country is characterized by a high level of social inequality (Gini coefficient of 0.36) (Trading Economics, 2021). Despite Georgia's relatively high Internet penetration rate, many students living in remote rural and mountainous areas are at a digital disadvantage. The situation is even worse for students from poor and/or disadvantaged families. It is not typical for them to have devices with access to online classes and pay monthly bills for the Internet. Due to the low level of social assistance in Georgia, such university students become socially vulnerable. Today, they are outside the scope of higher education (National Statistics Office of Georgia, 2021).

With the aforementioned destructive factors for a DL provision in Georgia requiring a reorientation of state policy, the crucial problem is that low TIWP impedes DL implementation. Many teachers do not have the skills to use ICT to provide DL, primarily due to the aging workforce in Georgian universities. According to OCED estimates, almost one in four teachers is over 60 years old (compared to, for example, one in twenty across TALIS-participating countries)

(OECD, 2019b). The current situation is a consequence of implementing the state policy in Georgia to support an aging teaching workforce amid increasing differentiation between the decrease in the number of students by 21% and teachers by 1% over the past ten years (National Statistics Office of Georgia, 2021). The low TIWP level of universities in DL conditions against the background of the protracted COVID19 pandemic carries an even greater risk of aggravating the problem of the quality of higher education in Georgia: the discrepancy between the professional content of education and the changing landscape of employment following modern socio-economic development trends.

Data from Our World in Data as of the end of October 2021 indicated that Georgia was ranked fifth in the world in terms of the spread of coronavirus and is on the verge of the third wave of the pandemic (Our World in Data, 2021). As a result, this means the continuation of the regime of social isolation and DL for an indefinite period. This article therefore aims to develop an approach that allows empirically substantiating the most effective strategies to increase the TIWP of Georgian universities to ensure a high-quality educational process and its continuity in the conditions of forced DL.

LITERATURE REVIEW

IW is a mental information-intensive activity characterized by a high tension per unit of working time and higher value creation (Örnek & Ayas, 2015). Labor productivity, traditionally as an economic category, reflects the beneficial effect of a particular type of labor, expressed in the creation of various kinds of products, ensuring the satisfaction of multiple types of needs of society (Maghlaperidze, Kharadze, & Kuspliak, 2021). But considering the mental (intellectual) component of work, one can testify to such a specific feature of it as complexity (Örnek & Ayas, 2015). The main criterion of labor productivity is professional competence used for beneficial human activity and the correspondence of professional specialization to work performed (Suliman & Mansor, 2018). In that case, IWP is based on the qualification level of the worker and its compliance to the level of complexity of the work performed (Utama, Sagala, & Sitompul, 2017). Improving the quality

of IW provides an increase in the complexity of labor or its volume, which leads to a natural increase in the produced value of the product per unit of working time, i.e., increased productivity (Örnek & Ayas, 2015). Therefore, it is the quality of a certain level of complexity of IW that determines the productivity of IW. The quality of work changes directly according to the quality of the created product. Therefore, in this study, we view TIWP as the correspondence of the qualification level or competence of the teacher to the level of complexity (quality) of the educational process corresponding to the current academic standards. This approach concretizes the terminology of IWP in education, which has not been widely reflected in the scientific, economic literature.

In the modern literature, an abundance of approaches to the management of IWP has not yet developed. Still, several of the most common ones can be distinguished, such as analysis of the labor activity of workers, analysis of job descriptions, timing observations (photographs of the working day), and expert assessment (Budiarti, 2017; Örnek & Ayas, 2015; Hanushek & Ettema, 2017). In contrast to the evaluation of labor productivity in material production, where the evaluation criteria are cost indicators, as already noted, intellectually complex work is assessed by the quality of labor results. In higher education, the quality of the educational process is most often used as a criterion for evaluating labor productivity (Hanushek & Ettema, 2017). Two groups of indicators are used to assess the quality of the educational process, and, consequently, the performance of IW:

1. Performance indicators that characterize university students and graduates (% of those working in the specialty, the level of remuneration of students/graduates, etc.) (Goldhaber & Startz, 2017; Tsymbalenko, Tarasenko & Bielialov, 2019);
2. Process indicators that characterize the current quality of the educational process. These are student performance indicators, provision of methodological materials, practical orientation of the educational process (Hanushek & Ettema, 2017; Goldhaber & Startz, 2017).

Performance indicators characterize the performance of IW as a whole for a university or structural unit of the university. But these indicators do not allow assessing the individual performance of a university employee. Therefore, we cannot determine the compliance of the teacher's qualification level with the complexity of the work performed at the university, nor can we solve this problem due to the IW process quality indicators in the field of education. Nevertheless, these indicators also cannot reflect the most complete and reliable assessment of the TIWP. The following are disadvantages of evaluation criteria: they are limited because the progress of students depends not only on the level of competence of students but also on the scale of assessment and the form of control of knowledge; and the level of provision of methodological materials and the practical orientation of the educational process are subjective characteristics.

Considering these shortcomings of indicative approaches, we have developed indicators for assessing the IWP in education on the example of universities in Georgia, taking into account the peculiarities of IW in the field of education and factors that determine the particular complexity of the quality of work.

METHODOLOGY

We used questioning methods and Delphi for the study, which were implemented through remote anonymous discussion. An expert group of 50 people has been formed - representatives of Learning Process Management Department of Ivane Javakishvili Tbilisi State University, Quality Assurance Service of Batumi State University, named after Shota Rustaveli and Akaki Tsereteli State University. The competence of the expert group was ensured by the experience of experts of at least five years in education. The object of the research was the productivity of intellectual labor during distance learning of teachers from the following universities in Georgia: Ivane Javakishvili Tbilisi State University, and Batumi State University named after Shota Rustaveli, Akaki Tsereteli State University. Experts assessed the performance of 1- to 5-year students of the Faculty of Economics of designated universities in Georgia and developed a list of tasks. These same students were experts for assessing the

competence of university teachers.

The survey was conducted for the 2020-2021 academic year (Google Forms, 2021). The survey involved assessing the TIWP of Georgian universities in the following areas:

1. To assess student performance during DL. For this purpose, according to the test questions developed by the expert group, an intermediate control of students' knowledge was carried out. The performance indicator they assessed in the range of "0" - "50" points for each discipline to characterize the IWP of an individual teacher. The grading range involved the number of assignments in each discipline and the way they were graded. The calculated coefficient of validity was 0.82. We calculated TIWP in student performance as the arithmetic means of the ratios of points at the end of the academic course to the sum of points at the beginning of the academic course for each student studying per discipline. When calculating the average values, we excluded the extreme assessments of those students according to the Dixon criterion (Bohrer, 2008). We calculated the coefficient of variation of IW performance estimates for teachers who teach three or more academic courses. The variation coefficient did not exceed 10%.
2. To assess the provision of the educational process with methodological materials and practical orientation. These components of the quality of the DL were evaluated by the students and the expert group during the questionnaire survey. The evaluation was carried out on a 10-point scale, where the grade "1" corresponded to the low quality of the teaching material according to students and experts, its incompleteness, irrelevant data, low semantic load, and inaccessibility of the material (lack of physical access and lack of understanding of the content of discipline). Assessment "10" represented a high quality of teaching material. Assessing the practical orientation of the educational process in individual disciplines was similar. A score of 1 point corresponded to an academic discipline with no valuable exposure and did not allow the formation of the skills necessary for a future specialist. According to experts and students, a course

with a score of 10 points focuses on acquiring competencies applicable in practice. The integral indicator of the quality of the educational process was calculated using the formula:

$$TIW = w_a \times \sum \frac{AP_i}{AP_0} / n + w_M \times (k_s \times M_s + k_e \times M_e) + w_p \times (k_s \times P_s + k_e \times P_e) \quad (1)$$

where:

TIW is an integral indicator of an individual TIWP;

w_a , w_m , w_p are the coefficients of the significance of the components of the integral indicator in determining the TIWP: student performance, quality of methodological support, practical orientation of the discipline, respectively (equal in weight $w_a = w_m = w_p = 1/3$);

k_s , k_e are coefficients of the importance of opinions of students and experts ($k_s = k_e = 1/2$);

AP_i , AP_0 are normalized assessments of student progress at the end of the study of the academic discipline and before its start, respectively;

n is the number of students studying the academic discipline;

M_s , P_s , M_e , P_e are standardized points assessments of the quality of methodological support and practical orientation of the discipline to the opinion of students and experts.

The obtained TIWP values were divided into levels according to the Fibonacci rule (Endovitsky et al., 2019): low level TIWP [0; 0.382], medium (0.382; 0.618], high (0.618; 1].

3. To identify the factors influencing TIWP in the context of DL. Up to 300 faculty members are employed at the universities mentioned above in economics and business. 265 respondents took part in the survey, which characterizes the sufficiency of the sample population for assessing the labor productivity of teachers of economic specialties of the studied universities at a significance level of $p = 0.05$. The representativeness of the respondent sample we ensured by:

- Sufficiency of the sample at the level of significance $p=0.05$ (Taherdoost, 2017);
- Representation of universities that occupy different positions in international rankings and have various opportunities for DL;
- Absence of statistically significant t-test differences in the revealed nature of the influence of factors on the TIWP of multiple universities.

We formed the list of factors influencing the TIWP based on: Maghlaperidze, Kharadze & Kuspliak, 2021; Guliyeva et al., 2021; Pirtskhalaishvili, Paresashvili & Kulinich, 2021; Vasiljeva et al., 2020; Lysiuk & Britchenko, 2020.

We used the following for the statistical processing of the results of the questionnaire and the development of TIWP management strategies at DL:

1. Analysis of variance ANOVA in Statistica 12.0 to determine the factors of influence;
2. The decision tree method in the Deductor Studio Academic 5.3 program to determine the conditions to implement TIWP control strategies during DL. As independent variables, we used the answer options in the questionnaire to determine the factors influencing the TIWP, with dependent variable the TIWP management strategy during DL.

RESULTS

The share of young teachers aged 20-24 in the surveyed respondents is 1.5%, those aged 25-29, 3.8%, and those aged 30-34, 7.9%. The percentage of the respondents increases with age, although the age group of 65 is 2.3% and over 65, 7.5%. It is important to note that the share of young people is much lower than that of retired people; we think we need to take some measures to attract more young people.

According to marital status, married people predominate with a percentage of 59.2%. The share of single people is 23.4%, divorced, 9.8%, and widowed, 7.5%. The share of single and divorced people is highest in the 45-49 age group, 16.1%, and 26.9%, respectively.

Among the respondents, 70.2% have children,

and 29.8% do not, which is natural, as this figure almost coincides with the share of single people. As the results of the research show, family and children do not impede personal development. In all cases (it does not matter if the respondent is married and has children), more than 80% of the respondents devote their free time to personal development.

Work experience influences many factors. According to the research, 3.8% have less than one year of work experience. Work experience of 1-3 years is observed by 4.9% of the respondents. The share of teachers with 4-8 years of experience is 12.8%, and 52.9% have more than nine years of work experience.

The teachers can use a flexible work schedule, given that in some cases they can plan their lecture-seminar schedule. 61.9% of the respondents stated that they could use a flexible work schedule.

77.4% of the respondents stated that they can work from home, although the answer "partially" was given by 20.4% and the answer "no" by 2.3%. In total, 22.7% of the respondents do not have the conditions at home to work remotely.

72.5% of the respondents managed to reconcile family affairs with work, and 27.6% answered "no" or "partially." This figure is approximately equal to the number of respondents who reported not having adequate family conditions. But no matter how surprising, according to the survey women (78.1%) are more likely to combine household chores with work than men (21.9%).

30.2% of the respondents find it challenging to combine childcare with work. It is interesting if these respondents find time for self-development. At least 81.7% of the respondents with children can devote free time to personal development, however some differences were observed with respect to gender. 79.1% of women with children spend their free time on personal development. The same indicator among men is 89.4%.

71.3% of the respondents feel the help of family members in their career advancement, 28.7% of them answered "partially" or "no". It is interesting to see the connection between this question and gender and between single and married respondents. 69.0% of the women

surveyed, 55% of whom are married, and 78.7% of men, 79.2% of whom are also married, report support from their family in career advancement.

In the case of working with a flexible work schedule, only 14% of the respondents prefer to work only from home, which most likely suggests that these are the respondents who have appropriate conditions at home to do that. 20.4% of the respondents prefer to work only from the office. The survey results show that of the respondents who prefer to work only from the office, 61.1% are married and 82.6% are women, and only 17.4% are men. Respondents evaluate DL differently. 41.5% want to work remotely less, while 15.1% want to spend more time working remotely.

When working remotely, modern communication tools and technologies are necessary to achieve the desired result. Professors needed to learn many new software packages to conduct high-level lectures, seminars, or examinations. However, 26.0% of the respondents found modern technologies to cause stress, and the hindering factor was 5.7%. According to the analysis results, the use of contemporary communication technologies becomes the basis of tension in the age group of 50-54, which was observed by 23.2% of the respondents of this age. This response is also high and is evenly distributed in the 45-49 and 55-59 age groups and is 14.5-14.5%, respectively.

During DL, it was necessary to conduct a series of trainings for the professors to provide new methods of teaching, as well as, in many cases, conducting exams. Unfortunately, only 29.1% of the respondents mentioned that the organization trained them according to the requirements.

DL has its advantages as well as its disadvantages. Respondents name various factors from the positive sides. In particular, 17% state that they maintain a balance between work and personal life. For 17.4%, a flexible work schedule is acceptable, and it is sufficient for 47.9% because they can work from anywhere, 9.8% consider that a significant advantage of remote work is cost reduction. It is comfortable for only 7.9%.

The most significant disadvantage of DL for employees in the educational space was the lack of communication with colleagues (42.6%). 73.5% of these respondents are women, and 54.2% of them are married. The second shortcoming was the difficulty of separating working and non-working time, with 28.3%, indicating a low self-management level. Also in this category, women have a high share - 81.3%, -of which 57.4% are married.

Table 1: TIWP level of Georgian universities in DL

Teacher characteristics	TIWP value	TIWP level
<i>By universities</i>		
Ivane Javakhishvili Tbilisi State University	0.41	Average
Batumi State University named after Shota Rustaveli	0.30	Low
Akaki Tsereteli State University	0.31	Low
<i>According to the age</i>		
20-29	0.34	Low
30-44	0.42	Average
45-59	0.38	Low
More then 60	0.12	Low
Average	0.34	Low

Source: Authors' finding

DL and less communication with management is a brake on career growth for some respondents. About 59.4% think so (real answers: I find it difficult to answer, I agree, I agree) and 62.1% of married respondents agree, and 54.2% fully agree with this opinion. It is interesting to assess this issue from a gender perspective. According to the survey, 77.6% of the women agree, and 75.0% fully agree that remote work and less communication with management reduce career advancement chances.

A fair and correct assessment of the daily activities of employees by managers is of great importance in terms of both motivation and mood improvement. Appropriate evaluation is the basis for increasing labor productivity. Unfortunately, 42.3% of the respondents do not feel such support and proper assessment from management. Recognition of final results by the manager is also an essential factor in increasing productivity and motivation. In this case, the number of dissatisfied people is also high, namely 40.4%.

The TIWP indicator showed that the value of this indicator, which is measured in the range [0; 1], amounted to 0.34 (Table 1). We interpreted

this value, according to the Fibonacci rule, as a low TIWP level.

Per universities, higher TIWP values were recorded among teachers at Ivane Javakishvili Tbilisi State University. The average TIWP score across the university was 0.41, indicating an average TIWP. For Batumi State University, named after Shota Rustaveli and Akaki Tsereteli State University, TIWP is low.

Depending on the age categories, teachers aged 30-44 have been characterized by higher IW productivity in the remote form of the educational process. For them, IWP is predominantly at an average level. This is due to the high level of competence of this category of teachers, the ability to self-organize, and the ability to use DL technologies. The TIWP is at a low level for the rest of the age categories. For teachers 20-29 years old, the low level of TIWP may be due to not yet developed professional competencies and the inability to organize themselves. For teachers 45 and older it may be due to problems with the use of DL technologies.

For a more in-depth analysis of the factors that have a statistically significant effect on TIWP, we used ANOVA (Table 2).

Table 2: Indicators of the statistical significance of influencing factors to TIWP of Georgian universities

Index	F-statistics*	p-level	Index	F-statistics	p-level
<i>Ag</i>	38.58	0.00	<i>Org</i>	62.75	0.00
<i>Flex</i>	82.26	0.00	<i>Tech</i>	37.53	0.00
<i>Sup</i>	34.74	0.01	<i>Com</i>	46.46	0.00
<i>Hom</i>	74.33	0.00	<i>Car</i>	20.53	0.03
<i>Bal</i>	101.30	0.00	-	-	-

* - empirical values F-statistics;

Ag - teacher's age;

Flex - the ability to use a flexible schedule;

Sup - support from family in the professional carrier;

Hom - the ability to work from home;

Bal - the ability to keep a balance between family and work;

Org - self-organize ability;

Tech - the ability to use ICT during D;

Com - communication with colleagues;

Car - career opportunities in DL.

Source: Authors' finding

Table 2 shows the factors that, at a significance level of 0.05, have a statistically significant effect on TIWP. The significance of the influence was confirmed using the excess of the empirical values of F-statistics over the critical ones and the level of $p < 0.05$. Based on the deterministic factors that determine TIWP in the Georgian universities, we have identified several key management strategies, the practical

implementation of which can improve IWP in DL conditions: innovative and technological; teacher motivation strategy; and development of corporate spirit and self-organization. Using a decision tree (Fig. 1), we established the criteria for choosing TIWP control strategies during DL. Percentage of recognized classification objects: 88.9% for the training set and 87.5% for the test set.

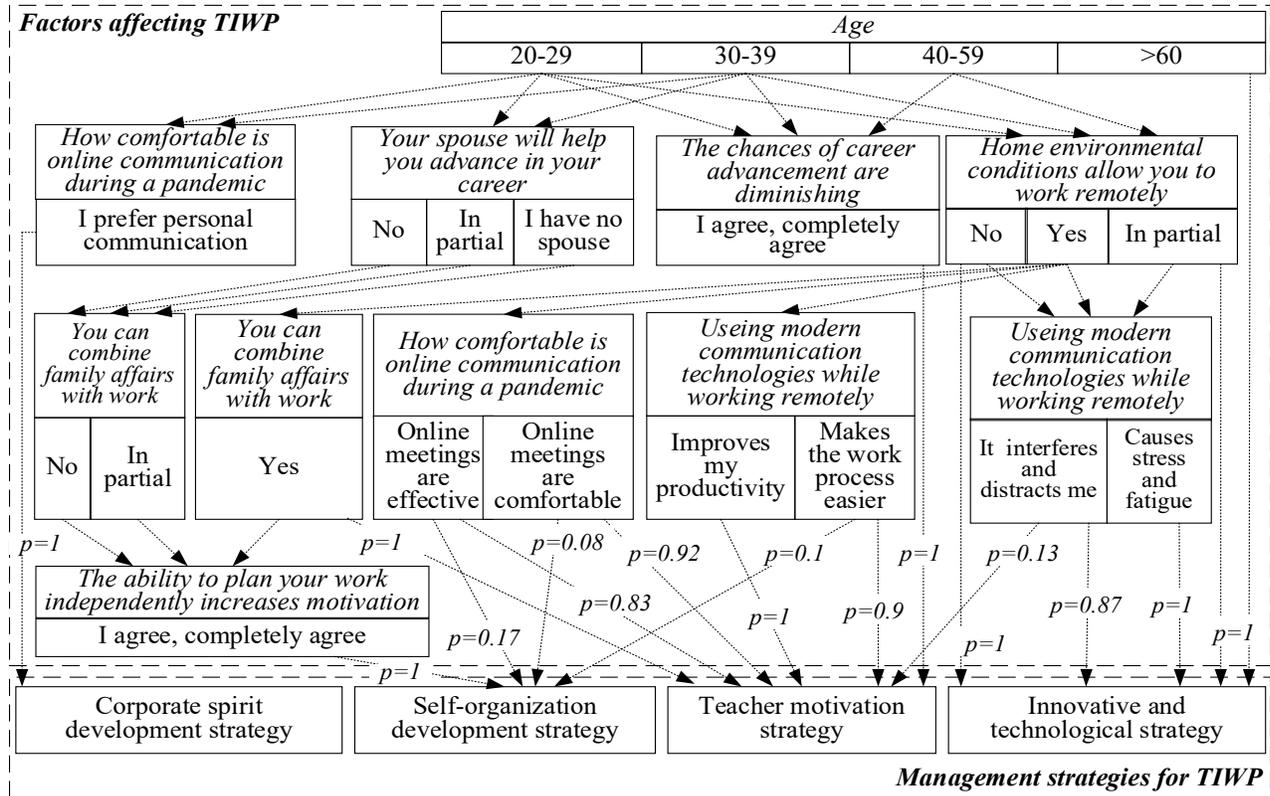


Figure 1: Decision tree for determining an effective TIWP management strategy during DL

p - likelihood of adoption as an effective strategy

Source: Authors' finding

The criteria for choosing management strategies of TIWP with DL have been presented in Table 3.

From the table, the three main factors that determine the implementation of the innovation and technology strategy are the lack of technical conditions and competencies of teachers necessary for DL. To implement the corporate spirit development strategy, the priority factor of use is the need of teachers for personal

communication; for the development strategy of self-organization, it is the inability to rationally plan working hours. The most universal is the motivation strategy, which is effective in cases where there are no pronounced factors-de-stimulants during DL.

Table 3: Criteria of the effectiveness of management strategies of TIWP during DL at universities in Georgia

Strategies	Criteria
Innovative and technological strategy	<ol style="list-style-type: none"> 1. <i>(Q2. Age) *</i> = {30-34, 35-39, 40-44, 45-49, 50-54, 55-59}**, <i>(Q9. Home environmental conditions allow you to work remotely)</i> = {Yes, No, In partial}, <i>(Q26. Using modern communication technologies while working remotely)</i> = {It interferes and distracts me, Causes stress and fatigue} 2. <i>(Q2. Age)</i> = {20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59}, <i>(Q9. Home environmental conditions allow you to work remotely)</i> = {No, In partial} 3. <i>(Q2. Age)</i> = {60-65, 65 years, more than 65 years}
Teacher motivation strategy	<ol style="list-style-type: none"> 4. <i>(Q2. Age)</i> = {20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59}, <i>(Q43. The chances of career advancement are diminishing)</i> = {I agree, completely agree} 5. <i>(Q2. Age)</i> = {20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59}, <i>(Q9. Home environmental conditions allow you to work remotely)</i> = {Yes}, <i>(Q26. Using modern communication technologies while working remotely)</i> = {Improves my productivity, Makes the work process easier} 6. <i>(Q2. Age)</i> = {20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59}, <i>(Q9. Home environmental conditions allow you to work remotely)</i> = {Yes}, <i>(Q29. How comfortable is online communication during a pandemic)</i> = {Online meetings are effective, Online meetings are comfortable} 7. <i>(Q2. Age)</i> = {20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59}, <i>(Q9. Home environmental conditions allow you to work remotely)</i> = {Yes}, <i>(Q10. You can combine family affairs with work)</i> = {Yes}
Corporate spirit development strategy	<ol style="list-style-type: none"> 8. <i>(Q2. Age)</i> = {20-24, 25-29, 30-34, 35-39}, <i>(Q29. How comfortable is online communication during a pandemic)</i> = {I prefer personal communication}
Self-organization development strategy	<ol style="list-style-type: none"> 9. <i>(Q2. Age)</i> = {20-24, 25-29, 30-34, 35-39}, <i>(Q16. Your spouse will help you advance in your career)</i> = {No, In partial, I have no spouse}, <i>(Q10. You can combine family affairs with work)</i> = {No, In partial}, <i>(Q40. The ability to plan your work independently increases motivation)</i> = {I agree, completely agree}

* - the question in the questionnaire;

** - options for answering the questionnaire corresponding with the strategy

Source: Authors' finding

DISCUSSION

According to the obtained results, the teacher's age significantly impacts TIWP in the studied universities in Georgia because it contributes to the accumulation of experience in teaching and the development of competencies. But on the other hand, it is a destructive factor in increasing TIWP by curbing teachers' mobility, initiative, creativity, and innovativeness.

The ability to use a flexible schedule was identified as one of the most significant advantages of the remote form of the educational process. A flexible schedule provides teachers with more opportunities for self-development, participation in advanced training programs, and expansion of interdisciplinary competencies, all increasing IWP.

The factor of the ability to work from home

determines the availability of appropriate support (material, informational, technological) for DL. Similar in content to this factor is also the ability to use ICT in the learning process of distance teaching technologies, without which the implementation of DL is impossible.

Since DL leads to an increase in the time spent with the family, essential factors determining TIWP are the support from the spouse in professional implementation, the ability to maintain a balance between family and work, and the ability to self-organize.

DL reduces communication with colleagues, which was a significant drawback of this form of organization of the educational process and can lead to psychological tension. On the other hand, social isolation reduces the stress associated with peer interactions for introverted educators, increasing TIWP.

As a DL problem, one can designate the lack of career opportunities, which reduces motivation to work.

It was determined that, under the conditions of forced DL, to increase TIWP it is advisable to introduce the following management strategies by the university administration:

1. An innovative and technological strategy implies an increase in ICT teachers' proficiency and innovative methods of education. This strategy provides for both the improvement of the educational process from the point of view of the presentation of the material, the interest of students, the establishment of feedback, and the improvement of teacher's possession skills using technological means contributing to the maximum assimilation of the material. This type of strategy will be suitable for teachers who do not know how to use ICT and skills to ensure DL;
2. The strategy of motivating teachers is focused on creating comfortable working conditions and career opportunities. This strategy is acceptable for teachers who do not have the opportunity to use flexible hours and agree that distance learning diminishes the chances of career growth. It is implemented by establishing a flexible schedule, non-discriminatory, open, understandable for all conditions

remuneration, bonuses, the provision of material and non-material incentives, etc.

3. A corporate spirit development strategy is relevant for respondents who see the lack of opportunities to communicate with colleagues as among the main disadvantages of telecommuting. The implementation of the strategy provides for the development of social responsibility of universities and the growth of team cohesion through collective events. The performance of these activities will lead to an increase in TIWP by meeting the need for communication with colleagues;
4. The self-organization development strategy focuses on respondents who have a problem maintaining a balance between family and work and the inability to separate working and non-working hours. This strategy is mainly personal and can be implemented through psychological training and training on time management.

The innovative technological strategy is most effective for respondents aged 30-59, for whom the use of modern communication technologies when working remotely interferes with work and causes stress and fatigue. This means that this category of respondents does not know how to use ICT. The criterion for choosing this strategy for teachers aged 20-59 is the lack of necessary conditions during DL, for which the needs of the home environment do not allow working remotely or partially. Because the use of ICT is stressful for teachers aged 60 and over, they should implement an innovative and technological strategy.

The criteria for deciding on the appropriateness of implementing a corporate spirit development strategy is the preference for personal communication online. It is advisable to implement this strategy for the category of respondents under the age of 40. The self-organization development strategy is relevant for teachers no older than 39 years old. This age limit can be explained by the fact that older people predominantly have the necessary level of self-organization. In addition to age, the required criteria to implement this strategy are the lack of career advancement and the inability to combine family affairs with work and an ability to plan work.

The most universal and acceptable for a wider circle of teachers is motivation strategy, which is advisable in cases where there are no pronounced factors-de-stimulants in the provision of DL.

CONCLUSION

It has been empirically substantiated that in the studied universes of Georgia, TIWP is at medium and low levels under the conditions of forced DL. This potentially poses a threat to the quality of education in the country due to the uncertainty of the duration of the COVID19 pandemic and the social distancing regime it has caused. Considering the peculiarities of the teaching staff in Georgian universities, it was revealed that the primary management strategies of TIWP should be activities aimed at improving the qualifications of teachers in the use of ICT and increasing their motivation to ensure the effectiveness of DL.

The developed approach within our research framework allows us to assess the current level of TIWP in the higher education system and diagnose it, depending on the needs of the university administration.

This study did not consider the TIWP criteria for the scientific activities of teachers, which somewhat limits the applicability of the proposed indicative TIWP management method. But since these issues require fundamental study, our further scientific research will be aimed at studying TIWP in the field of scientific activity during DL.

REFERENCES

- Bohrer, A. (2008). One-sided and Two-sided Critical Values for Dixon's Outlier Test for Sample Sizes up to $n = 30$. *Economic Quality Control*, 23, 1, 5-13.
- Budiarti, I. (2017). Knowledge Management and Intellectual Capital - A Theoretical Perspective of Human Resource Strategies and Practices. *European Journal of Economics and Business Studies*, 8, 1, 148-155.
- Endovitsky, D.A., Lyubushin, N.P., Babicheva, N.E., & Zotova, E. (2019). Assessment of the Balance of Economic Entities' Activity at Different Life Cycle Stages. *Montenegrin Journal of Economics*, 15, 2, 71-79.
- Garda World. (2020). Georgia: Authorities introduce further COVID-19 restrictions November 3. <https://www.garda.com/crisis24/news-alerts/396076/georgia-authorities-introduce-further-covid-19-restrictions-november-3-update-19>
- Goldhaber, D., & Startz, R. (2017). On the Distribution of Worker Productivity: The Case of Teacher Effectiveness and Student Achievement. *Statistics and Public Policy*, 4(1), 1-12. <https://doi.org/10.1080/2330443X.2016.1271733>
- Google Forms. (2021). Factors Influencing the Productivity of Teacher's Intellectual Work in Distance Learning. https://docs.google.com/forms/d/e/1FAIpQLSdXu_9pUj-d2uhFV_QSOoI_V8rhCOW-cud4syFUMSzyOSIMjw/viewform
- Guliyeva, S., Sadigov, Y., Guliyeva, N., Isayeva, L., & Aliyeva, S. (2021). Person-centered approach effectiveness in Human Resource Management in the agriculture of Azerbaijan. *Journal of Eastern European and Central Asian Research (JEECAR)*, 8(2), 267-279. <https://doi.org/10.15549/jeecar.v8i2.713>
- Hanushek, E.A., & Ettema, E. (2017). Defining Productivity in Education: Issues and Illustrations. *The American Economist*, 62(2), 165-183. <https://doi.org/10.1177/0569434516688207>
- Husch Blackwell. (2021). Georgia: State-by-State COVID-19 Guidance. <https://www.huschblackwell.com/georgia-state-by-state-covid-19-guidance>
- Lysiuk, O., & Britchenko, I. (2020). The Influence of migration on the financial circulation in the economy of Ukraine. *VUZF review*, 5 (4), 9-14. <https://doi.org/10.38188/2534-9228.20.4.02>
- Maghlaperidze, E., Kharadze, N., & Kuspliak, H. (2021). Development of Remote Jobs as a Factor to Increase Labor Efficiency. *Journal of Eastern European and Central Asian Research (JEECAR)*, 8(3), 337-348. <https://doi.org/10.15549/jeecar.v8i3.669>

- National Statistics Office of Georgia. (2021). <https://www.geostat.ge/en>
- OECD. (2019a). The education system in Georgia. <https://www.oecd-ilibrary.org/sites/bbc437ae-en/index.html?itemId=/content/component/bbc437ae-en>
- OECD. (2019b). TALIS 2018 Results (Volume I): Teachers and School Leaders as Lifelong Learners. Paris: TALIS, OECD Publishing. <https://doi.org/10.1787/23129638>
- Örnek, A. Ş., & Ayas, S. (2015). The Relationship between Intellectual Capital, Innovative Work Behavior and Business Performance Reflection. *Procedia - Social and Behavioral Sciences*, 195, 1387-1395. <https://doi.org/10.1016/j.sbspro.2015.06.433>
- Our World in Data. (2021). Coronavirus (COVID-19) Cases. <https://ourworldindata.org/covid-cases#global-comparison-where-are-confirmed-cases-increasing-most-rapidly>
- Owens, S. (2021). State of Education Funding (2021). Georgia Budget & Policy Institute <https://gbpi.org/state-education-2021/>
- Pirtskhalaishvili, D., Paresashvili, N., & Kulinich, T. (2021). The gender aspects of career development and leadership in organizations. *Journal of Eastern European and Central Asian Research (JEECAR)*, 8(2), 255-266. <https://doi.org/10.15549/jeecar.v8i2.654>
- Strielkowski, W., Volchik, V., Maskaev, A., & Savko, P. (2020). Leadership and Effective Institutional Economics Design in the Context of Education Reforms. *Economies*, 8(2), 27. <https://doi.org/10.3390/economies8020027>
- Suliman, A., & Mansor, A. (2018). The relationship between professional competence and productivity impacts teachers' job satisfaction at Junior High School Rawajitu Timur Lampung. *International Journal of Engineering and Technology*, 7, 453 - 457.
- Taherdoost, H. (2017). Determining Sample Size; How to Calculate Survey Sample Size. *International Journal of Economics and Management Systems*, 2, 237-239.
- Trading Economics. (2021). Georgia - GINI Index. <https://tradingeconomics.com/georgia/gini-index-wb-data.html>
- Tsymbalenko, N.V., Tarasenko, I.O., & Bielialov, T.E. (2019). The impact of demographic processes on forming student body in Ukraine. *Revista Espacios*, 40(12), 8. <https://www.revistaespacios.com/a19v40n12/a19v40n12p08.pdf>
- UNESCO-UIS. (2021). <http://data.uis.unesco.org/Index.aspx>
- Utama, I., Sagala, S., & Sitompul, H. (2017). The Effect of Lecturer Competence on Work Productivity of Private Higher Education Lecturer in Aceh. *Advances in Social Science, Education and Humanities Research*, 104, 94-98.
- Vasiljeva, M., Neskorodieva, I., Ponkratov, V., Kuznetsov, N., Ivlev, V., Ivleva, M., Maramygin, M., & Zekiy, A. A. (2020). Predictive Model for Assessing the Impact of the COVID-19 Pandemic on the Economies of Some Eastern European Countries. *J. Open Innov. Technol. Mark. Complex.*, 6, 92. <https://doi.org/10.3390/joitmc6030092>

ABOUT THE AUTHORS

Natalia Kharadze, email:

natalia.kharadze@tsu.ge

Natalia Kharadze has a Ph.D. in Economics, an Associate Professor at Ivane Javakhishvili Tbilisi State University (TSU). She is the Founder & CEO of the Human Resource Management Laboratory, which aims to conduct research in this field. She is an author of more than 80 scientific publications and two monographs, with citation index - 221, H-index - 9, and G-index - 9. She is a member of the editorial & International Scientific Advisory Board of the European Journal of Economics and Business Studies. Her main research interests include human resource management, leadership, career management, and time management issues.

Maia Giorgobiani has a Ph.D. in Economics, an Associate Professor at Ivane Javakhishvili Tbilisi State University (TSU). Her main research interests include human resource management, statistics, and leadership.

Tina Melkoshvili has a Ph.D. in Economics, an Associate Professor at Ivane Javakhishvili Tbilisi State University (TSU). Her main research interests include statistics and economics.

Lia Dzebisauri has a Ph.D. in Economics, an Assistant Professor at Ivane Javakhishvili Tbilisi State University (TSU). Her main research interests include Statistics and Economics. She is a Deputy Executive Director at National Statistics Office of Georgia (GEOSTAT).

Dea Pirtskhalaishvili has a Ph.D. in Business Administration. Her main research interests include human resource management, leadership, career management, and time management issues. Ivane Javakhishvili Tbilisi State University (TSU).