

# The Application of Progressive HR Tools in the Environment of Slovak Enterprises

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## Abstract

In the context of developments influenced by digitalization, as well as the crisis caused by the Covid-19 pandemic, and not most minor changes in employee demands on the working environment across all generations, new tools and concepts are being developed in the field of people management in order to sustain competitiveness. The main objective of the paper is to present results of research focused on a specific analysis of applying modern human resource management tools in entities operating in Slovakia with a focus on the maintenance and growth potential of their competitiveness in the European economic area. To meet this objective, particular data obtained through a questionnaire survey were statistically processed and 841 enterprises were contacted. Elements of playful principles (gamification), used in various human resource management tools, bring a positive effect both in saving resources and in qualitative outputs, which was the purpose of the research focus on identifying the existence of the so-called “aha effect”. Evaluations of formulated hypotheses as well as determination of whether there is a statistically significant dependence between the actual application in the enterprises and the degree of importance for their future in relation to individual tools and concepts in human resource management were carried out with the use of Spearman’s correlation test. The research results show that there is a strong positive and statistically significant dependence between the actual application of the analyzed tools and concepts in the enterprises and the perceived degree of their importance for the future competitiveness of the enterprises.

*Keywords:* HRM, competitiveness, generations, Industry 4.0, Covid-19, gamification, alfa effect

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## 1. INTRODUCTION

Regarding HR professionals and organizational leaders, the current key challenge for sustaining competitiveness is seen in their ability to attract and retain competent (Jayasingam et al., 2018) and engaged (Chawla, 2020) employees across all generations (Simmons et al., 2018; Petrakova et al., 2021), new elements and concepts are being developed in the field of HRM to sustain competitiveness (Mura et al., 2017; Olšovská et al., 2015). The aforementioned gains importance

in the context of certain variables such as globalization of the competitive business environment (involving the collapse of time and space (Mostarac et al., 2021); an increase in the interdependence of people, economies, and policies; and the acceleration of processes across industries (Wojčák et al., 2018; Lazarević et al., 2020; Kapsalis et al., 2019) and, more recently, the Covid-19 pandemic, which has affected (either in the content or in the form of work performance) almost all jobs in the labor market. As a result of the pandemic situation, the global labor market is currently bracing for triggering the Great Resignation (Klotz, 2021).

Intergenerational perception of employees is also seen as an important variable in the above context (Savanevičienė et al., 2019; Gottwald et al., 2018; Ralević et al., 2020). For the first time in history, four different generations of employees are currently working in various enterprises and each of them has its own communication style, attitudes towards work and private life, as well as expectations and values. In the context of the advent of Industry 4.0, a significant impact on human resources is expected, with changes in their structure requirements, qualification and effective use (Lorincová et al., 2018; Papula et al., 2019; Copuš et al., 2019) in the context of sustainability competitiveness. Elements of Industry 4.0 are gradually appearing to a greater or lesser extent in all human resource management tools. This is taking place regardless of whether they are the newer, so-called modern HRM tools (e.g., jobs enabling the maximization of employee autonomy in the performance of work (Liu et al., 2020) Additionally, employee selection is made at the level of executive teams (Krammer et al., 2018), employees receive ongoing, informal feedback regarding their performance (van der Rijt, 2012), work systems include elements of work-life balance (Sirgy & Lee, 2018; Workplace Equity Project, 2018), companies systematically work on their own attractiveness as employers (employer branding) (Rampl & Kenning, 2014), gamification (elements of gamification principles) is used in people management functions (Ferreira et al., 2017), companies also consider employee engagement in their evaluation criteria (Kang & Busser, 2018) and take into account freedom and personal responsibility of employees in their choice of learning (Autin et al., 2021), as well as grassroots learning, 4-day workweek, home office, use of Big-data, blended learning (Lampropoulos et al., 2019), or the traditional human resource management tools (e.g., employee recruitment through referral, employee selection based on references, 360-degree or 180-degree feedback in employee evaluation, soft-skills training, self-development, pay scales, e-learning).

The fact that the crisis has significantly changed the way individuals work, communicate, and learn, and the fact that enterprises will probably never function as they did before the crisis, need to be accepted as realities (Vojteková, 2020; Mura, 2020). The Covid-19 pandemic has not only accelerated the digital transformation into human resource management but has also affected people's attitudes towards digital technologies and has significantly helped in the adoption or acceleration and subsequent increase in agility, openness and readiness for changes in individual enterprises (Deloitte Consulting, 2021). Therefore, it has significantly opened the "door" to using the new, so-called modern tools in HR, where digitalization is a key tool variable, e.g., using gamification in various HR functions.

The so far published knowledge primarily focuses on the performance dependence or the competitiveness increase in the use of modern HR tools (e.g., Chalikias et al., 2014; Stareček et al., 2021; Popescu & Kyriakopoulos, 2022) or links them with employees' motivation (Lorincova



et al., 2018; Hitka et al., 2017), where within HR the separate attention is paid to the issues of an ecological approach (Andjarwati et al., 2019). There is a lack of insight into the current application and the importance of perception of selected progressive HR tools for the future. The research presented in this paper expands the knowledge base mainly by demonstrating the change in perceiving new tools and concepts in the field of human resource management after their implementation. It may be argued that enterprises that have not implemented the “modern” tools and concepts are rather skeptical about them, whereas enterprises that have already implemented them foresee their great importance for future competitiveness. This fact is presented by the results of the conducted research, which is related to an analysis of the current knowledge in the authors’ area of concern, as indicated by corresponding research questions and hypotheses. The methodology section explains how the research was performed, while the results are subsequently discussed. The aim of the paper is to identify modern tools of human resource management applied in entities operating in Slovakia with a focus on maintaining and growth potential of their competitiveness in the European economic area).

## 2. THEORETICAL BACKGROUND

The flexible approach of companies in the context of their responding to new trends is closely related to their competitiveness. Owing to the advent of new technologies (Industry 4.0), it is possible to come across a new discipline of managing both teams and individuals, namely “remote and virtual team management” (Shah-Nelson, 2020; Elford et al., 2022). In such cases, a single team may consist of members physically operating on multiple continents (de Vreede et al., 2016).

### 2.1 Introduction of gamification into HR tools

The tools selected and analyzed in this paper significantly support the adaptation of employees to the coming digitalization (gamification in HR), or it is, in fact, the digitalization in HR that allows enterprises to use them also within virtual teams and individually targeted training of employees. A significant factor in the context of introducing digitalization into HR is the level of tolerance people have for working with digital tools (Kwok & Yang, 2017). Various case studies have shown a significant correlation between positive attitudes towards digital technologies and the perceived and actual usefulness of online tools (Kwok & Yang, 2017). The gamification currently used in work environments is primarily inspired by the gaming industry, with computer games playing a significant role. In addition, gamification is about using elements of competition and clearly defined goals and metrics to encourage teams to collaborate and perform together (Coonradt, 2012). Therefore, these predominantly gamified elements enable employees to take better personal ownership of their goals and thus increase their performance (Érgle & Ludviga, 2018) and engagement (Ferreira et al., 2017). This is based on the fact that motivation to increase performance comes from competitiveness, which is one of the essentials of human nature (Coonradt, 2012). The principle of using gamification in enterprises is to apply game mechanics in a non-game context in order to inspire the “players-employees” to participate and interact (either with other participants in various activities or to activate them in an individual activity) (Israel, 2017) increasing employee engagement, especially in topics that may not be interesting

for them, reminding the participants (through a specific task design) of what they have learned so far, what they have achieved or what they have done. It highlights their achievements and progress and motivates them to perform better. The most important benefit is that it promotes cooperation and sharing of knowledge and experience within the group, which is an essential variable nowadays. In the context of introducing gamification into organizational processes, it is also necessary to be aware of specific pitfalls, such as the fact that not everyone is willing to play or change their ways of learning (education is perceived by adults as a serious activity) and that complicated play tends to cause confusion and frustration for participants (Šimko, 2019). Therefore, one of the questions asked in the presented research was the search whether organizations currently use gamification in selected HR functions and what their view is about the importance of their use for the future.

## 2.2 Selection of employees at the team level as an HR tool

The modern tool that was analyzed here included a tool focused on employee selection, which is performed at the level of executive teams. Its aim is to achieve team cohesion (Dey & Ganesh, 2020), which is a prerequisite for open communication and cooperative teams. Such an important attribute of employees' autonomy of work, which creates room for flexibility in the selection of co-workers (Krammer et al., 2018; Sommerauerová & Chocholáč, 2020; Hitka et al., 2021; Hajduová & Sebestyén, 2021), also has a strong motivational effect. This attribute can be as problematic for specific job roles as it is for enterprises with fewer employees. However, its overall importance for employee perceptions of job autonomy is highly significant (Autin et al., 2021; Čubranić-Dobrodolac et al., 2020), and it also has a strong impact on performance. Moreover, in order to make such a selection, each candidate is already introduced to his/her future team during the selection process, whose members have an opportunity to ask the candidate professional (Balková, 2022), but also to some extent, personal questions, while the chemistry of the team is monitored (Emich & Vincent, 2020; Hsu et al., 2016; Bhaduri, 2003; Nedeliaková et al., 2019). Enterprises that implement this type of selection declare the importance and value of their employees, as they usually have veto power. A candidate who they believe is not a good fit for their team is excluded from the selection, even if he or she performed above average in the other criteria, because maintaining the quality and cohesion of the current team is more important to the enterprise than recruiting a new employee. There are several meta-analyses of team cohesion (Dey & Ganesh, 2020; Braun et al., 2020) that suggest that team cohesion is positively related to team effectiveness and the relationship is strengthened by task interdependence so that the cohesion-effectiveness relationship is stronger when team members are more interdependent. It is for this reason that, in addition to conversation, solving a common task or playing a game (gamification) tends to be part of such a selection. A fundamental advantage of a cohesive team is the willingness of the team to help the weak member of the group without disrupting relationships (Braun et al., 2020). The presented research also focuses on determining whether organizations currently select employees at the team level and what their opinion is on the importance of selection procedure utilization for the future.

## 2.3 Employee participation in training as an HR function

Overcoming the current crisis and its negative effects and maintaining competitiveness in both the European and global markets in the future means that organizations need to embrace the



idea that continuous learning and development of employees is a necessity. The role of the HR department as such becomes one of finding a way to fulfill its commitment, enabling employees to fully engage in their work and personal development in a turbulent environment (Jankelová et al., 2020). The key themes of people management in this context are as follows: performance counseling (Wojčák et al., 2018, Olexová & Gajdoš, 2016); the impact of competencies on performance (Kohnová et al., 2020, Korenkova et al., 2020); and last but not least, talent management trends. The main idea behind this tool is the fact that an engaged employee who is motivated to do everything possible to meet his/her goals and defined goals of the given organization confirms that he/she is the one who can name his/her bottlenecks and knows exactly the areas in which he/she needs to learn.

Autonomy in various aspects of employees' working lives (i.e., also in the area of competence development) is now considered a highly motivating attribute/characteristic of work (Autin et al., 2021; Liu et al., 2020; van der Burgt et al., 2019; British Medical Association, 2008). People now seek jobs in which they have a sense of freedom to make decisions (He et al., 2021; Autin et al., 2021), and if they have such working conditions, their job performance (Liu et al., 2020), creativity levels (Li et al., 2019) and the potential for self-development and self-actualization of individuals also increase (Autin et al., 2021). A modern tool of human resource management, where enterprises take into account the freedom and personal responsibility of their employees, is to leave the responsibility of choosing a specific training to the individual (Ching & Hagood, 2019). A necessary condition for the successful implementation of such a tool is the introduction of a culture of safety (Kirchmayer et al., 2019), in which the employee is not afraid to admit his or her narrow place and thus creates room for potential development. The effectiveness of training is mainly dependent on selecting the right content and appropriate training methods (Hitka et al., 2018). If the employee cannot get hold of the preferred type of training on his/her own, the HR department will help him/her with it. Thus, the HR department becomes a partner in the process of employee development training and, in addition to supporting the already selected development activities, inspires the form of summaries of training and development programs based on trends related to a specific focus of employees or the enterprise. Therefore, the presented research was asking the question of whether organizations currently consider the freedom and personal responsibility of their employee when choosing the training as well as what is the importance level of the item application for the company's future.

Following the above-mentioned and considering the objective of this paper, it should be noted that the authors conducted their own research to identify the current level of actual applications of human resource management tools and the perceived level of their importance for the future to assess the readiness of entities operating in the Slovak economic area.

### **3. RESEARCH OBJECTIVES, METHODOLOGY AND DATA**

The aim of the paper is to identify modern tools of human resource management applied in enterprises operating in Slovakia with a focus on maintaining and growth potential of their competitiveness in the European economic area. The fulfillment of the objective is based on partial results of research focused on the current state of readiness of the enterprises for

certain challenges of human resource management in the context of Industry 4.0. The research instrument for assessing the readiness comprised a questionnaire survey aimed at mapping perspectives in the field of human resource management as a consequence of the ongoing digital transformation of enterprises. The tool for data distribution and collection included a Google questionnaire platform. The questionnaire distribution was realized by personal addressing (physical or by phone) via the company HR responsible person, and followed by sending the mail with the questionnaire link. The actual data collection was carried out throughout the year 2020. Respondents/enterprise representatives involved in the survey indicated the level of importance for the future of the enterprises and the level of actual application/presence of the surveyed phenomenon in business practice. The level was rated on a scale from 1 to 5, with 1 representing the lowest level currently achieved or the lowest level of the future relevance of the surveyed phenomenon and 5 representing the highest value. The questionnaire content included questions specifically oriented towards modern tools and concepts in the human resource management system related to the advent of Industry 4.0.

A total of 1,162 respondents/enterprises were approached in the data collection process, with a 72% return rate for relevant completed questionnaires. The sample population was determined through a proportional stratified sampling of enterprises from the database of enterprises operating in the Slovak Republic according to their size defined by the number of employees, as specified by EU Regulation 651/2014. This set was subsequently controlled for the regional representation of enterprises according to the NUTS 2 international breakdown. The research structure sample (made up of 841 enterprises) is presented in Table 1.

Tab. 1 – The structure of the research sample. Source: own research

Category	Number of employees				Business area			Majority ownership		Total
	1-9	10-49	50-249	≥ 250	Production	Services	Other	National	Foreign	
n	256	174	179	232	272	403	166	540	301	841
%	30.4	20.7	21.3	27.6	32.3	48,0	19.7	64.2	35.8	100.0

Spearman's correlation (two-tailed) at the significance level of 1% was used for the data descriptive statistics evaluation with the determination of dependencies to confirm the research hypotheses. The statistical software SPSS Statistics 27.0 was used for data processing. Spearman's correlation test was conducted to determine whether there is a statistically significant dependence between the actual application in the enterprise and the degree of importance for the future of the enterprise for individual tools and concepts in human resource management systems.

Figure 1 below illustrates a specific research framework to identify the actual application and, consequently, the perceived level of importance of the selected modern tools of human resource management.

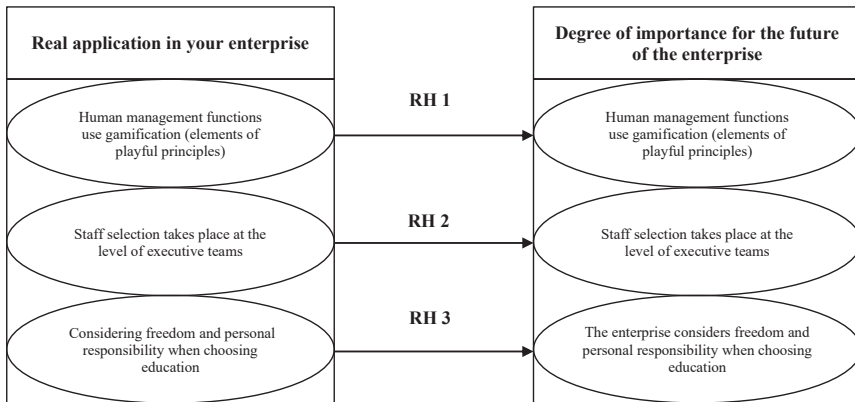


Fig. 1 – Research framework. Source: own research  
 Note: RH - Research Hypothesis

In line with the above, the following research questions (RQ) were formulated:

RQ1: What is the current state of the actual application of modern tools and concepts in human resource management systems in enterprises operating in Slovakia?

RQ2: What is the current level of relevance for the future of enterprises in the context of modern tools and concepts in human resource management systems in enterprises operating in Slovakia?

After a statistical evaluation of the primary research questions, the authors drew attention to the correlation of actual application and the degree of relevance for the future concerning the three selected tools and concepts in human resource management systems. Based on the analysis of available studies, the elements of gamification principles (gamification, used in various human resource management tools), the delegation of powers related to selecting new members of work teams to the team itself, as well as a high degree of employee autonomy in training, bring a positive effect in saving resources as well as in qualitative outputs (Christians, 2018). The authors focused their research on identifying the existence of the so-called “aha effect”. The aim was to identify whether the aforementioned enterprises are aware of the importance of applying any modern concept at all, in this case, related to the field of human resource management, only after its implementation. For the above reasons, the following research hypotheses (RH) were established:

RH1: There is a statistically significant dependence between the actual application in the enterprise and the degree of importance for the future of the enterprise concerning the following statement: “Gamification (elements of gamification principles) is used in people management functions” in the field of modern tools and concepts in the human resource management system in enterprises.

RH2: There is a statistically significant dependence between the actual application in the enterprise and the degree of importance for the future of the enterprise concerning the following statement: “Employee selection is made at the level of executive teams” in the area of modern tools and concepts in the system of human resource management in enterprises.

RH3: There is a statistically significant dependence between the actual application in the enterprise and the degree of importance for the future of the enterprise concerning the following statement: “The enterprise considers the freedom and personal responsibility of the employee in the selection of training” in the area of modern tools and concepts in the system of human resource management in enterprises.

## 4. RESULTS

All application rates of the individually observed modern tools in human resource management are shown in Table 2 (presented in the absolute frequency and the relative frequency). Individuals responsible for HR activities rated (Chapter 3) the actual application of modern tools and concepts in HRM systems on a set rating scale from 1 to 5 (with 1 representing the lowest level currently applied, i.e., not applied, and 5 representing the highest level currently applied, i.e., fully applied).

Tab. 2 – The current level of application and importance for the future of individually monitored modern tools in human resource management. Source: own research

Selection of items		1		2		3		4		5		0		Mean
		n	%	n	%	n	%	n	%	n	%	n	%	
Employee selection at the level of executive teams	Actual application	160	19	104	12	176	21	185	22	<b>208</b>	<b>25</b>	8	1	3.21
	Importance in the future	123	15	65	8	192	23	210	25	<b>234</b>	<b>28</b>	17	2	3.45
Gamification is used in people management functions	Actual application	<b>292</b>	<b>35</b>	168	20	215	26	112	13	46	6	8	1	2.34
	Importance in the future	221	26	156	19	<b>260</b>	<b>31</b>	123	15	59	7	22	3	2.56
Considering freedom and personal responsibility within education	Actual application	93	11	102	12	212	25	<b>237</b>	<b>28</b>	192	23	5	1	3.39
	Importance in the future	69	8	72	9	<b>246</b>	<b>29</b>	<b>246</b>	<b>29</b>	188	22	20	3	3.50

Note: The value of 0 represents respondents with no response. The bold font highlights the top responses.

As is evident from the results (Table 2), the tool termed as “The enterprise systematically works on its own attractiveness as an employer (employer branding)” has the highest level of application in practice reaching an average value (3.84). On the contrary, the lowest value is shown by the application of the tool termed as “Gamification (elements of playful principles) is used in people management functions”, with an average value of only 2.34. Among the tools analyzed in more detail, it is also important to point out that although the tool termed as “Selection of employees is carried out at the level of executive teams” achieved the second lowest application rate of all the tools studied (3.2), it may be viewed positively that almost a quarter of the respondents (which represents the highest value achieved for this tool) apply this tool to the full extent (value 5). Furthermore, to answer the second research question, the authors intended to evaluate the absolute frequency as well as the percentage of the degree of importance of modern tools and concepts in human resource management systems for the future of the enterprises (on a set rating scale from 1 to 5, with the value of 1 representing the lowest level currently applied, i.e.,





Irrelevant, and the value of 5 representing the highest level currently applied, i.e., Important). The results of this analysis are also shown in Table 2. Thus, the data analysis results (Table 2) show that, on average, the highest level of perceived importance is consistently achieved by two tools, namely “The enterprise systematically works on its own attractiveness as an employer (employer branding)” and “Employees receive ongoing, informal feedback regarding their performance” both with an average value (4.06). Conversely, the tool termed as “Gamification (elements of gamification principles) is used in people management functions” shows the lowest value with an average value of only 2.56. Among the tools analyzed in depth, it is also important to point out that the tool termed as “Employee selection is carried out at the level of executive teams” achieved the second lowest application rate (3.45) among all the tools studied.

In general, it can be stated that for all the tools and concepts under review, the perceived level of importance in the future is at a higher level than their actual application in the conditions of specific enterprises, as the average value is individually higher. The overall difference is represented by the value of 0.21, whilst the overall average value of the application of modern human resource management tools is 3.41 and the degree of perceived importance of them for the future is expressed by the value of 3.62. Each validation of the above research hypotheses was beneficial for a deeper understanding of the associations and dependencies between the outcomes. The verification of the first established hypothesis, i.e., H1 (There is a statistically significant dependence between the actual application in the enterprise and the degree of importance for the future of the enterprise concerning the following statement “Gamification (elements of gamification principles) is used in people management functions” in the field of modern tools and concepts in the system of human resource management in enterprises), was carried out through Spearman’s correlation test, the result of which can be seen in Table 3. The result was adjusted to the answers of the respondents who did not answer the above questions.

Tab. 3 – Spearman’s correlation test result. Source: own research

Selection of items	Correlations – Spearman’s		Actual application	Importance for the future
Employee selection at the level of executive teams	Actual application	Correlation Coefficient	1.000	0.819**
		Sig. (2-tailed)	-	<0.001
	Importance for the future	Correlation Coefficient	0.819**	1.000
		Sig. (2-tailed)	<0.001	-
Gamification is used in people management functions	Actual application	Correlation Coefficient	1.000	0.848**
		Sig. (2-tailed)	-	<0.001
	Importance for the future	Correlation Coefficient	0.848**	1.000
		Sig. (2-tailed)	0.001	-

Considering freedom and personal responsibility within education	Actual application	Correlation Coefficient	1.000	0.755**
		Sig. (2-tailed)	-	<0.001
	Importance for the future	Correlation Coefficient	0.755**	1.000
		Sig. (2-tailed)	<0.001	-

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

In addition to that, Table 3 shows that there is a strong positive and statistically significant dependence (Spearman's coef. = 0.819;  $p < 0.001$ ) between the responses in terms of the actual application in the enterprises and in terms of the degree of importance for the future of the enterprises. Based on the above, the first hypothesis, i.e., H1, can be accepted.

Then, to verify the second established hypothesis, i.e., H2 (There is a statistically significant dependence between the actual application in the enterprise and the degree of importance for the future of the enterprise concerning the following statement "Employee selection is made at the level of executive teams" in the field of modern tools and concepts in the system of human resource management in enterprises), Spearman's correlation test was conducted, the result of which can be seen in Table 3. The result was adjusted to the answers of the respondents who did not answer the above questions. Also, Table 3 shows that there is a strong positive and, at the same time, statistically significant dependence (Spearman's coef. = 0.848;  $p < 0.001$ ) between the responses for the Actual application in the enterprise question and the question focusing on the Degree of importance for the future of the enterprise. Based on the above, the second hypothesis, i.e., H2, can be accepted.

Lastly, the third established hypothesis, i.e., H3 (There is a statistically significant dependence between the actual application in the enterprise and the degree of importance for the future of the enterprise concerning the following statement "The enterprise takes into account the freedom and personal responsibility of the employee in the choice of training" in the field of modern tools and concepts in the system of human resource management in enterprises) was tested using Spearman's correlation, the result of which can be seen in Table 3. The result was adjusted to the answers of the respondents who did not answer the above questions. Also, Table 3 shows that there is a strong positive and, at the same time, statistically significant dependence (Spearman's coef. = 0.755;  $p < 0.001$ ) between the responses for the Actual application in the enterprise question and the question focusing on the Degree of importance for the future of the enterprise. Based on the above, the third hypothesis, i.e., H3, can be accepted.

## 5. DISCUSSION

In companies, a flexible approach to innovations and trends in human resources management creates a higher potential for the growth of the company's competitiveness. First, the survey results indicated that the tool used with the lowest mean value is gamification, only 2.34 (Chapter 4: Table 2). As global research on the effectiveness of using gamification elements in people management functions shows significant positive impacts. Within these functions, the output validity, when using performance simulations with gamification elements, ranges from 0.54 -



0.76. In practice, it is considered a strong predictor of performance with a validity of 0.5 and above (Woods et al., 2014). This is because the virtual environment makes it possible to take into account the specifics of a given job position in a very concrete way and allows for predicting the real performance of the candidate/employee (Hoek, 2018). Also, for functions focused on learning, increasing work cohesion, and improving organizational culture and employee engagement, the validity of using such tools is significant (Himmelstein et al., 2017). Second, the survey demonstrated that the second least used modern tool is the selection of employees, which is carried out at the level of executive teams (Table 2). Although this is also a case in point, global research points to the fact that team relationships have a significant impact on employees' job satisfaction as well as the sharing of joint responsibility for the outcome of the team's performance. The results of a study on 111 software development teams and aggregated to the team level indicate that team boundedness and formal team coordination have a positive and significant dependence on the dimensions of team cohesion (Dey & Ganesh, 2020). Also, a survey in which 321 teaching staff participated revealed significant differences in the dimensions of "shared responsibility" and "enjoyment of the process of teaching together". Educators working in self-selected teams reported more positive ratings of joy, shared responsibility, job satisfaction, and collective self-efficacy expectations than educators who worked in institutionally composed teams (Krammer et al., 2018). The above clearly declares the relevance of the analyzed tool for the team's future position.

Then, it was revealed that among the selected trio of modern tools used in HR, the tool from the area of employee training was used to the greatest extent (Table 2). It is a fact whether the particular enterprise takes into account the freedom and personal responsibility of the employee in the choice of employee training that is a highly motivating attribute (Autin et al., 2021) since the employee has the opportunity to influence his/her value and career path in this way. Despite the perceived increased need for training and development of employees significantly affected by the first wave of the pandemic, a survey conducted by the Open HR Forum with partner Profesia (in the period 7-21 May 2020, which involved 98 enterprises from different sectors, with the largest representation from IT/telco (23%), manufacturing (12%) and banking/insurance (11%)) showed that even such a crisis failed to steer organizations' awareness towards learning, and only 15% of the surveyed enterprises planned to increase investment in learning (Vojteková, 2020). Unfortunately, approximately one in eight enterprises in the survey indicated a likelihood of reducing investment in staff learning and development. Based on the above, it is difficult to envisage a significant improvement in the attribute surveyed.

Moreover, it can be positively stated that for all the tools and concepts under review, the perceived level of importance in the future is at a higher level than their actual application in specific enterprises since the average value individually reaches higher values. The overall difference (Table 2) is represented by the value of 0.21, the overall average value of the application of modern human resource management tools is 3.41, and the perceived level of their importance for the future is expressed by the value of 3.62.

To further understand the dependencies between the various survey findings, the validity of the three previously mentioned hypotheses was tested (Figure 1). The analysis showed (Table 3) that there is a strong positive and, at the same time, statistically significant dependence between the

responses to the question of actual application and the degree of importance of the application for the future of the enterprises concerning the following statement “Gamification (elements of gamification principles) is used in people management functions”. The first hypothesis above, i.e., H1, can therefore be accepted. As for the second hypothesis above, i.e., H2, it can also be stated that there is a strong positive and, at the same time, statistically significant dependence (Table 3) between the actual application in the enterprise and the degree of importance for the future of the enterprises concerning the following statement “Employee selection is carried out at the level of executive teams”. Thus, it can be accepted as well. Likewise, the third hypothesis above can also be accepted, i.e., H3, which confirms a strong positive and, at the same time, statistically significant dependence (Table 3) between the actual application in the enterprises and the degree of importance for the future of the enterprises concerning the following statement “The enterprise takes into account the freedom and personal responsibility of the employee in the choice of training”.

Based on the results, it can be argued that the enterprises that use the analyzed tools and concepts find effective plans to apply them even more in the future. However, the results also show that the enterprises that do not apply the analyzed tools and concepts in practice do not perceive the extent to which they are important for their future. Overall, it can be stated that the current research contributes to the literature on the current approach and application of progressive HR tools in the environment of Slovak companies, as well as their view on the importance of implementing the elements in the future. In addition to the current knowledge expansion for the professional public, the findings of the current research also provide a practical use for the enterprises’ management that could re-evaluate current HR concepts to increase their attractiveness for a quality workforce. A possible intervention in such entities could be a real benefit for their competitiveness in the current acute shortage of skilled human resources or the post-pandemic era, when skilled and committed employees appear even more crucial than ever. It is precisely in this era that they are required or expected to be even more flexible, more efficient, more committed and more belonging to the enterprises. To this end, as the research confirms, it is desirable to use the modern HR tools analyzed. Therefore, identifying a suitable means of familiarizing these entities with modern tools and concepts in human resource management systems, whether in the form of professional courses or specialized lectures, is worth considering.

## 6. CONCLUSION

The aim of the paper was to identify specific modern tools of human resource management applied in enterprises operating in Slovakia with a focus on maintaining and growth potential of their competitiveness in the European economic area. The research shows that there is a strong positive and, at the same time, statistically significant dependence between the actual application of the analyzed tools and concepts in the enterprises concerned and the degree of importance of the tools and concepts for the future of the enterprises. This confirms the existence of the so-called “aha effect” in all three analyzed tools, as the research reveals that the enterprises realize the importance of applying a modern concept, in this case in the field of human resource management, only after its implementation, and subsequently tend to apply it more globally and to a greater extent. Also, the enterprises under review that do not apply the analyzed tools



and concepts in practice do not perceive the degree of their importance for the future of the enterprises, which can be seen as a major negative in the context of increasing competitiveness, especially on the labor market, for enterprises operating in Slovakia. The authors' goal for future research is to determine how to effectively increase the share of enterprises operating in the Slovak Republic that will apply these modern tools. The size of the research set (Table 1) and the one-off data collection are perceived as limitations of the research. As the research limit, the authors also consider the size of the regional research sample due to the fact that only companies operating in the Slovak Republic territory were the research participants. Therefore, the plan is to expand the research sample to a minimum of V4 countries. Therefore, the authors intend to conduct the survey again and expand the research set to neighboring countries in order to compare the results in the broader area.

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