SUMMARY

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EDITORIAL

Multiteaming in the Workplace: Challenges for Human Resources Policies and Organizational Development

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Multiteaming – what it is, why is it relevant for practitioners and researchers

The way work gets done has changed radically in the past years. As the complexity of job requirements have increased, most organizations have switched from individual work to teams or team based structures such as multi-teaming or multiple team membership (MTM) (Mathieu, Hollenbeck, van Knippenberg, & Ilgen, 2017).

MTM is a form of work design whereby employees take part in multiple projects and work teams during a given time frame. While such a way of organizing work within organizations is not new, it is definitely on the rise. 65% up to 95% of employees across the globe operating in knowledge intensive industries currently work in a MTM setting (O'Leary et al., 2011). The average number of teams they are concurrently part of is four (Mortensen et al., 2007) and such teams can span across the boundaries of their main organization. Organizations in Romania are no exception. Multi-teaming is a frequent choice for (and not limited to) companies operating in the information technology (IT) sector, financial, management and human resources consultancy, as well as for research and development departments across manufacturing industries (e.g. automotive).

Multi-teaming is a popular work design choice for several reasons. First, the problems that organizations operating in these fields have to solve are complex and require pooling together highly specialized experts in order to deliver expected performance. For instance, an R&D engineering team designing the "smart" cars of the future draws on the expertise of automotive engineers, software developers and hardware specialists. An IT project team designing a banking application requires the involvement of banking specialists, user experience specialists, software developers and testers. As expertise is expensive, organizations strive to cut costs by reducing "bench time" (i.e. the amount of time where the contribution of a team member is not needed and the expert sits idle awaiting for tasks), and assigning them to multiple teams. Second, the choice of multi-teaming is also encouraged by the technological developments that allow virtual communication, and, thus, facilitate leveraging global talent with no constraints and for the precise amounts of time such global talent is needed. Third, the pressure for adopting multi-teaming is fostered by the rise of the so-called "gig economy" (i.e. a market that promotes short-term contracting of independent workers) (Mortensen & Gardner, 2017). In fact, an increasing number of highly skilled workers give up the traditional and

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confining working relations with a single organization; they strive for more flexibility and control of their assignments and choose to free-lance by taking up multiple projects with different, even competing organizations at the same time (Ashford, Caza & Reid, 2018).

Empirical research on the performance and well-being implications of multi-teaming (the very reason of prefering this arrangement) is paradoxically scant in comparison to the frequent adoption of this work design in practice. However, I will build on the available data and theories in order to describe the predictable challenges, as well as the opportunities stemming out of this work setting. I conclude by articulating the main implications of multiteaming for Human Resources (HR) policies and Organizational Development (OD) measures.

Challenges of multiteaming in organizations

So far, extant research showed inconclusive evidence regarding the link between the number of teams an employee is part of and work performance. Some studies showed a negative association between the number of teams an employee works in and individual and team performance (Brake et al., 2018; Cummings & Haas, 2012), while other studies showed a positive association between the number of teams and team performance (Bertolotti et al., 2015). Additionally, there is building evidence that multiteaming brings additional costs for employees' well-being, as MTM is associated with increased interpersonal frictions, less social support and reduced work engagement (Pluut, Fleștea & Curșeu, 2014).

These "gloomy" results regarding the implications of MTM for performance and employee well-being are related to the fact that, when simultaneously belonging to multiple teams within an organization, employees have to cope with some challenging work conditions that should be foreseen and addresed by both HR policies and OD measures.

#1: One implication of multiteaming for employees is the need to periodically switch contexts among the teams s/he is part of in order to deliver the required outputs. A team context is defined by the colleagues that are part of that team, the tasks one has to perform, as well as the technologies and procedures that one has to use within that team. Time fragmentation between teams, as well as the level of similarity among the teams contexts one is part of are two of the parameters that are claimed to explain and/or affect the influence of MTM on individual and organizational performance and well-being. While switching from a project team to another when experiencing idle time on one of them improves productivity, time allocation becomes challenging as the number of teams one is part of increases, and unexpected project events occur simultaneously demanding an employee's attention. Transitioning among very different team contexts (i.e. different task requirements and team cultures) is even more taxing. Multiteaming can thus become too much of a demand on the limited resources pool that an employee has at his/her disposal.

#2: Belonging to multiple teams also means relational tensions generated by difficulties in intra and inter-team coordination. When an employee is simultaneously part of multiple teams, s/he might not be able to promptly respond to demands, which is a common source of team process conflict (i.e. arguing on who should do what and when within a team). In turn, process conflict frequently transforms in relational conflicts (i.e. arguing on personal qualities and intentions), which impedes both performance and well-being (deWit, Jehn & Greer, 2012).

#3: Multiteaming increases an employee's, as well as the organization's interconnectivity. On the positive side, social capital theory (Kwon & Adler, 2014) highlights the potential resource gains (i.e. diverse experiences, perspectives and know-how) that an employee can achieve via multi-teaming and argues that such social capital is key for learning and performance. When one has access to best practices in different teams, one can transfer such knowledge from a team to another in order to deal with unpractical organizational routines. On the dark side, however, the

interconnectivity fostered by multiteaming also comes with a faster deployment of performance shocks within the organization. When multiple organizational teams share many members, a shock in one team (i.e. a technical problem that needs to be addressed, or interpersonal frictions arising in one of the teams) ripples in all the other teams that those employees are part of via attention shift (for the technical problem) and emotional contagion (for the interpersonal frictions) mechanisms.

#4: When concurrently working in multiple teams (most often than not) lead by different leaders, employees face challenges related to the less clear supervision. In such a work setting, no team leader/manager has a clear overview of the employee's workload and performance. Additionally, the same employee is possibly facing very different leadership styles and requirements that requires effort to handle.

Implications of multiteaming for HR policies and OD Measures

The new world of work includes more flexibility in work arrangements, increased complexity, flatter structures and less clear supervision. These are all encompassed by multiteaming as a work design. While MTM can definitely foster important organizational benefits (i.e. facilitate productivity, learning and innovation diffusion), it also entails major challenges: increased workload, job strain, relational tensions and „ripple effects". Given that HR management refers to "building the workforce and creating the human performances that the organization needs" (Boxall & Purcell, 2016, p. 28), I argue that HR policies can and should address the shortcomings of working in an MTM setting in order to reap its benefits.

Given the particularities of multiteaming, an important question is related to what are the qualities that would make an employee thrive in this work setting. By building on the work features related to MTM (i.e. task switching, time fragmentation, relational tensions), and on extant literature I argue that some of the required qualities for performing in MTM settings are related to: cognitive flexibility (i.e. individuals' general ability to switch between tasks and goals and effectively manage novelty) (Buttelmann & Karbach, 2017; Hirt, Devers, & McCrea, 2008); time management (i.e. individuals' ability to adjust time allocation in line with priorities), ambivalence tolerance (i.e. tolerance to experiencing conflicting emotions) (Ashford, Caza & Reid, 2018) and teamworking (i.e. en employees' ability to interact with colleagues in order to reach a common goal, while preserving a healthy climate). Research is still needed on testing the predictive power of these factors for performance and well-being in an MTM setting. Staffing procedures could then be adapted in order to include selection criteria that fit those requirements, while learning and development programs could be designed in order to train these skills.

An important challenge for HR policies related to performance evaluation and management is the lack of clear supervision associated with MTM. A common organizational practice is to ask the administrative leader (i.e. usually the departmental leader in a matrix organization) to carry on this process or, alternatively, the leader of the team the employee spends most of his/her working time. Both of these practices build on fragmented views of such an employee's performance and can easily be associated with perceptions of organizational injustice. Performance management should move towards a better integration of the employee's working experience, by also relying on all leaders supervising and employee's work.

Finally, multiteaming comes with great potential for fostering organizational learning and performance, due to the increased connectivity. Organizational development measures could target ways of facilitating knowledge deployments from an organizational team to another. Training leaders to reinforce norms that foster knowledge sharing across teams and lead by example is such a measure (Mortensen & Gardner, 2017).

To conclude, it is not enough to want to optimize employee and organizational

productivity by assigning them to multiple teams. If organizations strive to be successful by implementing this work design measure, then they should definitely follow-up with aligned HR policies and OD measures that buffer the negative effects of multiteaming (i.e. time fragmentation, context switching etc.) and foster the benefits related to reducing bench time and knowledge deployment. Finally, more research is needed in order to assist organizations in adjusting these policies.

References

Ashford, S. J, Caza, B. B. & Reid, E. M. (2018). From surviving to thriving in the gig economy: A research agenda for individuals in the new world of work. *Research in Organizational Behavior*, https://doi.org/10.1016/j.riob.2018.11.001

Bertolotti, F., Mattarelli, E., Vignoli, M., & Macrì, D. M. (2015). Exploring the relationship between multiple team membership and team performance: The role of social networks and collaborative technology. *Research Policy*, *44*, 911–924. http://dx.doi.org/10.1016/j.respol.2015.01.019

Boxall, P., & Purcell, J. (2016). *Strategy and human resource management* (4th ed.). Basingstoke: Palgrave.

Brake, H.J., Walter, F., Rink, F. A., Essens, P.J.M.D. & van der Vegt, G.s. (2016). The dynamic relationship between multiple team membership and individual job performance in knowledge-intensive work. *Journal of Organizational Behavior*, *39*, 1219–1231. http://dx.doi.org/10.1002/job.2260.

Buttelmann, F., & Karbach, J. (2017). Development and plasticity of cognitive flexibility in early and middle childhood. *Frontiers in Psychology, 8*. http://dx.doi.org/10.3389/fpsyg.2017.01040.

Cummings, J. N., & Haas, M. R. (2012). So many teams, so little time: Time allocation matters in geographically dispersed teams. *Journal of Organizational Behavior*, 33, 316–341. http://dx.doi.org/10.1002/job.777.

de Wit, F. R. C., Greer, L. L & Jehn, K. A. (2012). The Paradox of Intragroup Conflict: A Meta-Analysis. *Journal of Applied Psychology, 97*(2), 360–390. http://dx.doi.org/10.1037/a0024844.

Hirt, E. R., Devers, E. E., & McCrea, S. M. (2008). I want to be creative: Exploring the role of hedonic contingency theory in the positive mood-cognitive flexibility link. *Journal of Personality and Social Psychology, 94*(2), 214–230. http://dx.doi.org/10.1037/0022-3514.94.2.94.2.214.

Kwon, S. W., & Adler, P. S. (2014). Social capital: Maturation of a field of research. *Academy of Management Review*, *39*, 412–422.

Mortensen, M., & Gardner, H. K. (2017). The Overcommitted Organization. *Harvard Business Review*. Retrieved from https://hbr.org/2017/09/the-overcommitted-organization

Pluut, H., Flestea, A. M., & Curs¸eu, P. L. (2014). Multiple team membership: A demand or resource for employees? *Group Dynamics: Theory, Research, and Practice*, *18*, 333–348. http://dx.doi.org/10.1037/gdn0000016.

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RESEARCH ARTICLE

Psychological Assessment Reports in Selection Decisions: The Role of Spatial Contiguity Principle

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Abstract

Two ways of building psychological assessment reports were explored in two separate cvasi-experimental studies. In the first study, depending on their assigned experimental group, participants received either an integrated or a spatially distant type of report. They were subsequently invited to choose, based on the reports and a corresponding job description, the better candidate for a fictitious job, out of two options. The obtained results suggest that there is no significant difference between the two groups. Thus, the way in which the reports were structured did not influence in any way the participants' decision. For the second experiment, which had a similar approach, an eye-tracker was used. Participants were asked to solve the same task, while their eye movements were recorded. The only significant between-group difference was in regards to the integrated transitions the participants made between the graphic and the text. No significant difference was observed regarding the number of fixations or the duration of fixations between the two groups. Based on these results, we argue that the two contrasted ways of building an assessment report do not influence the accuracy of decisions made.

Keywords

psychological reports, psychological report design, personnel selection, cognitive psychology, spatial contiguity principle, eye-tracking methodology

This paper addresses the issue of developing psychological assessment reports, from the perspective of cognitive ergonomics. In organizational contexts, selection and personnel development decisions are subsequent to assessment processes, typically based on assessment reports. Despite this topic being neglected by the scientific literature at large, the way in which reports are built is as important as the assessment process itself, and arguably falls under the direct responsibility of test developers. The negative effects of a psychological report that does not communicate critical information in a compelling way and therefore leads to poor hiring decisions are just as bad as the case in which the evaluation tools themselves are not methodologically sound: ultimately in both cases decisions are based on incomplete or erroneous information.

The way people are presented information strongly influences their decision-making processes, from the manner and amount of involvement they exhibit, to the potential errors that may arise; these effects are highlighted by multiple studies (Ariely, 2000;

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Bonnardel, Piolat & Le Pigot, 2011; Lurie & Mason, 2007). Although this effect is easily visible, the mechanism by which it occurs is not yet fully understood (Kelton, Pennington & Tuttle, 2010). While these studies are focused primarily on testing multiple ways of building websites, their conclusions may also be applied to building assessment reports.

Psychological reports can be structured in a variety of ways, as there is no standard in this respect: they can include either text or graphics, or a combination of text and graphics; they may be colored or black-and-white, descriptive or behavioral, etc. Aside from visual attractiveness, how well are they built to be effective in selection decisions? Unfortunately, we did not identify a single study in the literature that would address this issue. Moreover, the literature is also poor in terms of explanatory mechanisms about how people make such decisions, specifically on how they go about choosing between two alternatives. Payne observed, in 1976, that the mathematical models developed so far to explain decision-making behavior have been shown to have a large number of drawbacks. All the proposed models have received some empirical support, but none of them represents a fully satisfactory explanatory model. This lack of consensus was also emphasized by the fact that later research almost completely ignored choice behavior, focusing either on the study of strategic decisions (e.g., Beusenitz & Barney, 1997), or on bounded rationality theory, as proposed by Kahneman and Tversky (e.g., Levy, 1997).

Therefore, considering the above-mentioned arguments regarding the effect of the presentation of information on individual behavior and decision making, and the lack of studies in the scientific literature on the design of psychological reports, the aim of this paper is to evaluate the efficiency of two ways of structuring an assessment report that includes both text and graphics. To this effect we have drawn upon two cognitive theories that help underpin a rational approach to our research question: cognitive fit theory and cognitive load theory.

Cognitive Fit Theory

Studies based on this framework have demonstrated that there must be a match between the task and the task representation (Dunn & Grabski, 2001; Hong, Thony & Tam, 2004). Furthermore, the way in which the task is represented affects the mental processes involved in its realization (Kelton et al., 2010). When such a match exists, a consistent and accurate representation of the problem is formed in the working memory, and this results in better performance. Instead, when there is no match, people have to apply extra cognitive effort to mentally transform the representation of the problem into a construct that suits its ways of solving it. Lack of cognitive matching will lead to bad decisions and/or increase the time needed to solve the problem (Kelton et al., 2010; Speier, 2006).

Research based on this theory was focused mainly on studying how the specificity of a problem dictates whether its representation should be made using either graphs/charts or tables, the two approaches having a different influence on performance (Speier, 2006). Tasks that require comparing data and understanding relationships are better processed when represented by graphs (Hard & Vanecek, 1991), and tasks requiring only the use of discrete data values are better processed with tables (Amer 1991). By extrapolation, decisions based on assessment reports may be easier to process when information is represented by graphics and not by tables.

A number of studies argue that processing and learning are easier when information is presented in a form that combines text and graphics (Butcher, 2006; Mayer, 2009; Moreno & Mayer, 2005). Experimental studies on this topic have demonstrated that using graphics supplementary to text improves performance by more than one standard deviation (Fletcher & Tobias, 2005; Mayer 2009). Also, the presentation of information in a combination of text and graphics has an effect not only on the retention of information but also on profound understanding (Sung & Mayer, 2012), which then reflects in better problem-solving skills (Mayer 2002, 2009). This may be due to the fact that graphic representation complements the limitations of

representing information exclusively through text, summarizing its essence (i.e., macrostructure) and reducing the mental effort that individuals have to invest (Lim & Benbasat, 2002). Moreover, the human mind uses two information processing channels, one for verbal information processing – written or spoken, and one for processing information in the form of images – static or dynamic (Mayer 2009). Structuring the material in the form of text and graphics thus takes advantage of both of these channels, using an individual's whole cognitive capacity.

To summarize, cognitive fit theory states that there must be a certain match between the actual task and its representation, and that this correspondence reduces the mental effort that a person invests when interacting with the material; structuring assessment reports in a combined form of text and graphic should be more effective for cognitive processing.

Cognitive Load Theory

The second theory underlying this work has as its main objective the reduction of cognitive load and cognitive effort, and builds on the fact that working memory has a limited capacity (Baddeley, 1992; Sweller, Merrienboer & Paas, 1998). Because too many elements can overload working memory and negatively impact information processing, cognitive load theory can be used to guide information structuring in such a way that cognitive performance is not impaired. According to cognitive load theory, three sources of cognitive load could overload working memory and prevent learning (Ginns, 2006; Sweller & Chandler, 1994): intrinsic cognitive load, extraneous cognitive load and germane cognitive load.

Intrinsic cognitive load refers to the degree of interactivity between the elements of a complex stimulus and the complexity of the information to be processed (Florax & Ploetzner, 2010; Ginns, 2006). In other words, in the case of complex materials, elements cannot be understood in isolation from each other and will involve a high consumption of working memory resources. On the other hand, materials with low complexity allow learning without significant consumption of resources, as their elements can be understood in isolation. We note in this context that the degree of complexity of a stimulus cannot be fully assessed objectively; the evaluation depends to some extent on the familiarity people have with it (Speier, 2006).

Extraneous cognitive load prevents learning and the forming of cognitive schemes in long-term memory, and arises from the way information is presented (Paas, Renkl & Sweller, 2004). An inappropriate presentation leads to an unnecessary use of cognitive resources. This can also be explained through the precepts of cognitive fit theory presented above – when the representation of the task is not appropriate with the task itself, mental effort requirements increase.

Germane cognitive load refers to the active processing people display towards learning. Although the conceptualization of cognitive load into three elements has received support over time, recent conceptualizations (Paas & Sweller, 2014; Schroeder & Cenkci, 2018; Sweller, Ayres & Keluga, 2011) suggest abandoning this type of cognitive load, because of high overlap between the germane and intrinsic cognitive load. Some researchers suggested replacing this label with "relevant resources" (Kalyuga, 2011).

To summarize, according to cognitive load theory, the level of intrinsic and extraneous load should not exceed working memory capacity. Considering the specific level of intrinsic load of a given material, an increase in the extraneous cognitive load will lead to a decrease in the capacity of working memory, and thus to lower performance (Ginns, 2006).

Practical Conclusions for Report Design

In light of these theoretical frameworks, how should psychological reports be structured so as to ease the cognitive work of readers? Several design principles have been suggested, including the split attention principle and the spatial contiguity principle. The two are relatively similar, and in essence state that materials are easier to process when the parts describing the same information are spatially close to one another (Ayres & Sweller, 2014; Holsanova, Holmberg &

Holmqvist, 2008). The first principle derives directly from cognitive load theory, while the second was proposed by Moreno and Mayer (1999) as the essence of the cognitive theory of multimedia learning. Given that the split attention principle was also used in order to refer to the segmentation of the material over time, not just spatially, Moreno and Mayer suggested replacing it with two other terms, respectively - the spatial contiguity principle and the temporal contiguity principle (Schroeder & Cenkt, 2018).

The spatial contiguity principle postulates that people make more cognitive effort to process a material when related information is separated by space (Moreno & Mayer, 1999). This effect has been demonstrated in numerous studies (e.g., Cierniak, Scheiter, Gerjets, 2009; Craig, Twyford, Irigoyen & Zipp, 2015; Mayer & Fiorella, 2014), and their conclusions were mostly in the same direction: it is easier to learn when dealing with an integrated material, especially when the material is complex (Ginns, 2006). Two meta-analyses offer a general picture of how this principle works (Ginns, 2006; Schroeder & Cenkci, 2018), reporting effect sizes of d = 0.72 and g = 0.80, respectively. Unfortunately, no study included in these meta-analyses aimed to test the effectiveness of an integrated material in a decision-making process; research was exclusively carried out in learning tasks, so that it is not very clear how the principle of spatial contiguity is applied to other types of tasks.

Our study aims to address this limitation and gap in the literature in two separate experiments, both with the intention of expanding the above-mentioned theories in the field of decision-making, as well as building scientific evidence on the effective ways of constructing an assessment report. Considering this objective, two ways of building a report will be tested: (a) an integrated form, where the graph and its explanations are spatially close to one another, and (b) a spatially distant form, where the graph and text are presented separately on the page. For the first experiment, we forward the following hypothesis:

H1: The proportion of people making the right decision based on an integrated material is significantly higher than the proportion of people making the right decision based on the spatially distant material.

Eye-Tracking Methodology and the Spatial Contiguity Principle

The second experiment addresses the principle of spatial contiguity through the use of an eye-tracker. Eye-tracking methodology has been commonly used in various domains, such as the film industry (e.g., d'Ydewalle & Gielen, 1992; Holsanova et al., 2009) and has recently been adopted in the handling of multimodal materials, especially in learning tasks (e.g., Ozcelik, Arslan-Ari & Cagiltay, 2009). In organizational settings, eye-tracking methodology is still rarely used (Meißner & Oll, 2019). However, recent studies started to embrace this methodology, but most of them are in the marketing area (e.g., Bigne, Llinares & Torrecilla, 2016; Wastlung, Otterbring, Gustafsson & Shams, 2015).

Eye movement pattern is an indicator of the cognitive processes people perform during tasks (Ozcelik et al., 2009). For example, as a general rule, fixations can be interpreted as indicators of cognitive load; twice as many fixations in a certain area of the page can be translated as twice as much cognitive effort exercised (Duchowski, 2007). However, as Duchowski observed, this assumption is not always true. It is possible that the participant may be bored or entertained, or simply staring blankly. It is also possible that the fixations in a certain area can be explained by the complexity of the material; complex materials require increased attention in those areas that are more difficult to understand. In spite of these limitations, eye tracking methodology is an objective measure of cognitive processing (Johnson & Mayer, 2012), and constitutes an important aid in understanding cognitive processing, as well as in formulating explanatory mechanisms for already demonstrated effects, such as the spatial contiguity effect (van Gog & Scheiter 2010).

A number of studies aimed to record eye movements as a means of explaining how integrated materials lead to better learning, compared to spatially distant materials; they concluded that participants who were offered an integrated material had significantly more transitions of integration between graphs and

text (Holsanova et al., 2009) and had significantly more graph fixations (Schmidt-Weigand, Kohnert & Glowalla, 2010), and these two aspects led to better task performance.

Based on these findings, the aim of our second experiment is to explain and qualify the results obtained of the first experiment, by using eye movement patterns. For this purpose, three variables relevant for cognitive processing were analyzed - the duration of the fixations on the graph, the number of fixations on the graph and the number of integrations between the graph and the text. The following hypotheses were formulated:

H2: The length of fixations on the graph will be higher for an integrated design than for a spatially distant design.

H3: The number of fixations on the graph will be higher for an integrated design than for a spatially distant design.

H4: The number of integration transitions will be higher for an integrated design than for a spatially distant design.

Experiment 1

Experiment 1 aimed to test the principle of spatial contiguity in a task involving two different assessment reports, where participants had to select the more suitable candidate for a job. In accordance with cognitive load theory and the spatial contiguity principle, we formulated the hypothesis that people tend to perform better in the task (i.e., correctly selecting the right job candidate) when handling an integrated report, compared to the situation in which they received a report with spatially distant components. This is because processing a segmented material requires more cognitive effort, which will lead to an overload in working memory and, further, to a high consumption of cognitive resources. Thus, when people will have to perform the actual task, many of their cognitive resources will have already been depleted. On the other hand, processing an integrated material does not raise such problems, space contiguity coming to the aid of a limited memory capacity.

Methods

Participants

The sample consisted of 110 participants, out of which 74.5% were women (N = 82) and 25.5% men (N = 28), with an average age of 29.71 years (SD = 9.5). Mainly students with interests in the area of organizational psychology (68.2%) were targeted, as well as some participants with practical experience in this field (38.2%). Of those with work experience, the sample included: teachers (N= 9), entrepreneurs (N = 2), psychologists (N= 11), human resources specialists (N = 3), consultants (N = 4), career counselors (N = 1) and research assistants (N = 1).

The sample was based on convenience sampling: invitations to participate in the study were handed out in a national conference of industrial-organizational psychology, as well as between students attending undergraduate classes in a faculty of psychology.

Instruments

The study assessed how the design of a report influences task performance in a decision task. Participants received either an integrated or a spatially distant assessment report (depending on the experimental group in which they were distributed) and were asked to choose, based on those reports and a job description, the candidate most suitable for the job. The two design types of the material represented the independent variable of the study, measured on a dichotomic scale – *integrated design* versus *spatially distant design*. The dependent variable was represented by the accuracy of the decision, also measured on a dichotomic scale – the *correct answer* versus *the wrong answer.*

Procedure

The experimental stimuli used in this study were the two types of psychological reports mentioned above. For each type of design, two reports of two different candidates were built, based on the Occupational Personality Questionnaire (Bartram, Brown, Fleck, Inceoglu & Ward, 2006).

The reports have been structured in such a manner as to have an objectively correct and wrong decision, and to have not-so-obvious differences between the two candidates. To this effect, we divided the job description into main activities (e.g., budget management) and secondary activities (e.g., checking of promotional materials). The personality traits of the OPQ questionnaire were also divided into features that candidates should have (e.g., coordination, persuasion) and features that candidates would be preferable to have (e.g., adaptability). In this context, the profile of the first candidate (representing the right choice) was designed to show high scores on some important features and average scores on other important features. The profile of the second candidate was built in the opposite way – it had high scores on the features the first candidate scored average at, and average scores on the others. The same principle was used for the less important features for the job. The scale scores in the report were validated and confirmed by five experienced consultants, all agreeing on the right decision. In order not to influence the participants' decisions, neutral English names were used to differentiate the two fictional candidates (e.g., Alex and Ellis).

The two reports were each structured as an integrated design (Experimental Group 1) or in a spatially distant design (Experimental Group 2). The integrated design implied a spatial approach between the graph and the related explanations, so that in the middle of the page there was a bar graph, and on the left and right there were the behavioral descriptions for each scale, for a small to a large score, respectively. The spatially distant design implied the use of the same chart type and the same information in the text, yet the text was entirely positioned below the graph. In order not to influence the participants, the reports did not contain any clues about the hierarchy of the two candidates (e.g., 1 or 2), and fictitious names were used to differentiate them. Participants were randomized into Experimental Groups 1 and 2 by extracting a ticket. Subsequently, they received the job description for the role of *Advertising and Promotions Manager* as well as the reports for each experimental group. In order not to influence the decision, the order in which the participants received the reports was random. Also during the training, participants were told that any other relevant workplace features other than those in the OPQ reports were equivalent between the two candidates. The task was timed, each participant having eight minutes to read the job description and select the right person. The time limit was chosen following a pilot test before the study was implemented.

Analysis

For the analysis of the collected data, the chi-square test of association was used; the right or wrong decision participants made was associated with the experimental group they were part of (integrated design or spatially distant design). Using the Cochran-Mantel-Haenszel test, we also controlled for two confounded variables, which could have influenced the results: (a) the extent to which participants were familiar with the OPQ; and (b) their experience in hiring decisions based on assessment reports.

Results

Table 1 displays the number and percentage of participants in each group. One of the experimental group included 58 participants, 34 of whom responded correctly (58.6%) and 24 responded incorrectly (41.4%). In the other experimental group, 52 participants were included, of which 30 responded correctly (57.7%) and 22 responded incorrectly (42.3%). Irrespective of the experimental group they participated in, 64 of the participants selected the candidate correctly, and 46 of them made the wrong decision.

Table 1. *Number and Percentage of Participants for Each Group*

Design Type	Decision		Total
	Correct	Wrong	
Integrated	34 (58.6%)	24 (41.4%)	58
	(.0)*	(-.1)*	
Spatially distant	30 (57.7%)	22 (42.3%)	52
	(.0)*	(.1)*	
Total	64	46	110

Note. * = Standardized residual values.

The chi-square test was used to test the association between report type and the right hiring decision. All expected frequency values were greater than 5, the lowest value being 21.75. The data related an insignificant association between the two variables, $\chi^2(1) = 0.10$, $p = .921$. The effect size was not significant either, $\phi_c = 0.009$, $p = 1.000$.

We also tested two confounded variables which could have influenced the results: the extent to which participants were familiar with the OPQ instrument and their experience in decision making hiring based on assessment reports. For this purpose, the Cochran-Mantel-Haenszel test was used. The data did not support the effect of either of the two covariates, $\chi^2(1) = .005$, $p = .944$, and $\chi^2(1)= 0.005$, $p = .946$ respectively (Table 2).

Table 2. *Covariate Control*

	Decision*Familiarity OPQ			Decision*Experience with reports		
	Chi-Squared	df	Asymptotic Sig.	Chi-Squared	df	Asymptotic Sig.
Mantel-Haenszel	.005	1	.944	.005	1	.944

Note: df = degrees of freedom

In order to compute the study power, a post hoc analysis was run, yielding a power of 0.05. Therefore, we can conclude that the study was underpowered.

Discussion

We conclude that our research hypothesis was not supported by the data – there was no significant difference between the participants who made the hiring decision on the basis of an integrated report versus those deciding based on a spatially distant report. Moreover, almost half of the participants ($N = 46$) selected the wrong candidate, regardless of the group they were part of. Furthermore, the results could not have been influenced by the interference of covariates within the design, their effect being statistically insignificant.

Experiment 2

The second experiment was a proof of concept study, aiming to explain the results of Experiment 1. For this purpose, eye movements were recorded using an eye-tracker. According to the scientific literature, the way people visually approach the task can be an explanatory mechanism of performance in that task. In the context of spatial contiguity, previous studies have demonstrated that integrated materials facilitate both the number of integrations between graph and text, and the focus on information in the graph.

Methods

Participants

For this experiment, data were collected from a convenience sample of 37 participants, however only those who got at least a 70% data

entry record were included in the statistical analyses. Consequently, 5 participants were excluded. Another participant was excluded from the analysis due to the fact that it was an outlier. The final sample ($N = 31$) comprised 5 men and 26 women, with a mean age of 24.47 years ($SD = 4.71$). Participants were either graduates ($N = 4$), graduate (Master) students ($N = 24$) or third year undergraduate students ($N = 3$) in a faculty of psychology.

Instruments

For this experiment, the design type of the report (integrated or spatially distant) represented the independent variable, and the measurements related to participant eye movements represented the dependent variables: the length of their fixations on the graph, the number of fixations on the graph and the number of integrations. The duration of the graph fixations was measured in seconds and represents the total number of seconds each participant spent in analyzing the graph. The number of graph fixations is provided by aggregating the number of glances pointing to the same area of the graph. The number of transitions between the text and the graph represents the total times when the participants have moved their eyes from the text to the graph, and vice versa. The first two variables are indicators of the selection, and the third variable is an indicator of the integration of information. Eye movement data were collected using a Tobii Eye tracker 2150, owned by the Faculty of Sociology and Social Sciences, University of Bucharest.

Procedure

Similar to Experiment 1, two reports were built based on the Motivation Questionnaire (MQ; SHL 1992, 2002). A short version of the MQ report, adapted to this research, was used, and it included only eight scales out of 18. The decision for this shortening was based on the low resolution of the Tobii screen (1024 x 640), which made it impossible to read a larger report on the screen. Similar to Experiment 1, the two reports were structured in an integrated form (Experimental Group 1) and in a spatially distant form (Experimental Group 2).

Participants were given the same job description for the role of *Advertising and Promotions Manager* and two integrated or spatially distant design reports, depending on the group they were part of. The participants were randomized into the two groups with the help of a random generator. In this experiment, the two reports appeared on the screen side by side, the program not allowing a randomization of their order. All participants had the candidate's report representing the wrong choice on the left-hand side of the screen, and the correct candidate's report to the right side of the screen. Each participant had 75 seconds to select the right person, a pre-determined test time. In order not to influence the participants' decisions, neutral English names were used to differentiate the two fictional candidates (e.g., Jamie and Charlie).

Analysis

Prior to the actual statistical analysis, the key areas of interest (AOI) were delineated with Tobii Studio. In defining these AOI, both reports displayed on screen were taken into account. There were two areas of interest for the graphical portions and two areas of interest for the text portions, covering together about 66% of the total screen. The data from these corresponding areas were aggregated as an average of the two. Based on these data, three variables were analyzed: the duration of fixations (measured in seconds), the number of fixations and the number of integrations. The chi-square test of association was used to verify whether there is a significant difference between the two groups in terms of the correctness of the decision. Following this step, the three hypotheses of this experiment were tested using the t test for independent samples.

Results

Within one of the experimental group ($N = 15$), six participants responded correctly and nine responded with the wrong decision. In the other experimental group ($N = 16$), 11 participants responded correctly and five

responded with the wrong decision (Table 3). To test the association between the design type and the right hiring decision, the chi-square test of association was used. All expected values were greater than .5, the lowest being 7.2.

Table 3. *Number and Percentage of Participants in Each Group*

Design Type	Decision		Total
	Correct	Wrong	
Integrated	6	9	15
	(-.8)*	(.9)*	
Spatially distant	11	5	16
	(.8)*	(-.8)*	
Total	17	15	32

Note. * = Standardized residual values.

Data revealed an insignificant association between the two variables, $\chi^2(1) = 3.13$, $p = .156$. The effect size was also not statistically significant, $\phi_c = 0.31$, $p = .156$. We also computed a study power post hoc analysis, yielding a power of 0.22. Therefore, we can conclude that the study was underpowered.

The *t* test for independent samples was conducted in order to analyze differences in eye movement. Extreme values ($N = 1$) were eliminated, following an examination of the boxplot. Also, all three dependent variables were analyzed for a normal distribution of data using the Shapiro-Wilk test ($p > .05$). The means and standard deviations of the eye-tracking measurements for the two experimental groups are available in Table 4.

Table 4. *Mean and Standard Deviations for the Associated Variables, and Independent Sample t Test Results*

	Design type									
	Integrated		Spatially distant							
Eye-tracking Measures	M	SD	M	SD	*t*	df	Sig.	Mean Difference	95% CI	*d*
Length of graph fications	12.40	5.32	13.10	8.27	-.27	29	.784	-0.69	[-5.84, 4.45]	0.1
Number of grapf fixations	38.66	15.72	33.09	19.8	.86	29	.395	5.57	[-7.62, 18.77]	0.3
Number of integrations	62.33	15.40	38.75	14.08	4.45	29	.000	23.58	[12.75, 34.41]	1.59

Note: M = mean, *SD* = standard deviation, *df* = degrees of freedom, *sig* = significance, *CI* = confidence intervals

Considering the results of the *t* test, the data only supported the fourth hypothesis: $t(29) = 4.45$, $p = .000$. According to this result, participants from Experimental Group 1 made more integrated transitions between graph and text ($M = 62.33$, $SD = 15.40$), compared to Experimental Group 2 ($M = 33.09$, $SD = 19.8$). The recorded effect size between the two variables was high, $d = 1.59$. Concerning the other two hypotheses (regarding the duration

and number of fixations on the graph), the data did not support a significant difference between the two experimental groups, $t(29) = -.27$, $p = .784$ and $t(29) = .86$, $p = .395$. The difference between the averages of these groups was of 0.69 and 5.57, respectively. These results are available in Table 4.

Although no hypotheses were formulated in this respect, the data gathered were also analyzed in regards to the differences in eye movements between those who answered correctly and those who answered incorrectly, for each of the two experimental groups. We considered the decision (correct/incorrect) as an independent variable, and we reanalyzed the dependent variables from the perspective of outliers and distribution normality.

Table 5. *Mann-Whitney U Test*

	Design Type			
	Integrated		Segmented	
	U	Sig.	*U*	Sig.
Length of graph fixations	29	.864	16	.221
Length of text fixations	27	1.000	28	1.000
Number of graph fixations	29	.864	16	.221
Number of text fixations	21.5	.529	31	.743
Number of integrations	34.5	.388	31	.743

Following this procedure, we used the Mann-Whitney U test. The data did not display a significant difference between those who answered correctly and those who answered incorrectly, for any of the five variables in either of the two design types (Table 5).

Discussion

According to the chi-square test, this experiment did not reveal that the structure of the report had a significant effect on the accuracy of the hiring decision. The only hypothesis supported by the data was that an integrated design of the material facilitates integration transitions between graphics and text. The data also did not support significant differences in eye movements between the participants who selected the right candidate and the participants who selected the wrong candidate.

General Discussion

Focusing on the effectiveness of psychological assessment reports, this paper has reported on two experiments that have tested the spatial contiguity principle, applied to the construction of assessment reports. As previously stated, there is no standard in the construction of assessment reports with big consequences on the selection process the candidates have been through. Therefore, we have drawn upon the cognitive fit theory and the cognitive load theory, both of them being tested so far only in educational settings and learning tasks. We extended these theories in the field of decision-making, mainly in selection settings, in order to find scientific evidence on the effective ways of constructing an assessment report. Another element of novelty of this research is the use of eye-tracking methodology outside the marketing area, and within an industrial-organizational psychology research.

Contrary to the general findings of the scientific literature (Craig, Twyford, Irigoyen & Zipp, 2015; Mayer & Fiorella, 2014), the data gathered in the first experiment could not support the superiority of the integrated material over the spatially distant one: the two experimental groups displayed very similar results. Specifically, of the participants who have received a report with an integrated design, about 58% selected the correct candidate, and among the participants who received a report with a spatially distant design, 57% provided the correct answer. In the second experiment we detected more

accurate responses within the group that received an integrated report compared to the other group, but the difference is statistically insignificant. Taking into account the results of the first experiment and the magnitude of the effect size available in the scientific literature on integrated materials, the only explanation for the results of Experiment 2 is the very small sample size (i.e., the study was underpowered), which did not allow for capturing a real picture of the data. The data collected with the eye-tracker does not show much consistency in the sense of an underlying explanatory mechanisms: the only hypothesis supported by the data was that an integrated form of the report facilitates the integration transitions between graph and text. In other words, when the text is in close proximity to the corresponding graphical presentations, people tend to better integrate the information. This is consistent with previous research (Johnson & Mayer 2012). Unfortunately, the integration of information was not reflected in the accuracy of the decision; although the participants of the first experimental group achieved more integration, this did not affect performance in the actual task. Although previous studies suggest that people who handle an integrated design pay more attention to graphic representations (Schmidt-Weigand et al., 2010), the results of our studies did not detect a significant difference between the two experimental groups in terms of the number or duration of fixations on the graph. Moreover, following in-depth analyses of differences in the pattern of eye movement between those who gave the correct answer and those who did not, no significant effect for any of the studied variables was obtained.

The results of this paper could be explained from several perspectives. First of all, according to the post hoc analysis, both sample sizes were too small to detect a significant difference between groups. Secondly, the lack of profound understanding of the job description could lead to incorrect decisions. The actual understanding participants had regarding the job description was not controlled for in any way.

Another potential explanation of the inconclusiveness of the results is that the spatial contiguity principle, which was the underlying theoretical framework of this paper, was exclusively tested in learning tasks. Although the magnitude of the effect reported by such studies is high, $d = 0.72$ (Ginns, 2006), this principle may not be as effective in decision-making processes. Moreover, previous research has concluded that the spatial contiguity principle is better observed in complex tasks where people have no prior knowledge of the material presented, or when the understanding of the graphical representations used does not require associated verbal explanations (Mayer & Fiorella, 2014). In this context, it is unclear what the complexity of the assessment reports is and how much prior experience the participants would need in order to be able to solve the task optimally. Regarding the results of Experiment 2, the duration and number of fixations on the graph did not differ between the two groups; one possible explanation could be that each type of report was presented on a single page, and the principle of space contiguity could not be captured in such a presentation, because participants in both Group 1 and Group 2 similarly analyzed both the text and the graph.

We point to a number of limitations of this paper. Firstly, we note that the sample sizes are small (i.e., both studies were underpowered) and the samples are mainly comprised of participants with no prior experience in the field of assessment. Secondly, we point to the fact that the design did not assess to what extent participants have correctly understood the information provided in the job description. Future studies should first address these two limitations. Thirdly, in order to investigate explanatory mechanisms of the relationship between the information presented in a report the subsequent hiring decision, researchers should aim to use a portable and not a static eye-tracker. The spatial contiguity principle could be more easily detected in the context in which the report would be presented in its entirety on paper, with asignificantly larger distance between the graph and the text.

In conclusion, although this paper could not capture any significant effects of how information is presented in an assessment

report, the fact that nearly 50% of respondents have provided a wrong answer is a solid argument for this line of research, speaking for the importance of continued research in this area.

References

Amer, T. (1991). An experimental investigation of multi-cue financial information display and decision making. *Journal of Information Systems*, *5*(2), 18-34.

Ariely, D. (2000). Controlling the information flow: Effects on consumers' decision making and preferences. *Journal of Consumer Research*, *27*(2), 233-248.

Ayres, P., & Sweller, J. (2005). The split-attention principle in multimedia learning. *The Cambridge Handbook of Multimedia Learning*, *2*, 135-146.

Baddeley, A. (1992). Working memory. *Science*, *255*(5044), 556-559.

Bartram, D., Brown, A., Fleck, S., Inceoglu, I., & Ward, K. (2006). *OPQ32 Technical Manual.* Thames Ditton: SHL Group Ltd.

Bigne, E., Llinares, C., & Torrecilla, C. (2016). Elapsed time on first buying triggers brand choices within a category: A virtual reality-based study. *Journal of Business Research*, *69*(4), 1423-1427.

Bonnardel, N., Piolat, A., & Le Bigot, L. (2011). The impact of colour on Website appeal and users' cognitive processes. *Displays*, *32*(2), 69-80.

Busenitz, L. W., & Barney, J. B. (1997). Differences between entrepreneurs and managers in large organizations: Biases and heuristics in strategic decision-making. *Journal of Business Venturing*, *12*(1), 9-30.

Butcher, K. R. (2006). Learning from text with diagrams: Promoting mental model development and inference generation. *Journal of Educational Psychology*, *98*(1), 182.

Craig, S. D., Twyford, J., Irigoyen, N., & Zipp, S. A. (2015). A test of spatial contiguity for virtual human's gestures in multimedia learning environments. *Journal of Educational Computing Research*, *53*(1), 3-14.

Cierniak, G., Scheiter, K., & Gerjets, P. (2009). Explaining the split-attention effect: Is the reduction of extraneous cognitive load accompanied by an increase in germane cognitive load?. *Computers in Human Behavior*, *25*(2), 315-324.

Duchowski, A. T. (2007). Eye tracking methodology. *Theory and Practice*, *328*, 614.

Dunn, C., & Grabski, S. (2001). An investigation of localization as an element of cognitive fit in accounting model representations. *Decision Sciences*, *32*(1), 55-94.

d'Ydewalle, G., & Gielen, I. (1992). Attention allocation with overlapping sound, image, and text. In *Eye Movements and Visual Cognition* (pp. 415-427). Springer, New York, NY.

Fletcher, J. D., & Tobias, S. (2005). The multimedia principle. *The Cambridge Handbook of Multimedia Learning*, *117*, 133.

Florax, M., & Ploetzner, R. (2010). What contributes to the split-attention effect? The role of text segmentation, picture labelling, and spatial proximity. *Learning and Instruction*, *20*(3), 216-224.

Ginns, P. (2006). Integrating information: A meta-analysis of the spatial contiguity and temporal contiguity effects. *Learning and Instruction*, *16*(6), 511-525.

Hard, N. J., & Vanecek, M. T. (1991). The implications of tasks and format on the use of financial information. *Journal of Information Systems*, *5*(2), 33-47.

Holsanova, J., Holmberg, N., & Holmqvist, K. (2009). Reading information graphics: The role of spatial contiguity and dual attentional guidance. *Applied Cognitive Psychology: The Official Journal of the Society for Applied Research in Memory and Cognition*, *23*(9), 1215-1226.

Hong, W., Thong, J. Y., & Tam, K. Y. (2004). The effects of information format and shopping task on consumers' online shopping behavior: A cognitive fit perspective. *Journal of Management Information Systems*, *21*(3), 149-184.

Johnson, C. I., & Mayer, R. E. (2012). An eye movement analysis of the spatial contiguity effect in multimedia learning. *Journal of Experimental Psychology: Applied*, *18*(2), 178.

Kalyuga, S. (2011). Cognitive load theory: How many types of load does it really need?. *Educational Psychology Review*, *23*(1), 1-19.

Kelton, A. S., Pennington, R. R., & Tuttle, B. M. (2010). The effects of information presentation format on judgment and decision making: A review of the information systems research. *Journal of Information Systems*, *24*(2), 79-105.

Lim, K. H., & Benbasat, I. (2002). The influence of multimedia on improving the comprehension of organizational information. *Journal of Management Information Systems*, *19*(1), 99-127.

Levy, J. S. (1997). Prospect theory, rational choice, and international relations. *International Studies Quarterly*, *41*(1), 87-112.

Lurie, N. H., & Mason, C. H. (2007). Visual representation: Implications for decision making. *Journal of Marketing*, *71*(1), 160-177.

Mayer, R. E. (2002). Multimedia learning. In *Psychology of Learning and Motivation* (Vol. 41, pp. 85-139). Academic Press.

Mayer, R. E. (2009). Multimedia learning (2nd ed.). New York: Cambridge University Press.

Mayer, R. E., & Fiorella, L. (2014). 12 Principles for Reducing Extraneous Processing in Multimedia Learning: Coherence, Signaling, Redundancy, Spatial Contiguity, and Temporal Contiguity Principles. *The Cambridge Handbook of Multimedia Learning*, 279.

Meißner, M., & Oll, J. (2019). The promise of eye-tracking methodology in organizational research: A taxonomy, review, and future avenues. *Organizational Research Methods*, *22*(2), 590-617.

Moreno, R., & Mayer, R. E. (1999). Cognitive principles of multimedia learning: The role of modality and contiguity. *Journal of Educational Psychology*, *91*(2), 358.

Moreno, R., & Mayer, R. E. (2005). Role of guidance, reflection, and interactivity in an agent-based

multimedia game. *Journal of Educational Psychology*, *97*(1), 117.

Ozcelik, E., Arslan-Ari, I., & Cagiltay, K. (2010). Why does signaling enhance multimedia learning? Evidence from eye movements. *Computers in Human Behavior*, *26*(1), 110-117.

Payne, J. W. (1976). Task complexity and contingent processing in decision making: An information search and protocol analysis. *Organizational Behavior and Human Performance*, *16*(2), 366-387.

Paas, F., Renkl, A., & Sweller, J. (2004). Cognitive load theory: Instructional implications of the interaction between information structures and cognitive architecture. *Instructional Science*, *32*(1), 1-8.

Paas, F., & Sweller, J. (2014). Implications of cognitive load theory for multimedia learning. *The Cambridge Handbook of Multimedia Learning*, *27*, 27-42.

Schmidt-Weigand, F., Kohnert, A., & Glowalla, U. (2010). Explaining the modality and contiguity effects: New insights from investigating students' viewing behaviour. *Applied Cognitive Psychology: The Official Journal of the Society for Applied Research in Memory and Cognition*, *24*(2), 226-237.

Schroeder, N. L., & Cenkci, A. T. (2018). Spatial contiguity and spatial split-attention effects in multimedia learning environments: a meta-analysis. *Educational Psychology Review, 30*(3), 679-701.

SHL Group (1992, 2002). *Motivation Questionnaire manual and user's guide.* Thames Ditton, UK: SHL.

Speier, C. (2006). The influence of information presentation formats on complex task decision-making performance. *International Journal of Human-Computer Studies*, *64*(11), 1115-1131.

Sung, E., & Mayer, R. E. (2012). When graphics improve liking but not learning from online lessons. *Computers in Human Behavior*, *28*(5), 1618-1625.

Sweller, J., & Chandler, P. (1994). Why some material is difficult to learn. *Cognition and Instruction*, *12*(3), 185-233.

Sweller, J., Van Merrienboer, J. J., & Paas, F. G. (1998). Cognitive architecture and instructional design. *Educational Psychology Review*, *10*(3), 251-296.

Sweller, J., Ayres, P., & Kalyuga, S. (2011). Measuring cognitive load. In *Cognitive load theory* (pp. 71-85). Springer, New York, NY.

Van Gog, T., & Scheiter, K. (2010). Eye tracking as a tool to study and enhance multimedia learning. *Learning and Instruction, 20*(2), 95-99.

Wästlund, E., Otterbring, T., Gustafsson, A., & Shams, P. (2015). Heuristics and resource depletion: eye-tracking customers' in situ gaze behavior in the field. *Journal of Business Research*, *68*(1), 95-101.

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RESEARCH ARTICLE

On the Link between Transformational Leadership and Employees' Work Engagement: The Role of Psychological Empowerment

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Abstract

The results of previous studies have consistently supported the relationship between transformational leadership style and work engagement, yet the focus is now on the explanatory mechanisms. This study aims to investigate whether psychological empowerment could be a potential mediator of the relationship between the two constructs. Featuring new knowledge reported in the literature, a non-experimental, cross-sectional study based on a sample of 174 participants from different industries was conducted. The results of the statistical analysis showed that transformational leadership style is a significant predictor of engagement. Moreover, psychological empowerment partly mediated the relationship between transformational leadership and employees' work engagement. These findings reiterate both the importance and the efficiency of the transformational leader in relation to the positive outcomes of the subordinates. Also, it highlights a potential motivational process that underpins these results.

Keywords

transformational leadership, work engagement, psychological empowerment, motivational process

Numerous theoretical frameworks had outlined the relationship between transformational leadership style and employees' work engagement, the most frequently used being the Social Exchange Theory (Blau, 1968). However, the inherent criticisms associated with this theoretical framework refer to the lack of specificity due to the leader's style and explanations (Blomme, Kodden, & Beasley-Suffolk, 2015). Based on this observation, firstly, this paper analyzes the relationship between transformational leadership and the employees' level of work engagement, using a specific framework, namely the Job Demands-Resources (JD-R) model (Bakker & Demerouti, 2007; Bakker & Demerouti, 2014). Furthermore, although various mechanisms have been proposed as mediators of the relationship between transformational leadership and work engagement, this topic has not been covered yet. In this manner, our second objective investigates the mediating effect of psychological empowerment within the mentioned relationship.

From the beginning, the concept of work engagement has gained momentum due to its positive valence (Simpson, 2009). For example, the association between work engagement and in-role performance and extra-role performance is well-established (Babcock-Roberson & Strickland, 2010; Buil,

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Martínez, & Matute, 2018; Salanova, Lorente, Chambel, & Martínez, 2011). Additionally, work engagement is positively associated with both employee and customer satisfaction, productivity and profitability of the organization, and is negatively associated with turnover and work accidents (Harter, Schmidt, & Hayes, 2002).

Considering the multiple positive effects of work engagement, distinct antecedents were examined, embracing individual and organizational levels. The transformational leadership style is often conveyed as an antecedent of work engagement. As follows, roughly three decades after its emergence, valuable insights are provided (Mhatre & Riggio, 2014), as transformational leadership's efficiency is reflected not only by the employees' results, but also by the entirety of the organization. Additionally, related to the falling dominoes effect, it was established that transformational leadership style – adopted at a higher hierarchical level – is also adopted by leaders from the following lower level (Bass, Waldman, Avolio, & Bebb, 1987).

Various theoretical frameworks had explored the relationship between transformational leadership style and employees' work engagement. However, the most intensely used have been the Social Exchange Theory (Blau, 1968). In short, as the principle of reciprocity claims, specific actions taken by the leader determine a positive response from the employees, leading to a higher level of work engagement (Cropanzano & Mitchell, 2005). Nevertheless, critics complain about the lack of specificity (Blomme, Kodden, & Beasley-Suffolk, 2015).

Therefore, distinctive from the prior perspective, we attempt to explain the mentioned relationship through the lens of the Job Demands-Resources (JD-R) model (Bakker & Demerouti, 2007; Bakker & Demerouti, 2014). A significant number of studies revealed the relationship between a broad range of job resources and work engagement (Quiñones, den Broeck, & De Witte, 2013; Saks, 2019). The category of work resources goes beyond features strictly associated with the work task (Bakker & Demerouti, 2007). Starting from this assumption, the transformational leadership style - as a social resource - could be associated with a high level of employees' work engagement through the motivational process proposed by the JD-R model.

Although different explanatory mechanisms have been put forward as mediators in the relationship between transformational leadership and work engagement, Avolio, Walumbwa, & Weber (2009) suggested that the process by which transformational leaders motivate their employees requires further investigation. In response to this call, our study aims to analyze empowerment as a potential mediator within the prior relationship. As stated in the early days of theorizing on the transformational leadership style, such a leader facilitates positive work results by psychologically empowering the employees. Nevertheless, there is limited support for the association between transformational leadership, psychological empowerment and work engagement.

As follows, conceding that psychological empowerment proves to be an explanatory mechanism in the relationship between transformational leadership and work engagement, advanced directions of psychological intervention may be foreseen.

Transformational leadership style and work engagement

Work engagement outlines a persistent and extensive cognitive-affective state, which is not limited to an object, event, individual or behavior. It consists of three specific components: vigor, dedication and absorption (Schaufeli, Salanova, González-Romá, & Bakker, 2002). The Job Demands-Resources model is a frequently used framework for analyzing the antecedents and consequences of work engagement and other important outcomes for organizations (Bakker & Demerouti, 2007; Bakker & Demerouti, 2014). Actually, the JD-R model was first developed as a stress explanatory model where burnout was the main outcome investigated (Bakker & Demerouti, 2017). The first proposition of model assumed that all jobs are defined by a series of demands, and a set of

available resources. The dynamic relationship between these characteristics (i.e., demands and resources) conducts the employee's level of performance and burnout. Years later, with the development of the Utrecht Work Engagement Scale (UWES; Schaufeli, Salanova, González-Romá, & Bakker, 2002), the JD-R model demonstrated flexibility in explaining also positive outcomes, such as work engagement. Instead of looking at what is wrong with employees, it was now possible to investigate under which conditions employees flourish at work (Bakker & Demerouti, 2017). In this context, the second proposition of JD-R model is that job demands and resources instigate two very different processes, namely a health-impairment process that leads to negative outcomes and a motivational process that leads to positive outcomes. One of the motivational assumptions of the JD-R model claims that when being provided with enough resources the employee would not only accomplish the position's tasks but also exert extra-role behaviors, via work engagement as a mechanism. As follows, within this model, work engagement plays a primary role.

A sequence of resources such as task variety, task significance, autonomy, feedback, social support from colleagues, etc., found empirical support for their potential to facilitate work engagement (Rich, Lepine, & Crawford, 2010). Although it is not based on the theoretical framework of the JD-R model, the impact of the transformational leader on employees' attitudes and behaviors has also benefited from extensive support (Enwereuzor, Ugwu, & Eze, 2018; Hayati, Charkhabi, & Naami, 2014) and could effortlessly be treated as an employees' resource. Transformational leadership could naturally be defined as a „style of leadership that transforms followers to rise above their self-interests, by altering their morale, ideals, interests, and values, motivating them to perform better than initially expected" (Pieterse, van Knippenberg, Schippers, & Stam, 2009, p. 610). Transformational leadership became noticeable in the late 1970s, when leadership research experienced a paradigm shift from traditional leadership approaches to what has been labeled positive forms of leadership (Hoch, Bommer, Dulebohn, & Wu, 2018). Burns (1978) introduced transformational leadership to describe the ideal situation between political leaders and their followers. Although other forms of positive leadership have appeared in the literature (e.g., ethical, authentic, and servant leadership) none of them has been shown to have incremental validity above and beyond transformational leadership in explaining various criteria (Hoch, Bommer, Dulebohn, & Wu, 2018).

The leadership style - a social aspect of the work context - could serve as a resource, facilitating not only the fulfillment of key assertions of work, but it could also act as a motivator, fostering employees' growth. Moreover, the transformational leader, through the specificity of his behavior, could facilitate access to other job resources, contributing to an increased level of engagement. For example, intellectual stimulation involves providing feedback along with challenging tasks to stimulate problem-solving, while individualized consideration could encourage the development of employees' distinctive resources according to their needs, competencies and aspirations.

As stated in the JD-R model, a significant role of job resources consists of their potential to reduce the negative effect of job demands (Bakker & Demerouti, 2007). In this regard, employees having transformational leaders will perceive job demands in terms of challenges (Cavanaugh, Boswell, Roehling, & Boudreau, 2000). Suggestive from this perspective is a study conducted by Breevaart & Bakker (2018) showing that the transformational leadership style has not only increased employees' engagement - taking into account high work demands (cognitive requirements, workload) - but it has also moderated the impact of stressors (role conflict) on work engagement. Therefore, employees would treat work tasks as challenges, not as strains. This pattern updates the fact that leaders are an essential resource for their subordinates, helping them reach their organizational goals, even under stressful working conditions (Breevaart & Bakker, 2018).

In addition, leadership could facilitate the development of alternative resources not only at the job level but also at the individual level.

A study conducted by Tims, Bakker & Xanthopoulou (2011) identified the daily level of employees' optimism as a mediator of the relationship between transformational leadership and work engagement. Even under high demands, the leader who motivates and pays attention to the employees' needs enhances a higher level of optimism. Therefore, guided by the optimistic attitude towards achieving the goals, the employee is more engaged and willing to make additional efforts (Tims, Bakker, & Xanthopoulou, 2011). Accordingly, based on this argument from recent literature, our first hypothesis is rather confirmatory:

H1: Transformational leadership style is positively related to employees' work engagement.

The mediating effect of psychological empowerment

Various explanatory mechanisms have been proposed for the relationship between transformational leadership and employees' work engagement (e.g., Bui, Zeng, & Higgs, 2017; Li, Castaño, & Li 2018). However, studies that approached empowerment as such a mechanism are non-existent.

Two research directions on empowerment have emerged in the literature. Structural empowerment was associated with Kanter's name (1987) and emphasized a set of policies designed to decentralize power, allowing lower-level employees to execute appropriate actions. Subsequently, Conger & Kanungo (1988) mark the shift to a motivational perspective, namely psychological empowerment, arguing that these two forms of empowerment are distinct manners of approaching the concepts of power and control.

Psychological empowerment is characterized by a set of four cognitions: meaning, self-determination, self-efficacy and impact, which are formed in relation to the work environment. Nevertheless, psychological empowerment is not a pervasive feature in various contexts and its extended character explains why different people manifest different degrees of empowerment (Spreitzer, 1995).

Given that this concept is often described in terms of intrinsic motivation, the premise of its association with the transformational leadership style is easily outlined. Thus, the transformational leader could facilitate favorable results of the employees by stimulating their intrinsic motivation. It is acknowledged that, unlike transactional leadership, the transformational leader promotes intrinsic motivation (George & Sabhapathy, 2010). Therefore, psychological empowerment captures this process, which is further manifested in the employees' perception regarding not only their influence on the work environment, but also their ability to successfully perform their duties.

Spreitzer (2008) stated that a supportive and trusting relationship is essential for employees' empowerment. A possible relationship between these variables has been prefigured since the outset of the transformational leadership. For instance, Bass (1999) suggested that empowerment could be a mediator in the relationship between leadership style and different organizational outcomes.

Moreover, one who is guided by a strong intrinsic motivation is likely to exhibit higher levels of absorption, energy and dedication, thus enhancing the level of work engagement (McAllister, 2016).

Even though it has been argued that psychological empowerment has received particular attention because „it provides a label for a nontraditional paradigm of motivation" (Thomas & Velthouse, 1990, p. 667), its relationship with one of the main concepts of motivation – work engagement – was under-investigated (Quiñones et al., 2013). It has been previously demonstrated that psychological empowerment is associated with job satisfaction, organizational commitment and turnover intention at an attitudinal level. Moreover, it is also related to task performance, OCB and innovation at a behavioral level (Seibert et al., 2011).

Although scarce, current studies have shown a positive association between psychological empowerment and work engagement. Macsinga, Sulea, Sârbescu, Fischmann, & Dumitru (2013) suggested that not only does psychological empowerment

positively correlate with engagement, but also that psychological empowerment has an increased incremental value over other predictors (personality traits and job tenure) of engagement.

In light of previous arguments, it could be assumed that psychological empowerment acts as a mediator of the relationship between leadership style and work engagement. Under the coordination of the transformational leader, subordinates become more intrinsically motivated (psychologically empowered) to perform their duties, which leads to high levels of work engagement (McAllister, 2016).

H2:Psychological empowerment will mediate the relationship between transformational leadership and employees' work engagement.

Method

This study is based on a non-experimental research model. The analyzed variables were transformational leadership style as an independent variable, work engagement as a dependent variable and psychological empowerment – presumed mediating variable. Due to the inability to control or manipulate the independent variable, the research design was a cross-sectional one.

Prior studies have reported variables such as gender, age, level of education, and job tenure as being positively associated with both work engagement and psychological empowerment (Quiñones et al., 2013; Seibert et al., 2011). On this account, in the present study they were used as control variables. The time that employees spend interacting with their supervisors varies, as there are differences in the working hours. Because the type of work (full-time/part-time) was not included in the conditions of participation, the number of working hours in a week was also treated as a control variable.

Participants and procedure

The sample was constructed using the snowball sampling method. To estimate the minimum number of participants, a power analysis using the statistical program „G * Power 3.1.9.2" (Faul, Erdfelder, Buchner, & Lang, 2014) was performed. Thus, in order to obtain a mean effect size (.15) at a statistical power of .08, the program estimated that 153 participants were needed.

A number of 184 people from a variety of industries (IT, human resources, sales, psychology and psychotherapy, education and others) initially answered the questionnaire. One questionnaire was deleted because it was a duplicate and another participant was excluded, due to his suspended employment at the time of completing the questionnaire. Also, following the preliminary data analysis, cases with missing values or identified as extreme values were excluded. The final sample consisted of 174 persons aged between 20 and 58 years (M = 29.57; SD = 6.64). Of these, 97 were women (55.7%) and 77 were men (44.3%).

The questionnaire was distributed online, on social networks, access to completion being achieved through the „Google Drive" platform. Participants were informed about the study and the conditions of inclusion, about the confidentiality of the data provided and about the possibility of withdrawing at any time. Participation was voluntary and anonymous, no personal data being requested. No incentives were used. The conditions of participation included having a job and a direct superior within the respective job.

Instruments

Transformational leadership. The transformational leadership style was assessed using the 15-item Transformational Leadership Questionnaire, developed by Rafferty and Griffin (2004). Example of items includes: "Has a clear understanding of where we are going", "Says things that make employees proud to be part of this organization". Participants were asked to rate their level of agreement on a 5-point Likert scale ranging from „strong disagreement" (1) to „strong agreement" (5). Cronbach's Alpha for the scale was .91, 95% CI [0.89, 0.93].

Work engagement. Employee engagement was measured using the short version of the „Utrecht Work Engagement Scale" (Schaufeli, Bakker, & Salanova, 2006). The scale consists of 9 items. Three items are allocated for each of the three dimensions: vigor („At my work, I feel

bursting with energy"), dedication („I am enthusiastic about my job"), absorption („I get carried away when I am working"). Responses were scored on a 7-point Likert scale ranging from 0 („never") to 7 („always"). This scale was validated on the Romanian population (Vîrgă et al., 2015). Both single-factor and three-factor models had acceptable values. Cronbach Alpha coefficients for the 3 scales ranged from .70 to .80, indicating good internal consistency. For the unifactorial model, the consistency was constantly higher than the previous one, gravitating around .90. According to the authors, the unifactorial model for Romania proves to be the most appropriate, regardless of the organization. (Vîrgă et al., 2015). In this study, Cronbach's Alpha coefficient was 0.92, 95% CI [0.90, 0.93].

Psychological empowerment. Psychological empowerment was measured using the „Psychological Empowerment Scale" (Spreitzer, 1995). This questionnaire comprises 12 items, for example: „I am confident about my ability to do my job", „I have a great deal of control over what happens in my department". Participants answered the questionnaire items using a 7-point Likert scale, ranging from strong disagreement (1) to strong agreement (7). In this study Cronbach's Alpha for the entire scale was 0.91, 95% CI [0.89, 0.93].

Results

All data were analyzed using SPSS 25. During the first stage, descriptive statistics were obtained for all the variables included in the study. Table 1 displays demographic information of the sample. Before properly testing the hypotheses, the variables were subjected to a preliminary analysis. The data was complete, no missing values were identified. Next, the extreme values were analyzed. Scores with 3 standard deviations beyond the mean were considered outliers and were eliminated from the analysis, resulting in a final sample of 174 participants.

Table 1. *Descriptive statistics for demographic variables*

Variables	*N*	Percent (%)
Age	*M* = 29.57	*SD* = 6.64
Gender		
Female	97	55.7%
Male	77	44.3%
Education		
High school	31	17.8%
Bachelor's degree	76	43.7%
Master's degree	66	37.9%
Ph. D	1	0.6%
Job tenure	*M* = 3.27	*SD* = 2.95
Working hours/week	*M* = 39.84	*SD* = 7.63

Note: M = Mean, *SD* = Standard deviation, *N*=174

To test the distribution for normality and multicollinearity, a multiple regression analysis was performed. The analysis of the tolerance index and VIF coefficient had values within the normal limits, not indicating a problem of multicollinearity. For normality, the distribution of residual values was analyzed. Table 2 presents the means, standard deviations and correlations for all three variables.

Table 2. *Descriptive statistics and inter-scale correlations*

	M	*SD*	1	2
1 Transformational leadership	3.83	.62		
2 Psychological empowerment	5.55	.86	.47**	
3 Work engagement	4.44	.93	.44**	.61**

Note: *M* = mean; *SD* = standard deviation; *N* = 174. * $p < .05$, ** $p < .001$.

The correlations recorded between variables have mean values, all being statistically significant. There is a positive, statistically significant correlation between transformational leadership style and employee engagement ($r = .44$, $p < .001$), which means that an increase in the transformational leadership style is associated with a higher level of work engagement. A positive, close correlation was also identified between the transformational leadership and the perceived level of psychological empowerment ($r = .47$, $p < .001$). Subordinates of the transformational leader are more likely to perceive a higher level of psychological empowerment. The strongest correlation was between the perceived level of psychological empowerment and employees' work engagement ($r = .61$, $p < .001$). Thus, high values of empowerment are associated with greater engagement.

Hypotheses were tested using the MEDIATE macro (Hayes, 2018). The proposed model examined the effect of transformational leadership style on work engagement through psychological empowerment. Age, gender, education level, job tenure and number of working hours were introduced as covariates.

This program calculates multiple regression analysis providing information on the total, direct and indirect effect. Its advantage compared to the algorithm proposed by Baron & Kenny (1986), respectively the Sobel test, is related to a higher statistical power. In addition, compared to prior models, it provides clues on the statistical significance of the indirect effect using the bootstrap method. The authors recommend that the estimation of the confidence intervals should be based on the calculation of 10,000 samples extracted from the initial data sets (Hayes & Preacher, 2014). The indirect effect is significant when zero is not within the confidence interval.

Our first hypothesis corresponds to the total effect. The results of the regression analysis displayed by Process indicate that transformational leadership style is a significant predictor of work engagement ($\beta = .51$, $p < .001$). Controlling for demographic variables, the transformational leadership style accounted for 27% of the variance in work engagement ($R^2 = .27$, $p < .001$). The background variables – gender ($\beta = .11$, $p > .05$), level of education ($\beta = .10$, $p > .05$), number of working hours ($\beta = .005$, $p > .05$) and job tenure ($\beta = .07$, $p > .05$) – were not significant predictors. In contrast, a low association between age and work engagement was identified ($\beta = .16$, $p < .05$).

Transformational leadership style was a significant predictor of psychological empowerment ($\beta = .54$, $p < .001$). Controlling for the background variables, it explained about 28% of the variance in psychological empowerment ($R^2 = .28$, $p < .001$). Most demographic variables made a non-significant contribution in predicting psychological empowerment: gender ($\beta = .04$, $p > .05$), education ($\beta = .09$, $p > .05$), age ($\beta = -.03$, $p > .05$), job tenure ($\beta = .11$, $p > .05$). The number of working hours was the only significant control variable ($\beta = .18$, $p < .05$).

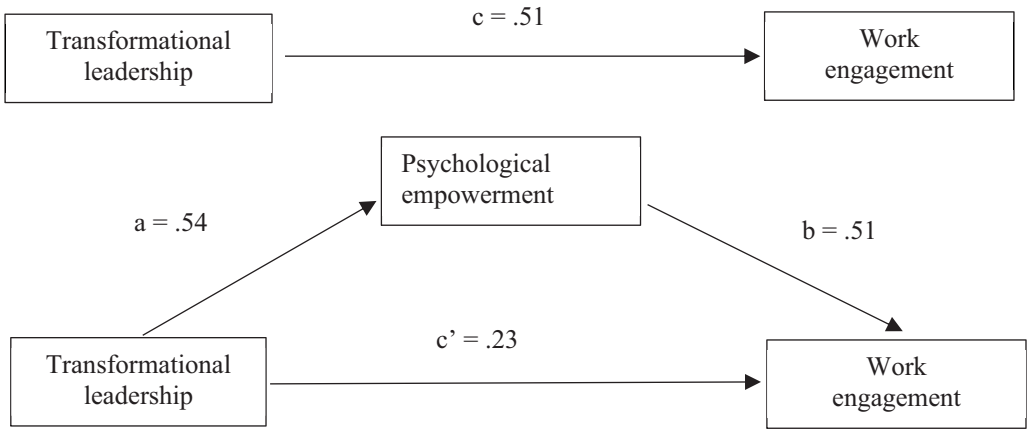
A final regression analysis presents both the relationship between psychological empowerment and work engagement and the direct effect of the mediation relationship. Psychological empowerment was shown to be a predictor of work engagement ($\beta = .51$, $p < .001$). Along with demographic variables, transformational leadership style and psychological empowerment accounted for 46% of the variance in work engagement

(R^2 = .46, p < .001). The only significant control variable was age (β = .18, p < .01).

Detailed results and coefficients for these variables, as well as the results of the mediation analysis are presented in Table 3. Results for the direct effect show that the relationship between transformational leadership and work engagement remained statistically significant when controlling for psychological empowerment (β =. 23, p < .01). However, differences in results may exist due to the sample size, so these data are not enough to conclude whether there is a total or partial mediation (Hayes, 2018). There is a tendency to analyze the indirect effect, which corresponds to the effect of transformational leadership on work engagement via psychological empowerment. Results showed that zero was not within the confidence interval, suggesting a statistically significant effect.

Table 3. *Total, direct and indirect effect of transformational leadership on work engagement*

	Coefficient β	*Se*	R^2	*CI95%*
Total effect	.51***	.10	.27***	
Covariates				
Gender	.11	.13		
Age	.16*	.01		
Education	.10	.08		
Job tenure	.07	.02		
Working hours	.00	.00		
Direct effect	.23**	.10		
Indirect effect	.28	.05		[0.17, 0.39]



Note: Reported values correspond to standardized coefficients (β); a - effect of transformational leadership on empowerment; b - effect of empowerment on work engagement; c – total effect; c' – direct effect

Figure 1. *Final Research Model*

Discussions

The current study aimed to investigate whether and to what extent the transformational leadership style is associated with the employees' work engagement and to test whether psychological empowerment mediates this relationship. The results showed that leadership style is a significant predictor of work engagement. Similar findings have been reported by other authors (Breevaart & Bakker, 2018; Hayati, Charkhabi, & Naami, 2014).

These results could be explained based on the motivational process proposed by the Job Demands-Resources model (Bakker & Demerouti, 2007). Prior studies assign employees' resources to the category of elements strictly associated with the work task. However, job resource classification should include various aspects associated with either social or interpersonal relationships (Bakker & Demerouti, 2007). In this regard, our first contribution to the literature was to treat transformational leadership as a social resource.

In essence, the transformational leadership style, in light of a social resource, stimulates the employees to invest a higher level of energy. Therefore, they will confront much easier the inherent obstacles and will remain connected to their work, meaning they will have a higher level of work engagement.

By discovering a partial mediation relationship between transformational leadership style, psychological empowerment and work engagement, the second hypothesis was supported. According to the results, empowerment carries off part of the transformational leadership effect on work engagement. Keeping the same framework, proposed by the JD-R model, empowerment follows the pattern of this motivational process. Spreitzer (1995) defined empowerment by placing it within the paradigm of intrinsic motivation. Accordingly, transformational leadership by empowering employees stimulates, indeed, intrinsic motivation. Therefore, the employees are more engaged and are acting due to the virtue of their motivation, not being driven by any external enforcement. An intrinsically motivated person (psychologically empowered) could become more easily absorbed and energized by his or her work (McAllister, 2016).

Based on a similar approach, Quiñones, den Broeck, & De Witte (2013) analyzed various job resources, including support from colleagues, superiors, and autonomy, showing that psychological empowerment contributes to the motivational process proposed by the Job Demand-Resources model.

Theoretical and Practical implication

A series of theoretical and practical implications are descending from the current study. Regarding the theoretical perspective, firstly, transformational leadership and work engagement have been priory investigated by the lenses of Social Exchange Theory, while present findings add to the academic literature, by drawing on the JD-R model to establish transformational leadership as an employees' resource. Secondly, from a theoretical point of view, it is not enough to discover the existence of a relationship between two variables, it is also imperative to determine the explicative mechanisms associated with this relationship. Therefore, the next theoretical implication consists of providing the literature with an additional explanatory key regarding the relationship between transformational leadership and employees' work engagement.

In terms of practical implications, this study reinforces the importance of the positive influence of the leadership style on the employees. Furthermore, it suggests to the organizational stakeholders to reconsider the promotion criteria related to the leadership positions. Namely, the promotions should not be based only on the frequently used condition of prior professional performance, but also on the need to promote in leadership positions those individuals who have the potential of being transformational leaders.

An additional practical direction is ensured by discovering a specific manner in which a transformational leader could have a positive influence on the employees' engagement. One of the strategies is for transformational leaders to exert empowerment behaviors. Finally, empowering others is a skill that could be

acquired by attending training or personal development programs. The positive relationship between transformational leadership and employees' engagement signals the importance of not only hiring managers who employ the transformational leadership style, but also to train current managers to lead with the transformational leadership style. The employees who feel empowered and engaged will have strong attachments with the organization who employs them, which will produce in turn higher retention levels, low absenteeism and counterproductive work behaviors, and high productivity levels.

Limitations and further directions

A first limitation of the study is the cross-sectional design. Bono & McNamara (2011) addressed the problem of cross-sectional designs for topics that involve organizational change. The relationship between leadership style and work engagement assumes that transformational leadership influences employees' work engagement. Along with the supposed mediation relationship, this involves causal inferences for which further studies are required.

The data on the variables included in the study were collected at the same time. The participants evaluated the transformational leadership style of their direct superior, the perceived degree of psychological empowerment as well as their level of engagement, which may be a source of common method bias. In addition, given the positive nature of the work engagement, scores for this variable may be inflated due to social desirability.

This study identified that psychological empowerment partially mediates the relationship between transformational leadership style and work engagement, which suggests that there could be numerous other explanatory mechanisms. Future research should investigate more than one potential mediator and consider how more similar variables could be associated, providing a comprehensive explanation. For instance, close to this framework, upcoming studies could analyze the potential mediating effect of both structural and psychological empowerment. There are several other factors underpinning these results. Certain individual variables, such as psychological capital and proactive personality, could change our understanding regarding the association between transformational leadership and engagement. For example, people with high psychological capital are prone to perceive their control of the situation, thus more easily immersing themselves into work. Other job characteristics, including the degree of relationship with the leaders or colleagues and trust in the leader could also explain the dynamics of this relationship. In particular, trust in leader plays a crucial role when evaluating the effectiveness of transformational leadership, which is subsequently reflected in a higher level of engagement.

While this study only investigated the mediating effect of psychological empowerment, a future research would aim to analyze patterns of change, depending on specific cultural particularities (e.g. power distance orientation and collectivism). It would be expected that a mediation relationship will exist especially in those cultures characterized by a low power distance. Also, the leader's unique vision is more likely to propagate in a collectivist culture. Since the individual plays an active role in determining the consequences of leadership (Howell & Shamir, 2005), it would be interesting to investigate if Person-Organization (P-O) fit perceptions act as a moderator. A previous study showed that structural empowerment and P-O fit interact to increase work engagement via psychological empowerment (Kimura, 2011). Following this line, transformational leadership could enhance work engagement only for those employees with a high level of P-O fit. Recent studies raise concerns about the moral dimension of leadership. Leaders could be „transformational" but also unethical and abusive, acting contrary to organizational values (Hoch, Bommer, Dulebohn, & Wu, 2018). In this respect, future work could shed light on the moderating effect of organizational justice in the relationship

between transformational leadership style and work engagement.

Furthermore, the present study addressed psychological empowerment from an individual perspective. Future research could adopt a team-oriented approach. The rationale is that the transformational leader offers a common vision, fostering employees' personal identification with the group (Kark et al., 2003).

References

Avolio, B. J., Walumbwa, F. O., & Weber, T. J. (2009). Leadership: Current Theories, Research, and Future Directions. *Annual Review of Psychology*, *60*(1), 421-449. https://doi.org/10.1146/annurev.psych.60.110707.163621

Babcock-Roberson, M. E., & Strickland, O. J. (2010). The Relationship Between Charismatic Leadership, Work Engagement, and Organizational Citizenship Behaviors. *The Journal of Psychology*, *144*(3), 313-326. https://doi.org/10.1080/00223981003648336

Bakker, A. B., & Demerouti, E. (2007). The Job Demands-Resources model: state of the art. *Journal of Managerial Psychology*, *22*(3), 309-328. https://doi.org/10.1108/02683940710733115

Bakker, A. B., & Demerouti, E. (2014). Job Demands-Resources Theory. In C. L. Cooper (Ed.), *Wellbeing* (pp. 1-28). https://doi.org/10.1002/9781118539415.wbwell019

Bakker, A. B., & Demerouti, E. (2017). Job demands–resources theory: Taking stock and looking forward. *Journal of Occupational Health Psychology,* 22(3), 273.

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*(6), 1173.

Bass, B. M. (1999). Two decades of research and development in transformational leadership. *European Journal of Work and Organisational Psychology*, 9–32.

Bass, B. M., Waldman, D. A., Avolio, B. J., & Bebb, M. (1987). Transformational Leadership and the Falling Dominoes Effect. *Group & Organization Studies*, *12*(1), 73-87. https://doi.org/10.1177/105960118701200106

Blau, P. M. (1968). Social exchange. *International Encyclopedia of the Social Sciences*, *7*, 452-457.

Blomme, R. J., Kodden, B., & Beasley-Suffolk, A. (2015). Leadership theories and the concept of work engagement: Creating a conceptual framework for management implications and research. *Journal of Management & Organization*, *21*(02), 125-144. https://doi.org/10.1017/jmo.2014.71

Breevaart, K., & Bakker, A. B. (2018). Daily job demands and employee work engagement: The role of daily transformational leadership behavior. *Journal of Occupational Health Psychology*, *23*(3), 338-349. https://doi.org/10.1037/ocp0000082

Bui, H. T. M., Zeng, Y., & Higgs, M. (2017). The role of person-job fit in the relationship between transformational leadership and job engagement. *Journal of Managerial Psychology*, *32*(5), 373-386. https://doi.org/10.1108/JMP-05-2016-0144

Buil, I., Martínez, E., & Matute, J. (2018). Transformational leadership and employee performance: The role of identification, engagement and proactive personality. *International Journal of Hospitality Management*. https://doi.org/10.1016/j.ijhm.2018.06.014

Burns, J. M. 1978. Leadership. New York: Free Press.

Cavanaugh, M. A., Boswell, W. R., Roehling, M. V., & Boudreau, J. W. (2000). An empirical examination of self-reported work stress among US managers. *Journal of Applied Psychology*, *85*(1), 65.

Conger, J. A., & Kanungo, R. N. (1988). The empowerment process: Integrating theory and practice. *Academy of Management Review*, *13*(3), 471-482.

Cropanzano, R., & Mitchell, M. S. (2005). Social Exchange Theory: An Interdisciplinary Review. *Journal of Management*, *31*(6), 874-900. https://doi.org/10.1177/0149206305279602

Enwereuzor, I. K., Ugwu, L. I., & Eze, O. A. (2018). How Transformational Leadership Influences Work Engagement Among Nurses: Does Person–Job Fit Matter? *Western Journal of Nursing Research*, *40*(3), 346-366. https://doi.org/10.1177/0193945916682449

Faul, F., Erdfelder, E., Buchner, A., & Lang, A. (2014). G∗ Power Version 3.1. 9.2 [Computer Software]. *Uiversität Kiel, Germany*.

George, L., & Sabhapathy, T. (2010). Work motivation of teachers: Relationship with transformational and transactional leadership behavior of college principals. *Academic Leadership Journal*, *8*(2), 201-207.

Harter, J. K., Schmidt, F. L., & Hayes, T. L. (2002). Business-unit-level relationship between employee satisfaction, employee engagement, and business outcomes: A meta-analysis. *Journal of Applied Psychology*, *87*(2), 268-279. https://doi.org/10.1037//0021-9010.87.2.268

Hayati, D., Charkhabi, M., & Naami, A. (2014). The relationship between transformational leadership and work engagement in governmental hospitals nurses: a survey study. *SpringerPlus*, *3*(1), 25. https://doi.org/10.1186/2193-1801-3-25

Hayes, A. F. (2018). Partial, conditional, and moderated moderated mediation: Quantification, inference, and interpretation. *Communication Monographs*, *85*(1), 4-40.

Hayes, A. F., & Preacher, K. J. (2014). Statistical mediation analysis with a multicategorical independent variable. *British Journal of Mathematical and Statistical Psychology*, *67*(3), 451-470.

Hoch, J. E., Bommer, W. H., Dulebohn, J. H., & Wu, D. (2018). Do ethical, authentic, and servant leadership explain variance above and beyond transformational leadership? A meta-analysis. *Journal of Management, 44*(2), 501-529.

Howell, J. M., & Shamir, B. (2005). The role of followers in the charismatic leadership process: Relationships

and their consequences. *Academy of Management Review*, 30(1), 96-112.

Kanter, R. M. (1987). Men and women of the corporation revisited. *Management Review*, *76*(3), 14.

Kark, R., Shamir, B., & Chen, G. (2003). The two faces of transformational leadership: Empowerment and dependency. *Journal of Applied Psychology*, *88*(2), 246-255. https://doi.org/10.1037/0021-9010.88.2.246

Li, Y., Castaño, G., & Li, Y. (2018). Linking leadership styles to work engagement. *Chinese Management Studies*, *12*(2), 433-452. https://doi.org/10.1108/cms-04-2017-0108

Macsinga, I., Sulea, C., Sârbescu, P., Fischmann, G., & Dumitru, C. (2013). Engaged, Committed and Helpful Employees: The Role of Psychological Empowerment. *The Journal of Psychology: Interdisciplinary and Applied.* https://doi.org/10.1080/00223980.2013.874323

McAllister, I. (2016). *The mediating role of psychological empowerment on the relationship*

between job and personal resources and employee engagement. Master's Theses. *4728.* DOI: https://doi.org/10.31979/etd.z89s-q6ff. Retrieved from https://scholarworks.sjsu.edu/etd_theses/4728

Mhatre, K. H., & Riggio, R. E. (2014). Charismatic and transformational leadership: Past,

present, and future. In D. V. Day (Ed.), Oxford library of psychology. The Oxford handbook of leadership and organizations (pp. 221-240). https://doi.org/10.1093/oxfordhb/9780199755615.013.012

Pieterse, A. N., van Knippenberg, D., Schippers, M., & Stam, D. (2009). Transformational and transactional leadership and innovative behavior: The moderating role of psychological empowerment. *Journal of Organizational Behavior*, *31*(4), 609-623. https://doi.org/10.1002/job.650

Quiñones, M., den Broeck, A. V., & De Witte, H. (2013). Do job resources affect work engagement via psychological empowerment? A mediation analysis. *Revista de Psicología Del Trabajo y de Las Organizaciones*, *29*(3), 127-134. https://doi.org/10.5093/tr2013a18

Rafferty, A. E., & Griffin, M. A. (2004). Dimensions of transformational leadership: Conceptual and empirical extensions. *The Leadership Quarterly*, *15*(3), 329-354. https://doi.org/10.1016/j.leaqua.2004.02.009

Rich, B. L., Lepine, J. A., & Crawford, E. R. (2010). Job engagement: Antecedents and effects on job performance. *Academy of management journal*, *53*(3), 617-635.

Saks, A. M. (2019). Antecedents and consequences of employee engagement revisited. *Journal of Organizational Effectiveness: People and Performance*, *6*(1), 19-38. https://doi.org/10.1108/joepp-06-2018-0034

Salanova, M., Lorente, L., Chambel, M. J., & Martínez, I. M. (2011). Linking transformational leadership to nurses' extra-role performance: the mediating role of self-efficacy and work engagement. *Journal of Advanced Nursing*, *67*(10), 2256-2266.

Schaufeli, W. B., Bakker, A. B., & Salanova, M. (2006). The Measurement of Work Engagement With a Short Questionnaire: A Cross-National Study. *Educational and Psychological Measurement*, *66*(4), 701-716. https://doi.org/10.1177/0013164405282471

Schaufeli, W. B., Salanova, M., González-Romá, V., & Bakker, A. B. (2002). The measurement of engagement and burnout: A two sample confirmatory factor analytic approach. *Journal of Happiness studies*, *3*(1), 71-92.

Seibert, S. E., Wang, G., & Courtright, S. H. (2011). Antecedents and Consequences of Psychological and Team Empowerment in Organizations: A Meta-Analytic Review. *Journal of Applied Psychology*, *96*(5), 981.

Simpson, M. R. (2009). Engagement at work: A review of the literature. *International Journal of Nursing Studies*, *46*(7), 1012-1024. https://doi.org/10.1016/j.ijnurstu.2008.05.003

Spreitzer, G. (1995). Psychological empowerment in the workplace: Dimensions, measurement, and validation. *Academy of Management Journal*, *38*(5), 1442-1465.

Spreitzer, G. (2008). Taking Stock: A Review of More than Twenty Years of Research on Empowerment at Work. În *The SAGE Handbook of Organizational Behavior: Volume I - Micro Approaches* (pp. 54-72). https://doi.org/10.4135/9781849200448.n4

Thomas, K. W., & Velthouse, B. A. (1990). Cognitive elements of empowerment: An "interpretive" model of intrinsic task motivation. *Academy of Management Review*, *15*(4), 666-681.

Tims, M., Bakker, A. B., & Xanthopoulou, D. (2011). Do transformational leaders enhance their followers' daily work engagement? *The Leadership Quarterly*, *22*(1), 121-131.

van Knippenberg, D., & Sitkin, S. B. (2013). A Critical Assessment of Charismatic - Transformational Leadership Research: Back to the Drawing Board? *The Academy of Management Annals*, *7*(1), 1-60. https://doi.org/10.1080/19416520.2013.759433

Vîrgă, D., Zaborilă, C., Sulea, C., & Maricuţoiu, L. (2015). Roumanian adaptation of Utrecht Work Engagement Scale: The examination of validity and reliability. *Psihologia Resurselor Umane*, *7*(1), 58-74.

Psihologia Resurselor Umane, **17** (2019), 88–97

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RESEARCH ARTICLE

The Dark Side of Humor in the Workplace: Aggressive Humor, Exhaustion and Intention to Leave the Organization

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Abstract

Humor is inherent to social interaction and research has mainly focused on the potential benefits of using humor at work. However, different types of humor exist and this study builds on the Job Demands-Resources Model (JD-R) to argue that aggressive humor in the workplace is a demand rather than a resource. Specifically, the study explores the association of aggressive humor and the intention to leave the organization manifested by the employees and the role of exhaustion as a potential explanatory mechanism. Moreover, the study explored the potential buffering role of the quality of leader-employee exchange (LMX) for the negative effects of aggressive humor. The study employed a cross-sectional design in order to test a moderated mediation model. Data were collected from 101 call-center operators and team leaders working in a multinational company. Our findings show indeed that aggressive humor in the workplace is predictive for exhaustion, which, in turn, predicts the employees' intentions to leave the organization. Contrary to our expectation, the moderating role of LMX did not receive empirical support. Theoretical and practical implications are discussed.

Keywords

aggressive humor, intention to leave, exhaustion, quality of leader-member exchange

Introduction

Humor and laughter are ubiquitous in social interaction both inside and outside of work. Within organizations, in particular, humor seems an important contributor to the productivity, creativity, motivation and wellbeing of employees (Guenter, Schreurs, Van Emmerik, Gijsbers & Van Iterson, 2013; Mesmer-Magnus, Glew & Viswesvaran, 2012; Romero & Cruthirds, 2006). Moreover, anecdotal evidence suggests that younger employees expect to work in a "fun" environment and are less likely to leave the organization when work is not boring (Levine, 2005; Romero & Pescosolido, 2008). As such, many organizations (e.g. Google, Microsoft) strive to build a culture of "fun".

At the same time, humor comes under many shapes and forms and may serve important emotional, cognitive or social functions that are sometimes paradoxical and in contradiction. For instance, humor can act as a coping mechanism under stress, a way to enhance cohesion in a group or reduce status and power differences or it can be a punishment device directed at correcting deviant behavior or even excluding members from a group (Martin & Ford, 2018).

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Most research on the effects of humor in the workplace have focused on the positive type of humor and its positive effects (Mesmer-Magnus, Glew & Viswesvaran, 2012), while ignoring (with some exceptions such as: Yam, Christian, Wei, Liao & Nai, 2018; Romero & Arendt, 2011) the negative type of humor that also shapes social interaction at the workplace and may play a role in organizational exit and other potentially negative outcomes.

This research addresses this gap. It distinguishes between affiliative/ positive and aggressive/ negative humor in the workplace and explores the impact of the latter on the intention to leave the organization displayed by the employees. The study also aims to shed light on the underlying mechanism explaining this relation and explores the mediating role of exhaustion. Finally, the study builds on the Social-Exchange Theory (Emerson, 1976) and the Job Demands-Resources Model (JD-R; Demerouti et al., 2001) and investigates the potential buffering role of the quality of leader-employee exchange (LMX) in mitigating the negative effects of aggressive humor at work.

Humor in the Workplace

In organizational settings, humor refers to verbal and nonverbal communication episodes that trigger positive affective and cognitive reactions at least in some of the individuals or groups that are engaged in the interaction (Crawford, 1994, Romero & Cruthirds, 2006). So far, humor has been mostly conceptualized as an individual trait that employees hold (Martin, Puhlik-Doris, Larsen, Gray & Weir, 2003). However, in line with Curşeu and Fodor (2016) and Sosik (2012) we argue that, as humor is inherent to social interaction, it can also be depicted as a social construction, a group or an organization level property. As an emergent state, group humor emerges out of the individual behaviors (displays of humor) and interactions among the team members and different groups working in the organization will display different types of group humor.

Moreover, despite the initial monolithic and positive view on humor, scholars have recently begun to distinguish between positive/ adaptive and negative/ maladaptive types of humor (Cann, Watson & Bridgewater, 2014; Romero & Arendt, 2011; Wisse & Rietzschel, 2014). According to Martin *et al.* (2003), positive humor (self-enhancing and affiliative humor styles) reflects tolerance and acceptance of the others and of the self and it is non-hostile. Such humor reduces interpersonal tensions and facilitates social relations (Howland & Simson, 2014), while contributing to increased satisfaction, team cooperation and commitment (Romero & Arendt, 2011). Most research on the psychology of humor was carried out so to explore the correlates and consequences of this type of humor, with a particular focus on the coping role that positive humor has on dealing with stress (Bizi et al. 1988), boredom and routine (Korczynski, 2011), and the role in emotion regulation (Samson and Gross 2012).

On other hand, negative humor (self-deprecating and aggressive humor styles) reflects judgmental humorous communications about the self and others and can have detrimental effects. Aggressive humor is particularly relevant for the social interactions at the workplace and it refers to using sarcasm, ridicule and putting others down (Guenter et al., 2013; Martin et al., 2003).

According to De Koning & Weiss (2002), aggressive humor may be explained by the superiority theory (La Fave, Haddad & Maesen, 1976) stating that individuals boost their egos at the expense of others. By using ridicule and sarcasm that belittle the other colleagues, one is able to engage in favorable social comparison processes and boost one's self worth. At the same time, due to behavioral mimicry, aggressive humor can become an emergent state of the whole organizational group. The use of aggressive humor is claimed to have a negative impact on the members of an organization as it leads to dysfunctional competitiveness and hinders social interactions and collaboration (Romero & Cruthirds, 2006).

Aggressive Humor and Employee Exhaustion

Several studies started to document the negative effects of aggressive humor in the workplace. Romero and Arendt (2011) show that aggressive humor positively predicts reported levels of stress, possibly due to the impaired social connections. Similarly, Avtgis and Taber (2006) point out that there is a positive relationship between using aggressive humor and burnout for the person using that particular style of humor. This study moves further from such research in that it explores the effects of aggressive humor conceptualized as an emergent state of the organizational group one is part of (an not an individual preference/trait) on the intention to leave the organization, mediated by emotional exhaustion.

Burnout is one of the common concerns of modern organizations due to its debilitating effects (Salvagioni et al., 2017). Burnout is a response to prolonged exposure to emotional and interpersonal job stressors (Maslach, Schaufeli & Leiter, 2001) and it is defined by three dimensions: exhaustion, cynicism and perceived inefficacy (Maslach et al., 2001). Emotional exhaustion is the most widely reported dimension by burned-out employees (Maslach et al., 2001) when describing their experience and it refers to an emotional drain and diminished capacity to get involved in the task at hand.

The Job Demands-Resources Model (JD-R, Bakker & Demerouti, 2007; Bakker et al., 2003; Demerouti et al., 2001) is an overarching model that explains exhaustion, as well as well being at the workplace. In short, the model argues that every work place has several characteristics that can be divided in job demands or job resources. Job demands include physical, psychological, social and organizational elements that require extra effort to deal with. Employees can compensate the required extra effort with breaks or other recovery activities. However, when this is not possible or insufficient, they experience physiological and psychological costs and strain, such as emotional exhaustion due to a depletion of resources (Bakker & Demerouti, 2007). In contrast, job resources include physical, psychological, social and organizational factors that are either helpful in accomplishing the work objectives, or they may reduce the negative effects of job demands and produce positive outcomes (Bakker & Demerouti, 2007). In the work context, when job demands are high and job resources are scarce, the probability of strain is at its highest point. Conversely, when resources are high, they may buffer the negative effects of job demands.

Most studies have so far conceptualized (positive) humor and fun as a job resource that helps employees cope with daily stress, overload and other job demands (Doosje, De Goede, Van Doornen & Goldstein, 2010; Georganta & Montgomery, 2016; Mesmer-Magnus, Glew & Viswesvaran, 2012; Robert & Wilbanks, 2012). However, as previously pointed out, humor is sometimes aggressive and used to put other coworkers down by using sarcasm and ridicule. In turn, aggressive humor may be associated with a feeling of alienation, competiveness and problematic behaviors (Martin et al., 2003; Huo, Lam & Chen, 2012), as well as with negative emotions on the side of the target of the aggressive humor. Therefore, we argue that aggressive humor is not necessarily an asset in the work life, but it can also be a job demand that can generate significant strain.

Aggressive humor usually targeting one's gender, race, values or competencies is perceived as mean by the communication recipient (Martin et al., 2003). The exposure to aggressive humor that is personally taxing within one's organizational group will trigger a mobilization of cognitive, emotional and physiological resources in order to protect oneself (Baker & Demerouti, 2007). For instance, the target of the aggressive humor episode might attempt to counteract the ridicule with a witty comment or a list of rational arguments against it. On the other hand, aggressive humor is likely to take a toll at the emotional level as well, as the target of the aggressive humor might be more or less successful in activating the regulatory mechanism that will help in handling the negative emotions triggered by the ridicule. The effort and attention directed towards coping with aggressive humor in the organization and the activation of the performance-protection strategies may lead to

an even faster depletion of resources in organizational settings (Demerouti, Bakker, Nachreiner & Schaufeli, 2001). As such, when an imbalance occurs between the exposure to aggressive humor in the workplace (as a job demand), in addition to the task requirements and the available resources, the employees are likely to experience emotional exhaustion.

In line with these arguments, we propose the following hypothesis:

H1. Aggressive humor is positively associated with exhaustion.

The Mediating Role of Exhaustion in the Relation between Aggressive Humor and Intentions to Leave the Organization

One important organizational outcome for organizations is represented by intentions to leave the organization because it may lead to future replacement costs (O'Connel & Kung, 2007) and lower productivity (Baloch, 2009; Park et al., 2013). Multiple studies (Kim & Stoner, 2008; Leiter & Maslach, 2009; Du Plooy & Roodt, 2010; Lu & Gursoy, 2016) show that burnout at the workplace is an important predictor for turnover intentions.

As previously argued, the exposure to aggressive humor in the workplace could lead to emotional exhaustion, as it requires activating strategies to cope with it, which accelerates the depletion of resources. Consequently, when individuals experience exhaustion, they are likely to try to distance themselves from the environment in the attempt to protect themselves and recover (Bakker & Demerouti, 2007).

In addition, Leiter (1993) shows that individuals faced with exhaustion tend to overemphasize coping mechanisms that involve avoidance and withdrawal. Bakker et al. (2003) also show that high levels of exhaustion are associated to intentions to leave the organization.

In line with these, we propose the following hypothesis:

H2. Exhaustion mediates the relation between aggressive humor and intention to leave the organization.

Leader – member exchange as a buffer of the negative effects of aggressive humor

In line with the social exchange theory, we argue that organizational groups are forums of continuous interaction and transactions, not only among team members, but also between team members and their leader. Such exchanges rely on the fact that each party has something valuable to offer (Wayne et al., 1997) and the process is contingent on the exchange partner's actions (Emerson, 1976). In the end, the quality of the leader-member exchange (LMX) is directly proportionate to the perceived value of the exchange process (Wayne et al., 1997).

A low quality LMX relies on contractual specifications and is associated with fewer resources provided by the leader (Gerstner & Day 1997). On the contrary, high-quality leader-member exchange relationships include respect, trust and obligations that maintain a state of reciprocal influence between the actors (Harris & Kacmar. 2005). Moreover, in high quality LMX, team members are protected against the harming influence of negative relations within their teams, they receive more resources, emotional and instrumental support, benefits and career development opportunities from the leader (Fodor et al., under review; Graen et al.,1990; Kacmar, et al., 2003). Moreover, having the leader's appreciation and support leads to a reframing of the job demands (Bakker, Demerouti & Euwema, 2005). Such a positive leader-member exchange relationship tends to be predictive for job performance and work attitudes (Fodor et al., under review; Janssen & Van Yperen, 2004).

Given the arguments stated before, we argue that developing a high quality leader – member exchange relationship becomes a job resource in the organizational context (Bakker & Demerouti, 2007). LMX may act as a buffer in the relation between exhaustion associated with the exposure to aggressive humor, on the one hand, and the intentions to leave the organization, on the other hand. Receiving emotional and instrumental support from the leader may act as a coping mechanism with the exhaustion caused by the aggressive humor

displayed by fellow team members, thus restoring the balance between job demands and job resources.

Therefore, we hypothesize that:

H3. Leader-member exchange (LMX) moderates the relation between exhaustion and intention to leave the organization, such that for high levels of LMX, the positive relation between exhaustion and intention to leave the organization becomes weaker.

Methods

Sample

Data for the study were collected among professionals working in an Eastern European division of a multinational company that provides digital marketing, customer service and technical support services to its clients. 101 call-center operators and team leaders (52 women) initially answered an anonymous questionnaire that was administered online, as part of a larger research project. The questionnaire included a briefing explaining the study broad objectives, as well as information regarding the voluntary and anonymous nature of data collection and analysis.

Measures

Aggressive humor was assessed with a four-item scale developed by Curşeu and Fodor (2016). A sample item is "While we work together, some of our colleagues try to intimidate others by ridiculing and making fun of them". The Cronbach's alpha for the scale is 0.94.

Exhaustion was assessed with the three items measuring vigor extracted from the UWES - 9 scale (Schaufeli, Bakker & Salanova, 2006). Vigor reflects a highly energetic state while working characterized by a willingness to invest extra effort and overcome difficulties and it is considered the direct opposite of the exhaustion dimension of burnout (Maslach, Schaufeli, & Leiter, 2001). Therefore, when the items measuring vigor are reverse coded, they are adequate for measuring the target construct. A sample item is "At my work, I feel bursting with energy" (reverse coded). The Cronbach's alpha for the scale is 0.79.

Intention to leave the organization was assesses with three items developed by Kelloway, Gottlieb and Barham (1999). A sample item is "I am thinking about leaving this organization" and Cronbach's alpha for the scale is 0.93.

Leader member exchange (LMX) was assessed with the seven-item scale developed by Graen and Uhl-Bien (1995). A sample item is "I have enough confidence in my leader that I would defend and justify his/her decision if he/she were not present to do so", and Cronbach's alpha is 0.93.

Results

The analyses were carried out using OLS regression analyses and, in line with the procedures for probing moderated mediation, we have estimated various regression models. We used PROCESS 3.4 macro (Hayes, 2013) for SPSS, model 14 that allows probing for a moderated mediation model. The means, standard deviations and the bivariate correlations are reported in *Table 1*.

Table 1. *Descriptive statistics and inter-scale correlations*

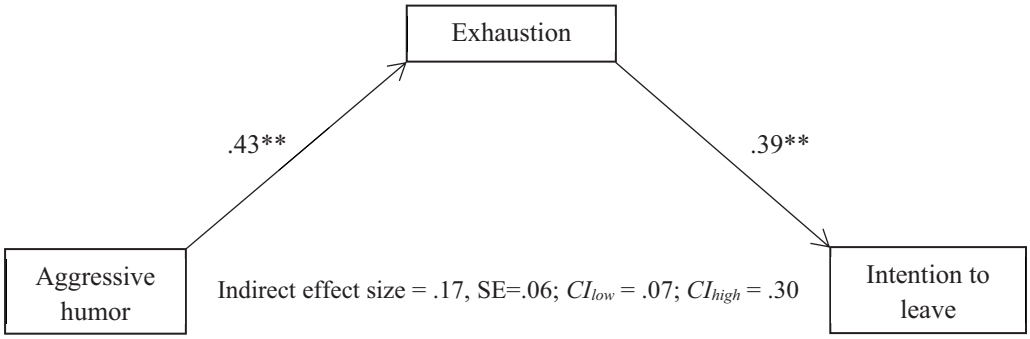
	M	*SD*	1.	2.	3.	4.	5.	6.	7.
1. Aggressive Humor	2.38	1.19							
2. Exhaustion	3.00	1.43	.38**						
3. Intention to leave	1.91	1.24	.17	.46**					
4. LMX	3.65	.92	-.23*	-.09	-.10				
5. Gender			-.03	.11	.14	.05			
6. Age	27.38	9.89	-.14	-.37**	-.08	-.03	-.06		
7.Tenure (months)	14.79	7.60	.10	.06	.30**	-.10	-.04	.17	

N=99

Note: M = mean, *SD* = standard deviation, LMX = leader-member exchange, * $p < .05$, ** $p < .01$

The first hypothesis states that aggressive humor experienced at work is positively associated with employee exhaustion. The results indicate that the model including aggressive humor, as well as age and tenure in the organization as controls, explains 26.9% of the variance in emotional exhaustion ($R^2 = .269$, $F(3,94) = 11.58$, $p = .000$). Aggressive humor positively predicts exhaustion ($b = .43$, $SE = .11$, 95% $CI = [.21, .64]$, $p = .0001$), thus the first hypothesis received empirical support. As exposure to aggressive humor at work gets higher, the probability to experience exhaustion also increases.

The second hypothesis states that exhaustion mediates the relation between aggressive humor and intention to leave the organization. As *Figure 1* illustrates, the regression coefficient for the relation between aggressive humor and exhaustion is positive and statistically significant ($b = .43$, $p = .0001$, $SE = .11$, 95% $CI = [.21 - .64]$), and so is the regression coefficient between exhaustion and intention to leave the organization ($b = .39$, $p = .000$, $SE = .09$, 95% $CI = [.21, .57]$). The indirect effect of aggressive humor on intention to leave the organization via exhaustion is significant ($b = .17$, $SE = .06$, 95% $CI = [.07, –.30]$), while the direct effect becomes insignificant ($b = -.03$, $SE = .10$, 95% $CI = [-.23, -.17]$). Thus, the second hypothesis received support.



Note: Reported values correspond to unstandardized coefficients; CI = confidence interval, SE = standard errors, * $p < .05$, ** $p < .01$

Figure 1. *Mediation Model*

The third hypothesis states that leader-member exchange (LMX) moderates the relation between exhaustion and intention to leave the organization, such that for high levels of LMX, the positive relation between exhaustion and intention to leave the organization becomes weaker. The overall model is significant, R^2=.26, F(6, 91)=5.44, p=.0001. The direct effect of exhaustion on intention to leave is positive and significant (b =.38, SE=.09, p=.0001, 95% CI = [.20, .56]). The direct effect of LMX on intention to leave is not significant (b = -.01, SE=.13, p=.93, 95% CI = [- .27, -.24]). The interaction effect is also not significant (b=-.02, SE=.07, p=.7888, 95% CI = [- .16, - .12]), such that there is no sufficient proof to claim that LMX buffers the negative effect of aggressive humor on intention to leave the organization via exhaustion. Thus, the third hypothesis did not receive empirical support.

Discussion

While most of the extant research focuses on the positive implications of positive humor and fun at work, our paper addressed the less explored effects of aggressive humor in the workplace. Specifically, we explored the relationship between the exposure to

aggressive humor within the organizational teams and the intention to leave the organization and introduced exhaustion as a possible explanatory mechanism for it. Moreover, we tested LMX as a moderating variable for the relationship between exhaustion and intention to leave the organization.

By building on the Job Demands – Resources Model (Bakker & Demerouti, 2007), we argued that aggressive humor can be seen as a job demand in the workplace, leading to physiological and psychological costs and strain. Our findings support this idea. High levels of exposure to aggressive humor (humor that targets a person's values, traits or competencies and belittles him/her) are associated with an emotional drain and a diminished capacity to get involved in the task at hand. This may be explained by the fact that individuals facing episodes of aggressive humor displays from their team members have to find strategies to defend themselves and regulate the negative emotions associated with the derogatory comments. Doing this requires mobilizing extra effort, on top of what is needed for performing the regular tasks required by their professional roles, resulting in a depletion of resources and finally exhaustion.

Moreover, our findings show that a higher exposure to aggressive humor within the organizational teams is associated with more pronounced intentions to exit the organization, due to emotional exhaustion. This finding is aligned with other research pointing out that, when overwhelmed by demands, individuals adopt defending strategies such as avoidance and distancing oneself from the aversive situations (Bakker & Demerouti, 2007, Leiter, 1991). Therefore, while many organizations strive to cultivate a "fun" work environment and many articles in the business and management literature (Rasmusson, 1999; Riordan, 2013; Urquhart, 2005) explored how we can inject fun into the workplace we claim that not all type of "fun" is beneficial for individual and organizational outcomes. On the contrary, aggressive humor seems an important trigger for emotional exhaustion and organizational exit.

Additionally, we have hypothesized that a positive leader – employee exchange relationship might act as a job resource (Bakker et al., 2005) and buffer the negative effects of emotional exhaustion generated by aggressive humor. Specifically, we claimed that in the presence of high quality LMX, the relation between exhaustion and the intentions to leave the organization would become weaker. This hypothesis did not receive support.

An explanation for the lack of support for the moderating effect of LMX may reside in other factors that could interfere with the impact of LMX. Dunegan, Uhl-Bien and Duchon (2002) showed, for instance, that task characteristics have an impact on the effects of LMX. For example, LMX has a greater impact for tasks that are high in intrinsic motivation. It is possible, that given the homogeneity of our sample (data was collected from employees with similar professional roles coming from the same organization), the nature of the task might have overshadowed the influence of LMX. Similarly, Kacmar, Witt, Zivnuska and Gully (2003) showed that the frequency of communication with the leader moderated the effect of LMX and we did not account for this in our study.

Moreover, Lam (2003) introduced the team-member exchange (TMX), the parallel concept for LMX that focuses on the quality of team members' interactions, as another important factor in organizational settings. It is possible that in this organizational context, the interaction with colleagues plays a more important role in finding ways to cope with job demands.

Another explanation for the lack of support for our hypothesis may be derived from the small sample size, which lowers the probability of finding an effect even if it exists (Kotrlik & Higgins, 2001).

Implications

The results of the study have multiple implication both at a theoretical as well as at a practical level. At the theoretical level, the study adds an important insight to the Job Demands-Resources model, as it brings evidence that humor at work (i.e. aggressive humor) can be conceptualized as a demand, not only as a resource as most of the research on the topic has done. At the same time, it

highlights emotional exhaustion as a mechanism for the way aggressive humor is related to organizational outcomes, such as intentions to leave the organization.

At a practical level, the study informs managerial practice and offers a basis for designing interventions that shape a beneficial (and at least non-harmful) use of humor in organizations. For instance, the organizational interventions might be directed at raising awareness among leaders and team members on the different types of humor (affiliative/positive versus aggressive/negative) and their different outcomes. Moreover, other interventions might aim at deflecting the negative consequences (i.e. withdrawal and organizational exit) of aggressive humor, by teaching employees to employ more constructive coping mechanisms, apart from distancing and avoidance strategies.

Limitations and Future Research Directions

Next to the contributions, the study also presents a series of limitations. First, the data was collected using self-report measures and this is associated with a risk of the common method bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003), as well as with a possible desire to distort the reality. However, in line with Conway & Lance (2010), we argue that self-report data collection was appropriate for the goals of this study, given that it explored constructs that rely on the employees' subjective experiences (their perception on the level of exposure to aggressive humor, experience of emotional exhaustion and the quality of perceived interaction with their leader). We also tried to address the risk of social desirability, by communicating about and ensuring the anonymity of data collection.

Another limitation of the study is the cross-sectional design that does not allow making any causal inferences. Future studies might explore the relations with longitudinal and experimental designs, while they may also test the hypotheses on other populations, representative for different work domains. Moreover, future studies may look into other negative effects of aggressive humor aside of emotional exhaustion and intention to leave the organization and the associated explanatory mechanisms.

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References

Avtgis, T. A., & Taber, K. R. (2006). "I laughed so hard my side hurts, or is that an ulcer?" The influence of work humor on job stress, job satisfaction, and burnout among print media employees. *Communication Research Reports*, *23*(1), 13-18.

Bakker, A. B., & Demerouti, E. (2007). The job demands-resources model: State of the art. *Journal of Managerial Psychology*, *22*(3), 309-328. DOI: 10.1108/02683940710733115

Bakker, A. B., Demerouti, E., & Euwema, M. C. (2005). Job resources buffer the impact of job demands on burnout. *Journal of Occupational Health Psychology*, *10*(2), 170-180. DOI: 10.1037/1076-8998.10.2.170

Bakker, A., Demerouti, E., & Schaufeli, W. (2003). Dual processes at work in a call centre: An application of the job demands–resources model. *European Journal of Work and Organizational Psychology*, *12*(4), 393-417. DOI: 10.1080/13594320344000165

Baloch, Q. B. (2009). Effects of job satisfaction on employees motivation & turn over intentions. *Journal of Managerial Sciences*, *2*(1), 1-21.

Bizi, S., Keinan, G., & Beit-Hallahmi, B. (1988). Humor and coping with stress: A test under real-life conditions. *Personality and Individual Differences*, *9*(6), 951-956. DOI: 10.1016/0191-8869(88)90128-6

Cann, A., Watson, A. J., & Bridgewater, E. A. (2014). Assessing humor at work: The humor climate questionnaire. *Humor*, *27*(2), 307-323. DOI: 10.1515/humor-2014-0019

Conway, J. M., & Lance, C. E. (2010). What reviewers should expect from authors regarding common method bias in organizational research. *Journal of Business and Psychology*, *25*(3), 325–334. DOI: 10.1007/s10869-010-9181-6

Crawford, C. B. (1994). Theory and implications regarding the utilization of strategic humor by leaders. *Journal of Leadership Studies*, *1*(4), 53-68. DOI: 10.1177/107179199400100406

Curseu, P. L., & Fodor, O. C. (2016). Humor and group atmosphere: Development of a short scale for evaluating affiliative and aggressive humor in groups. *Team Performance Management*, *22*(7/8), 370-382. DOI: 10.1108/TPM-04-2015-0022

De Koning, E., & Weiss, R. L. (2002). The relational humor inventory: Functions of humor in close relationships. *American Journal of Family Therapy*, *30*(1), 1-18. DOI: 10.1080/01926180275345561 5

Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology*, *86*(3), 499-512. DOI: 10.1037/0021-9010.86.3.499

Doosje, S., De Goede, M., Van Doornen, L., (2010). Measurement of occupational humorous coping. *Humor - International Journal of Humor Research*, *23*(3), 275-305. DOI: 10.1515/humr.2010.013

Du Plooy, J., & Roodt, G. (2010). Work engagement, burnout and related constructs as predictors of turnover intentions. *SA Journal of Industrial Psychology*, *36*(1), 1-13. DOI: 10.4102/sajip.v36i1.910

Dunegan, K. J., Uhl-Bien, M., & Duchon, D. (2002). LMX and subordinate performance: The moderating effects of task characteristics. *Journal of Business and Psychology*, *17*(2), 275-285. DOI: 10.1177/014920639201800105

Emerson, R. M. (1976). Social exchange theory. *Annual Review of Sociology*, *2*(1), 335-362. DOI: 10.1146/annurev.so.02.080176.002003

Fodor, O.C., Curșeu, P.L., Bria, M. & Fleștea, A.M. (under review). Autonomy to fail: An investigation of workload, work autonomy, interpersonal relations and performance in service teams

Georganta, K., & Montgomery, A. (2016). Exploring fun as a job resource: The enhancing and protecting role of a key modern workplace factor. *International Journal of Applied Positive Psychology*, *1*(1-3), 107-131. DOI 10.1007/s41042-016-0002-7

Gerstner, C. R., & Day, D. V. (1997). Meta-Analytic review of leader–member exchange theory: Correlates and construct issues. *Journal of Applied Psychology*, *82*(6), 827-844. DOI: 10.1037//0021-9010.82.6.827

Graen, G. B., & Uhl-Bien, M. (1995). Relationship based approach to leadership: Development of leader-member exchange (LMX) theory of leadership over 25 years: Applying a multi-level multi-domain perspective. *Leadership Quarterly*, *6*(2), 219-247. DOI: 10.1016/1048-9843(95)90036-5

Graen, G.B., Wakabayashi, M., Graen, M.R., and Graen, M.G. (1990). International Generalizability of American Hypothesis about Japanese Management Progress: A Strong Inference Investigation, *Leadership Quarterly*, 1, 1–23.

Guenter, H., Schreurs, B., Van Emmerik, I. H., Gijsbers, W., & Van Iterson, A. (2013). How adaptive and maladaptive humor influence well-being at work: A diary study. *Humor*, *26*(4), 573-594. DOI: 10.1515/humor-2013-0032

Harris, J.K., & Kacmar, K. M. (2005). Easing the strain: The buffer role of supervisors in the perceptions of politics–strain relationship. *Journal of Occupational and Organizational Psychology*, *78*(3), 337-354. DOI: 10.1348/096317905X26110

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York: Guilford, 1609182308.

Howland, M., & Simpson, J. A. (2014). Attachment orientations and reactivity to humor in a social support context. *Journal of Social and Personal Relationships*, *31*(1), 114-137. DOI: 10.1177/0265407513488016

Huo, Y., Lam, W., & Chen, Z. (2012). Am I the only one this supervisor is laughing at? Effects of aggressive humor on employee strain and addictive behaviors. *Personnel Psychology*, *65*(4), 859-885. DOI: 10.1111/peps.12004

Janssen, O., & Van Yperen, N. W. (2004). Employees' goal orientations, the quality of leader-member exchange, and the outcomes of job performance and job satisfaction. *Academy of Management Journal*, *47*(3), 368-384. DOI: 10.2307/20159587

Kacmar, K. M., Witt, L. A., Zivnuska, S., & Gully, S. M. (2003). The interactive effect of leader-member exchange and communication frequency on performance ratings. *Journal of Applied Psychology*, *88*(4), 764-772. DOI: 10.1037/0021-9010.88.4.764

Kelloway, E. K., Gottlieb, B. H., & Barham, L. (1999). The source, nature, and direction of work and family conflict: A longitudinal investigation. *Journal of Occupational Health Psychology*, *4*(4), 337-346. DOI: 10.1037//1076-8998.4.4.337

Kim, H., & Stoner, M. (2008). Burnout and turnover intention among social workers: Effects of role stress, job autonomy and social support. *Administration in Social Work*, *32*(3), 5-25. DOI: 10.1080/03643100801922357

Korb, S., Grandjean, D., Samson, A. C., Delplanque, S., & Scherer, K. R. (2012). Stop laughing! Humor perception with and without expressive suppression. *Social Neuroscience*, *7*(5), 510-524. DOI: 10.1080/17470919.2012.667573

Korczynski, M. (2011). The dialectical sense of humour: routine joking in a taylorized factory. *Organization Studies*, *32*(10), 1421-1439. DOI: 10.1177/0170840611421256

Bartlett, J. E., Kotrlik, J. W., & Higgins, C. C. (2001). Organizational research: Determining appropriate sample size in survey research appropriate sample size in survey research. *Information Technology, Learning, and Performance Journal*, *19*(1), 43-50. DOI: 10.1.1.486.8295

La Fave, L., Haddad, J., & Maesen, W. A. (1976). Superiority, enhanced self-esteem, and perceived incongruity humour theory. *Humor and Laughter: Theory, Research, and Applications*, 63-91. DOI: 10.4324/9780203789469-5

Lam, T. (2003). Leader-member exchange and team-member exchange: The roles of moderators in new employees' socialization. *Journal of Hospitality & Tourism Research*, *27*(1), 48-68. DOI: 10.1177/1096348002238880

Leiter, M. P. (1991). Coping patterns as predictors of burnout: The function of control and escapist coping patterns. *Journal of Organizational Behavior*, *12*(2), 123-144. DOI: 10.1002/job.4030120205

Leiter, M. P. (1993). Burnout as a developmental process: Consideration of models. In W. B. Schaufeli, C. Maslach, & T. Marek (Eds.), *Professional Burnout: Recent Developments in Theory and Research* (pp. 237-250). Washington, DC: Taylor & Francis.

Leiter, M. P., & Maslach, C. (2009). Nurse turnover: the mediating role of burnout. *Journal of nursing management*, 17(3), 331-339. DOI: 10.1111/j.1365-2834.2009.01004.x

Levine, M. (2005). *Ready or not, here life comes*. New York, NY: Simon & Schuster.

Lu, A. C. C., & Gursoy, D. (2016). Impact of job burnout on satisfaction and turnover intention: do generational differences matter?. *Journal of Hospitality & Tourism Research*, *40*(2), 210-235. DOI: 10.1177/1096348013495696

Martin, R. A., & Ford, T. (2018). *The psychology of humor: An integrative approach*. Academic Press.

Martin, R. A., Puhlik-Doris, P., Larsen, G., Gray, J., & Weir, K. (2003). Individual differences in uses of humor and their relation to psychological well-being: Development of the Humor Styles Questionnaire. *Journal of Research in Personality*, *37*(1), 48-75. DOI: 10.1016/S0092-6566(02)00534-2

Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. *Annual Review of Psychology*, *52*(1), 397-422. DOI: 10.1146/annurev.psych.52.1.397

Mesmer-Magnus, J., Glew, D. J., & Viswesvaran, C. (2012). A meta-analysis of positive humor in the workplace. *Journal of Managerial Psychology*, *27*(2), 155-190. DOI: 10.1108/02683941211199554

O'Connell, M., & Kung, M. C. (2007). The Cost of Employee Turnover. *Industrial Management*, *49*(1), 14-19.

Park, K. O., Kim, S. Y., & Kim, J. K. (2013). Hospital nurses' experience of bullying in the workplace and burnout, organizational commitment, turnover intention and nursing productivity. *Journal of Korean Clinical Nursing Research*, *19*(2), 169-180.

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common Method Biases in Behavioral Research: A Critical Review of the Literature and Recommended Remedies. *Journal of Applied Psychology*, *88*(5), 879–903. DOI: 10.1037/0021-9010.88.5.879

Rasmusson, E. (1999). A funny thing happened on the way to work. *Sales and Marketing Management*, *151*(3), 97-8. DOI: 10.5465/257094

Riordan, C. M. (2013). We all need friends at work. Article retrieved from: http://blogs.hbr.org/2013/07/we-all-need-friends-at-work/.

Robert, C., & Wilbanks, J. E. (2012). The wheel model of humor: Humor events and affect in organizations. *Human Relations*, *65*(9), 1071-1099. DOI: 10.1177/0018726711433133

Romero, E. J., & Arendt, L. A. (2011). Variable effects of humor styles on organizational outcomes. *Psychological Reports*, *108*(2), 649-659. DOI: 10.2466/07.17.20.21

Romero, E. J., & Cruthirds, K. W. (2006). The use of humor in the workplace. *Academy of Management Perspectives*, *20*(2), 58-69. DOI: 10.5465/AMP.2006.20591005

Romero, E., & Pescosolido, A. (2008). Humor and group effectiveness. *Human Relations*, 61(3), 395-418. DOI: 10.1177/0018726708088999

Salvagioni, D. A. J., Melanda, F. N., Mesas, A. E., González, A. D., Gabani, F. L., & De Andrade, S. M. (2017). Physical, psychological and occupational consequences of job burnout: A systematic review of prospective studies. *PLoS ONE*, *12*(10), 1–29. DOI: 10.1371/journal.pone.0185781

Schaufeli, W. B., Bakker, A. B., & Salanova, M. (2006). The measurement of work engagement with a short questionnaire: A cross-national study. *Educational and Psychological Measurement*, *66*(4), 701-716. DOI: 10.1177/0013164405282471

Sosik, J. J. (2012). Taking levels of analysis in humor more seriously: comment on Romero and Arendt. *Psychological Reports*, *110*(2), 527-534. DOI: 10.2466/03.PR0.110.2.527-534

Tümkaya, S. (2007). Burnout and humor relationship among university lecturers. Humor – *International Journal of Humor Research*, *20*(1), pp. 73-92. DOI:10.1515/HUMOR.2007.004

Urquhart, J. (2005). Creating a fun workplace. *Health Care Registration: The Newsletter for Health Care Registration Professionals*, *14*(11), 3-5.

Yam, K. C., Christian, M. S., Wei, W., Liao, Z. & Nai, J. (2018). The mixed blessing of leader sense of humor: examining costs and benefits. *Academy of Management Journal*, *61*(1), 348-369. DOI: 10.5465/amj

Wayne, S. J., Shore, L. M., & Liden, R. C. (1997). Perceived organizational support and leader-member exchange: A social exchange perspective. *Academy of Management Journal*, *40*(1), 82-111. DOI: 10.2307/257021

Wisse, B., & Rietzschel, E. (2014). Humor in leader-follower relationships: Humor styles, similarity and relationship quality. *Humor*, *27*(2), 249-269. DOI: 10.1515/humor-2014-0017

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RESEARCH ARTICLE

Linking Positive Psychological Capital to Team Effectiveness through Team Learning Behaviors

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Abstract

This cross-sectional study examined the mediator role of global and multidimensional team learning behaviors in the relation between positive psychological capital (PsyCap) and multiple team effectiveness criteria (team performance, team member satisfaction, and team viability). The sample comprised 190 employees working in 20 teams activating in various fields of activity. Findings indicate the totally mediating effect of global team learning behaviors on the relation between PsyCap and team satisfaction. Furthermore, PsyCap enhances team performance and team member satisfaction as team effectiveness criteria through few individual team learning behaviors.

Keywords

positive psychological capital, team learning behaviors, team performance, team member satisfaction, team viability

Introduction

The reality for many contemporary organizations is that work has become complex enough to generate the shift from the traditional organizational forms focused on individuals to the use of teams at all hierarchical levels (DeChurch & Mesmer-Magnus, 2010; Knapp, 2010; Mathieu, Luciano, D'Innocenzo, Klock, & LePine, 2019; Rousseau & Aubé, 2010; Zaccaro, Marks, & DeChurch, 2012). This shift is driven by several forces such as increasing competition, consolidation, innovation, new technology developments, financial crisis, firm globalization, frequent mergers and acquisitions. The forces create pressures for knowledge and skill diversity, high level of expertise, rapid response, and adaptability (Kozlowski & Ilgen, 2006; Wiedow & Konradt, 2011). Teams can respond effectively to these pressures by bringing together individual expertise, skills, knowledge and abilities, generating better solutions and use of resources, increasing members' motivation, organizational productivity and success, and ensuring organizational competitive advantage (Gil, Alcover, & Peiró, 2005; Katzenbach & Smith, 1993; West, Borrill, & Unsworth, 1998; Wheelan, Murphy, Tsmura, & Kline, 1998).

Despite these benefits, teams are not a panacea and risk free (Paulus & Van der Zee, 2004; Recardo, Wade, Mention III, & Jolly, 1996). Implementation of work teams does not always result in success for organizations (Allen & Hecht, 2004). Teams can also generate negative consequences (Chirică, 1996). In this sense, it was stated that: (1) groups may be used by individuals or

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organizations to dispel or to remove responsibility altogether; (2) committees are a good way of "recognizing" problems, but not as good to solve problems; they may accept the importance of a problem, but they may delay its solution; (3) the group can annihilate the qualities of one individual and can support another one without qualities; (4) groups may be constituted for an inadequate purpose: a committee may be set up to improve the activity of two other committees; (5) groups may be poorly lead, may have inefficient procedures, may include people who are unfit for the purpose or the task of the team, or may include too many people; (6) groups may have too little power and, therefore, they may tend toward negative power.

In order to build a team it is not enough just having individuals that join the team and waiting for them to know automatically how to work within a team (Rousseau, Aubé, & Savoie, 2006). Individuals must learn to become team members and to function as a team that learns (Kayes, Kayes, & Kolb, 2005; Marquardt, Ng, & Goodson, 2010; McCarthy & Caravan, 2008). So, interest and research on team effectiveness knew a radical increase in the last few decades (Bell & Marentette, 2011). However, in this large body of research, *"the focus to date has predominantly been on who is a member of the team, how they work together, and what they do to perform their work"* (Mathieu & Gilson, 2012, p. 911) and less on team effectiveness itself.

Past research has considered the effectiveness of work teams either as a one-dimensional or as a multidimensional complex construct (Delgado Piña, María Romero Martínez, & Gómez Martínez, 2008). But, in the last years, the conceptualization of work team effectiveness as incorporating multiple dimensions or criteria gained more attention (Mathieu & Gilson, 2012; Mathieu, Gallagher, Domingo, & Klock, 2019; Singh & Muncherji, 2007). Furthermore, because most teams in organizations are not structured as teams in laboratory and other simulated research settings, the effectiveness criteria for work teams tend to be more complex (Jordan, Field, & Armenakis, 2002). Usually, work team effectiveness dimensions reflect performance and affective outcomes (Mathieu & Gilson, 2012; Mathieu, Maynard, Rapp, & Gilson, 2008; Mathieu et al., 2019).

The most used work team effectiveness criteria are team performance, satisfaction and viability (Gil et al., 2005). Each of these taps a different aspect of work team effectiveness. Team performance reflects the "*productive output of the work group should meet or exceed the performance standards of the people who receive/or review the output*" (Hackman, 1987, p. 323). It is the most prevalent criteria used in empirical research and organizations to assess the effectiveness of work teams (Mathieu et al., 2008). Satisfaction reflects the degree to which team members were satisfied by the team, while team viability is the extent to which team members are able to continue to work together in the future (Hackman, 1987; Tekleab, Qickley, & Tesluk, 2009). Recently, others criteria of team effectiveness used consist in team efficiency, team innovation as a process or outcome (Gil et al., 2005; Mathieu et al., 2008). Other relatively recent conceptual-izations (Mathieu et al., 2008; Mathieu & Gilson, 2012) proposed that team outcomes can be broadly characterized in terms of two general types: (a) tangible outputs or products of team interaction (i.e., productivity, efficiency, and quality); and (b) influences on team members (collective and individualistic outcomes). In the present study, we will focus on perceived team performance, team member satisfaction towards team, and team viability.

Considering the importance of teams in creating organizational success (Kozlowski & Bell, 2003), it is important to focus also on the factors that contribute to their work effectiveness (Singh & Muncherji, 2007). In the last years, one of these factors that received considerable attention is team learning (Marquardt, Ng, & Goodson, 2010; Ortega, Sánchez-Manzanares, Gil, & Rico, 2010; Savelsbergh, van der Heijden, & Poell, 2009, 2010; Wiese & Burke, 2019). To meet the complex and the dynamic context in which work teams are incorporated, they must continuously improve their performance, learn, reflect and adapt (Bunderson & Sutcliffe, 2003; Zaccaro, Ely, & Shuffler, 2008).

Literature reveals different thoughts on how to conceptualize team learning: as an outcome or as a process (Edmondson, 1999; Edmondson, Dillon, & Roloff, 2007; Decuyper et al., 2010; Wiese & Burke, 2019). When considered as an outcome, team learning reflects the end results of learning processes, including changes in collective knowledge (or information held by the team about the team and its surrounding system) and shift in performance (or learning curves). As a process, team learning refers to a behavioral process consisting in "an ongoing process of reflection and action, characterized by asking questions, seeking feedback, experimenting, reflecting on results, and discussing errors or unexpected outcomes of actions" (Edmondson, 1999, p. 353). This behavioral processes can be further delineated into (1) fundamental learning behaviors (i.e., basic learning processes that promotes learning in teams), (2) interteam learning behaviors (i.e., behaviors that seek and integrate information from entities outside of the immediate team that promote team learning), and (3) intrateam learning behaviors (internal behavioral processes that teams engage in that build shared meaning from existing information, identify and fill in gaps in the team's collective knowledge, as well as challenge, test, and explore assumptions) (Wiese & Burke, 2019). The learning behaviors of a team encapsulate all of the actions that aid in the development of collective knowledge (Wiese & Burke, 2019). They are the actions through which team obtains and process data that allow it to adapt and to improve" (Edmondson, 1999, p. 352).

Empirical research on team learning and team effectiveness in organizational context reveals that few studies present similarities in terms of the theoretical perspectives adopted on team learning: as a process, outcome, or process and outcome (Chan, Pearson, & Entrekin, 2003; Mo & Xie, 2009; Wilson, Goodman, & Cronin, 2007). However, thereof, most of the empirical studies considered team learning as process, and, specifically, in terms of team learning behaviors. Furthermore, team learning was preponderantly examined in relation to team performance as a team effectiveness criteria and less with other team criteria effectiveness (Rus, Băban, & Jesus, 2012). A very small body of empirical research investigated team learning behaviors in relation to multiple effectiveness criteria (e.g. Bang, Fuglesang, Ovesen, & Eilertsen, 2010; Kostopoulos & Bozionelos, 2011; Zellmer-Bruhn & Gibson, 2006).

Studies that examined team learning behaviors in relation to team performance provide mixed results. Some of them revealed a positive (Edmondson, 1999b; Ortega, Sánchez-Manzanares, Gil, & Rico, 2012) or a negative relationship between these two concepts (Drach-Zahavy & Pud, 2007), while others evidenced the lack of their relationship (van Woerkom & Croon, 2009). Similar patterns of results were found when team learning process was studied in relation to team viability (Bang et al., 2010; Van den Bossche, Gijselaers, Segers, & Kirschner, 2006; Zellmer-Bruhn & Gibson, 2006) and team member satisfaction (Bang et al., 2010; Yeh & Chou, 2005). It is considered that one of the factors contributing to these mixed results consists in the measurement of team learning as a global concept rather that a multidimensional one (Savelsbergh et al., 2009; Wilson et al., 2007). Specifically, although the conceptualization of team learning as a behavioral process encompasses several team learning behaviors, only few studies started to measure team learning process in terms of multiple behaviors (Savelsbergh et al., 2009; 2012; Wilson et al., 2007). These studies strengthen the mixed results regarding the relationship between team learning process measured as a global concept and team effectiveness. Also, they evidenced that some team learning behaviors were associated with different team effectiveness criteria, while others were not (Bang et al., 2010). Therefore, it is important to examine the relation between multiple team learning behaviors and multiple team effectiveness criteria in the organizational context.

Besides team effectiveness, the study of team learning in organizational context also looks into factors that generate and facilitate team learning (Gibson & Vermeulen, 2003; Van der Vegt & Bunderson, 2005) using the functional perspective on groups (McGrath, 1964) and the Input Mediators Output Input

models of work team effectiveness (IMOI models; Ilgen, Hollenbeck, Johnson, & Jundt, 2005). These team effectiveness frameworks describe how various individual, team, and organizational-level inputs can influence team processes and emergent states, including team learning behaviors, that can subsequently lead to multiple criteria of team effectiveness.

An individual-level input that can act as antecedent of team learning, and, in particular, team learning behaviors and team effectiveness is positive psychological capital (PsyCap). Recently, the literature has emphasized the need to examine employees' PsyCap in the context of teams and organizations as teams are composed of individuals and variables from individual-level play an essential role on team and organizational activity (Youssef & Luthans, 2011). It is defined as *"an individual's positive psychological state of development and is characterized by: (a) having confidence (self-efficacy) to take on and put in the necessary effort to succeed at challenging tasks; (b) making a positive attribution (optimism) about succeeding now and in the future; (c) persevering towards goals and, when necessary, redirecting paths to goals (hope) in order to succeed; and (d) when beset by problems and adversity, sustaining and bouncing back and even beyond (resiliency) to attain success"* (Luthans, Youssef, & Avolio, 2007, p. 3). Although, PsyCap has been associated with various individual, team and organizational outcomes (Avey, Reichard, Luthans, & Mhatre, 2011; Rus & Jesus, 2010), there are no studies examining this concept in relation to individual, team or organizational learning behaviors. In the present study, PsyCap will be considered as an input at team members' level, a potential resource that can benefit work team by facilitating team learning behaviors.

Evidence for a link between PsyCap and team learning behaviors comes from various lines of research. The first line includes studies focused on the relationships between PsyCap and concepts related to learning, such as learning goals. For example, PsyCap was positively related to effective problem solving and innovation through the partially mediating effects of mastery-oriented mindset considered as learning goals, challenge seeking and persistence in the face of obstacles behaviors (Luthans, Youssef, & Rawski, 2011). The second category of evidences comes from the studies that have examined the concepts that represent the individual components of PsyCap, in particular self-efficacy, in relation to learning and performance. In this sense, Sitzman and Ely (2011), using meta-analytical techniques, have shown that in academic and organizational contexts individuals' self-efficacy has a beneficial role on their learning and performance. The third category of evidences comes from the studies that investigated PsyCap and concepts related to team learning, such as mindfulness. Analyzing the factors that influenced organizational change, Avey, Wernsing and Luthans (2009) have found that a high PsyCap is directly associated with a greater attention to detecting failure, reluctance to simple interpretation, more time observing operations, and more time developing resilience to unexpected events (Weick & Sutcliffe, 2006). In addition, other studies revealed a significant relationship between PsyCap and team dynamics and effectiveness. In this sense, Clapp-Smith, Vogelgesang and Avey (2009) found that the influence of PsyCap on financial performance of the work group was mediated by the trust in leader. Another line of evidence comes from the studies conducted on team member beliefs about their interpersonal context as antecedents of team learning, such as such as psychological safety, task interdependence and collective self-efficacy (Van den Bossche et al., 2006; Ortega et al, 2010). Studies conducted in the field of positive organizational behavior have recently considered collective self-efficacy as an indicator of a second-order factor called collective psychological capital (Walumbwa, Luthans, Avey, & Oke, 2009; West, Patera, & Carsten, 2009) or team psychological capital (Bogler & Somech, 2019; Dawkins, Martin, Scott, & Sanderson, 2015; Rego et al., 2019). It has been shown that collective self-efficacy and collective psychological capital were positively associated to citizenship behaviors as contextual team performance and trust in group as a team emergent state. Furthermore,

Bogler and Somech (2019) shown that team PsyCap functioned as a positive team resource that brings about an environment that induces exhibition of high levels of organizational citizenship behaviors (OCB). This relationship was strengthened when both team learning values and team leader's optimism are high. These lines of evidences highlight that employees' beliefs about their own psychological resources, such as employee's PsyCap play an important role in achieving team effectiveness.

In the light of the IMOI team effectiveness framework, team learning is considered an essential mediator between inputs (individual, team, organizational and contextual) and team performance and affective outcomes (Kozlowski & Ilgen, 2006; Mathieu et al., 2008). Additionally, empirical research brought evidence on the mediator effect of team learning behaviors in the relationship between beliefs about interpersonal contexts such as psychological safety and team performance (Edmondson, 1999; Ortega et al., 2012). Furthermore, it was found that team learning behaviors acted as mediators in the relation between various social resources (expertize diversity) and team performance (Van der Vegt & Bunderson, 2005). Also, team learning behaviors mediated the influence of social capital (personal networks and deep similarity) and team self-efficacy and team potency (van Emmerik, Jawahar, Schreurs, & DeCuyper, 2010). Thus, based on the predictions of IMOI models and the results of these empirical studies, team learning behaviors will mediate the relation between PsyCap and team effectiveness criteria. Given that PsyCap may influence team effectiveness criteria via other team processes and emergent states aside from team learning, such as team trust (Clapp-Smith et al., 2009), it is expected that:

$H_{1:}$ Global team learning behaviors will mediate the relation between PsyCap and team performance (H_{1a}), team satisfaction (H_{1b}) and team viability (H_{1c})

$H_{2:}$ Team learning behaviors will mediate the relation between PsyCap and team performance (H_{2a}), team satisfaction (H_{2b}) and team viability (H_{2c})

Methods

Participants

The participants were 190 employees working in 20 teams from five fields of activity: health (43.7%), sales (13.2%), topography (22.21%), IT (19.5%) and vocational counseling (1.6%). The mean age of the participants that filled in the demographic data (N = 176) was 31.19 years (SD = 9.02). The sample comprised 42.6% males, 54.2% females and 3.2% participants did not report their gender. In terms of education, the distribution was the following: 9.5% (high school degree), 59.5% (license degree), 11.1% (master degree), 2.6% (PhD degree), 8.9% (other degree) and 8.4% did not report their level of education. Team size was comprised between three and 20 members.

Instruments

The instrument used to measure employees' PsyCap was Psychological Capital Questionnaire-12, self-rater form (PCQ-12; Luthans, Avolio, Avey, & Norman, 2007; Luthans et al., 2007). The items were structured on a six-point Likert scale, from 1 (*strongly disagree*) to 6 (*strongly agree*). They measured: (a). self-efficacy - 3 items (*"I feel confident in representing my work area in meetings with management*"); (b). hope – 4 items (*"If I should find myself in a jam at work, I could think of many ways to get out of it");* (c). optimism – 2 items (*"I always look on the bright side of things regarding my job"*), and (d). resilience – 3 items ("*I can be "on my own", so to speak, at work if I have to*"). The translated version of this instrument and the permission to use it were obtained from Mind Garden (www.mindgarden.com).

Team learning behaviors were measured using 28 items developed by Savelsbergh et al. (2009). These items were distributed in the following eight subscales: (a) co-construction of meaning – 3 items (*"Information from team members is complemented with information from other team members"*); (b) exploring different perspectives – 4 items (*"Team members listen carefully to each other"*); (c) error analysis – 4 items (*"After making a mistake, the team tries together to analyze what caused it"*); (d) error communication –

4 items (*"Team members communicate their mistakes, to prevent that communication others make the same mistake"*); (e) reflection on processes – 4 items (*"We often discuss our team's work methods"*); (f) reflection on outcomes – 3 items (*"In our team, we check what we can learn from our achievements"*); (h) feedback seeking – 3 items (*"We seek feedback on our methods"*), and (i) experimenting – 3 items (*"In our team, we experiment with other working methods"*). The participants rated the degree to which the listed behaviors appeared in their teams using a five-point Likert scale from 1 (*never*) to 5 (*always*).

Team performance was measured using an adapted version of the five-item scale developed by Hackman (1987). The participants rated their performance team using a five-point Likert scale arranged from 1 (*very inaccurate*) to 5 (*very accurate*). Four items were reversely coded (*"Recently, this team seems to be "slipping" a bit in its level of performance and accomplishments"*).

Team member satisfaction toward team was measured using five items adapted from the scale developed by Tekleab et al. (2009). The participants rated their level of satisfaction on a seven-point Likert scale, from 1 (*very dissatisfied*) to 7 (*very satisfied*) (*"I am satisfied with my present team members"*).

Team viability was measured using the five items scale developed by Tekleab et al. (2009). Four items were reversely coded (*"If I had the chance, I would have switched teams"*). The participants provided their answer on a seven-point Likert scale, from 1 (*strongly disagree*) to 7 (*strongly agree*).

A high score of all scales indicated a high level of the measured construct.

Procedure

Considering that the instruments used in this study were not previously examined in Romanian samples, excepting PCQ-12, the first step was to translate them from English into Romanian. The translation was individually conducted by three licensed psychologists with advanced knowledge in English. The three translations were compared to establish the final translated form of the instruments. Ulterior, another two psychologists retranslated the instruments. The two forms were compared to the original English form in order to identify the items that imposed semantic differences. In the last step, the final form of the instruments was established. The institutional permission to conduct this study was obtained. After signing a written informed consent, the participants filled in the paper-and-pencil form of the instruments.

Data analysis

Given that these instruments were relatively new in the literature and some of them were not previously examined on Romanian samples, an analysis of their factorial structure and omega-weighted reliability was conducted through confirmatory factorial analysis (CFA) by using the software V6.1 EQS (Bentler & Wu, 2003). Data were analyzed at the individual level. First, univariate and multivariate analyses were conducted in order to identify the normality of the distributions. The asymmetry was defined as the absolute value of skewness greater than 3 and kurtosis greater than 10 (Kline, 2011). The multivariate normality was defined as values of Mardia's normalized coefficient lower than 5. In this study, for each scale, this coefficient was greater than 5. Thus, all CFAs were conducted using maximum estimation likelihood adjusted through Satorra-Bentler robust method ($S\text{-}B\chi^2$; Satorra & Bentler, 1988; apud. Byrne, 2006). In the case of multidimensional instruments (PCQ-12, team learning behaviors scale), two competitive models were tested: the unifactorial and hierarchical model. In the case of the first model, the factorial structure was specified with all the items loading into one factor. In the hierarchical model, for PCQ-12, PsyCap was specified as a second-order factor having as indicators four first-order factors: self-efficacy, hope, resilience and optimism. Similar, team learning was specified as a second-order factor with eight first-order factors as indicators represented by team learning behaviors: co-construction of meaning, exploring different perspectives, error analysis, error communication, reflection on processes and outcomes, feedback seeking

and experimenting. All these specified models were overidentified.

The global fit of the models was assessed using the robust version of the goodness of fit *S-Bχ²*. Given that *S-Bχ²* is highly influenced by sample size and characteristics of the tested model, the incremental and absolute fit indices such as **CFI*, **RMSEA* and *SRMR* were considered. Although Hu and Bentler (1999) considered that a CFI higher than .95 indicates a good fit, other authors considered that a value of the *CFI between .92 and .94 can be acceptable indicator of the good fit of a model (Byrne, 2008). A value of the **RMSEA* equal to or less than .05 indicates a good fit, while its value up to .08 indicates an acceptable fit (Browne & Cudeck, 1993; apud. Byrne, 2006). A value of .08 or less of the *SRMR* indicates a good fit. Also, the 90% confidence interval for **RMSEA* was computed. In the standardized solution of each model, the items that loaded below .32 (cf. Comrey & Lee, 1992) and had significant error covariances were excluded from the factorial structure. The exclusion of the problematic items was followed by another CFA. The identification of the miss-specified parameters was assessed using the Univariate and Multivariate Lagrange Multiplier Test using PEE and GVF options. The non-nested models were compared based only on their **CFI*. The model with the highest **CFI* fitted best. A value of .01 between the **CFI* of the tested models (*Δ*CFI*) indicated a significant difference between their fit (Byrne, 2008).

The weighted-omega reliability coefficient reliability (Ω_w) was computed based on standardized estimated parameters from CFA (Bacon, Sauer, & Young, 1995; Edwards, 2001). Its value was compared to the cut-off value of .70 (Brunner, & Süβ, 2005; Lance, Butts, & Michels, 2006).

To test the mediator role of team learning behaviors in the relationship between PsyCap and the three team effectiveness criteria (team performance, team satisfaction and team viability) we used macro PROCESS v3.4 (2019), using model 4. Data were analyzed at the individual level.

Results

Preliminary analyses

The results of the CFA conducted on PCQ-12 revealed that the second-order model had a good fit, *S-Bχ²*(50) = 76.683, $p < .001$, **CFI* = .948, *SRMR* = .049, **RMSEA* = .053, *90%CI* **RMSEA* = [.027; .076], compared to the one-factorial model, *S-Bχ²*(54) = 118.431, $p < .001$, **CFI* = .875, *SRMR* = .056, **RMSEA* = .079, *90%CI* **RMSEA* = [.060; .098] , *Δ*CFI* = .073. In the second order model, the factor loadings were higher than .53. Also, the first-order factor loadings on the latent factor were excellent (> .70).

Similar results were obtained in the case of the instrument that measured team learning behaviors. The second-order model fitted better, *S-Bχ²*(342) = 576.834, $p < .001$, **CFI* = .909, *SRMR* = .073, **RMSEA* = .060, *90%CI* **RMSEA* = [.052; .068], compared to one-factorial model, *S-Bχ²*(350) = 1216.677, $p < .001$, **CFI* = .663, *SRMR* = .096, **RMSEA* = .114, *90%CI* **RMSEA* = [.107; .121], *Δ*CFI* = .246. The analysis revealed factor loadings of the items higher than .45. Also, the first-order factors had excellent loadings on the latent factor, excepting the co-construction of the mean and experimentation factors (.60, .58).

The first CFA of the one-factorial structure of the team performance scale identified a good fit of this factorial structure, *S-Bχ²*(5) = 7.118, $p > .05$, **CFI* = .991, *SRMR* = .031, **RMSEA* = .047, *90%CI* **RMSEA* = [.000; .119]. Instead of this, the factor loading of Item 3 was below .32 and it was excluded from the analysis. The re-specified model presented a good fit, *S-Bχ²*(2) = 5.302, $p > .05$, **CFI* = .985, *SRMR* = .033, **RMSEA* = .093, *90%CI* **RMSEA* = [.000; .194], but not better than the fit of the first model, *Δ*CFI* = -.006. In consequence, the factorial structure of the second model was considered in the subsequent analyses.

The analysis of team satisfaction scale revealed that the one-factorial structure did not had a good fit, *S-Bχ²*(5) = 55.308, $p < .001$, **CFI* = .854, *SRMR* = .052, **RMSEA* = .291, *90%CI* **RMSEA* = [.177; .285], due to the significant error covariance between Item 4 (*"I am satisfied with the team processes we used in the last four weeks"*) and Item 5 (*"I am*

satisfied with this team's processes in the last four weeks") (.32, p < .05). Item 4 was eliminated based on its factor loading (.89) that was lower than the factor loading of the Item 5 (.91). The re-specified model had a good fit, *S-B*χ^2(2) = 2.271, $p > .05$, **CFI* = .999, *SRMR* = .010, **RMSEA* = .027, *90%CI* **RMSEA* = [.000; .149]. It fitted better compared to the first model, Δ**CFI* = .145. The factor loadings were excellent (> .71).

The scale of team viability presented a good fit, *S-B*χ^2(5) = 7.234, $p > .05$, **CFI* = .988, *SRMR* = .029, **RMSEA* = .049, *90%CI* **RMSEA* = [.000; .120]. All the items had excellent factor loadings, excepting the Item 5 that presented a poor factor loading (.38).

Considering the factorial structure of the instruments that fitted best, the total score for each variable included in the study was computed.

Descriptive analyses

Mean, standard deviation, correlations and omega-reliability coefficient for each variable included in the study are presented in Table 1.

Table 1. *Means, standard deviations, inter-correlations and Ωw reliability (N = 190)*

Variable	*M (SD)*	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Positive psychological capital	4.78 (.71)	(.90)												
2. Global team learning behaviors	3.86 (.61)	.45***	(.95)											
3. Co-construction of the meaning	3.92 (.75)	.32***	.61***	(.78)										
4. Exploring different perspectives	4.06 (.57)	.38***	.67***	.53***	(.72)									
5. Error analysis	4.11 (.76)	.38***	.81***	.42***	.59***	(.89)								
6. Error communication	4.01 (.76)	.43***	.82***	.47***	.61***	.79***	(.85)							
7. Reflection on processes	3.74 (.83)	.42***	.84***	.38***	.45***	.64***	.66***	(.85)						
8. Reflection on outcomes	3.87 (.82)	.37***	.87***	.44***	.52***	.70***	.67***	.77***	(.87)					
9. Feedback-seeking behavior	3.69 (.87)	.29***	.82***	.45***	.40***	.53***	.57***	.65***	.73***	(.81)				
10. Experimenting	3.49 (1.00)	.22**	.68***	.20**	.26***	.39***	.38***	.57***	.52***	.62***	(.92)			
11. Team performance	4.00 (.76)	.21**	.07	.15*	.23***	.21**	.17**	-.02	.06	-.08	-.16*	(.82)		
12. Team member satisfaction	5.81 (1.09)	.31***	.41***	.24***	.43***	.41***	.37***	.35***	.34***	.26***	.21**	.42***	(.85)	
13. Team viability	6.17 (1.12)	.18*	.18*	.21**	.27***	.22**	.19**	.07	.09	.08	.06	.38***	.53***	(.85)

Note: *M* = mean; *SD* = standard deviation; * *p* ≤ *.05;* ** *p* ≤ *.01;* *** *p* ≤ *.001; Parentheses on the diagonal of the table include the value of the* Ω_w reliability coefficient of the scale

We found that a high level of PsyCap is associated with a high level of global team learning behaviors (r = .45, p ≤ .001). Also, PsyCap was related to all individual team learning behaviors including co-construction of the meaning (r = .32, p ≤ .001), exploring different perspectives (r = .38, p ≤ .001), error analysis (r = .38, p ≤ .001), error communication (r = .43, p ≤ .001), reflection on processes (r = .42, p ≤ .001), reflection on outcomes (r = .37, p ≤ .001), feedback-seeking behavior (r = .29, p ≤ .001), and experimenting (r = 22, p ≤ .01). In addition, the higher PsyCap of team members, the higher their levels of perceived team performance (r = .21, p ≤ .01), team member satisfaction (r = .31, p ≤ .001), and their intention to work in the future with the same team members (r = .18, p ≤ .05).

Furthermore, global team learning behaviors were positively associated to PsyCap, all individual team learning behaviors

(r_s between .61 and .87, $p \leq .001$) and two of the team effectiveness criteria, including team member satisfaction ($r = .41$, $p \leq .001$) and team viability ($r = .18$, $p \leq .05$).

All the inter-correlations between individual team learning behaviors were positive (r_s between .20 and .79, $p \leq .001$).

In what regards the associations between individual team learning behaviors and the three criteria of team effectiveness, we found the following. Team performance was positively related only to co-construction of the meaning ($r = .15$, $p \leq .05$), exploring different perspectives ($r = .23$, $p \leq .001$), error analysis ($r = .21$, $p \leq .01$), and error communication ($r = .17$, $p \leq .01$). A negative association was identified between experimenting and team performance ($r = -.16$, $p \leq .05$). Team member satisfaction was positively related to all individual team learning behaviors (r_s between .21 and .43). Team viability was positively associated only to co-construction of the meaning ($r = .21$, $p \leq .01$), exploring different perspectives ($r = .27$, $p \leq .001$), error analysis ($r = .22$, $p \leq .01$), and error communication ($r = .19$, $p \leq .01$).

Main analyses

Global team learning behaviors as mediator between PsyCap and team effectiveness criteria

As the global score of team learning behaviors was not related to team performance ($r = .07$, $p > .05$), the mediation analysis aimed to identify the mediator role of global team learning behaviors in the relationship between PsyCap and team performance was not conducted. Thus, hypothesis H1a did not received empirical support.

Furthermore, considering the significant correlations between PsyCap and global team learning behaviors, on one hand, and between global team learning behaviors and team satisfaction and team viability, on the other hand, we proceeded to test the hypotheses of our study using IBM SPSS v.23 and the macro PROCESS v3.4 (Hayes, 2019). These results of these analyses are reported in Table 2.

Table 2. *Results of the mediation analyses on the mediator role of global team learning behaviors between PsyCap and team effectiveness criteria (N = 190)*

Variable	Global team learning behaviors			Team performance			Team member satisfaction			Team viability		
	b	*BootLLCI*	*BootULCI*	*b*	*BootLLCI*	*BootULCI*	*b*	*BootLLCI*	*BootULCI*	*b*	*BootLLCI*	*BootULCI*
PsyCap	.39	.27	.52	-	-	-	.25	-.02	.50	.20	-.12	.48
Global team learning behaviors				-	-	-	.60	.30	.99	.22	-.08	.57
R^2	.20			-			.19			.05		
F	47.48***			-			22.11***			4.43*		

Note: * $p < .05$; ** $p < .01$; *** $p < .001$

Results reveal that global team learning behaviors totally mediated the relation between PsyCap and team member satisfaction. These results empirically supported hypothesis H_{1b}. Specifically, it was found that a high level of PsyCap was not associated with a high team member satisfaction (b = .25, boot 95%CI [-.02; .50]), while global team learning behaviors were positively related to team member satisfaction (b = .61, boot 95%CI [.30; .99]) and PsyCap (b = .39, boot 95%CI [.28; .52]). The total effect of PsyCap on team member satisfaction was .49, $p \leq .001$, 95%CI [.28; .70] and the indirect effect through global team learning behaviors (.24) was significant, 95%CI [.10; .44]. Also, the b coefficients are graphically illustrated in Figure 1, Panel A.

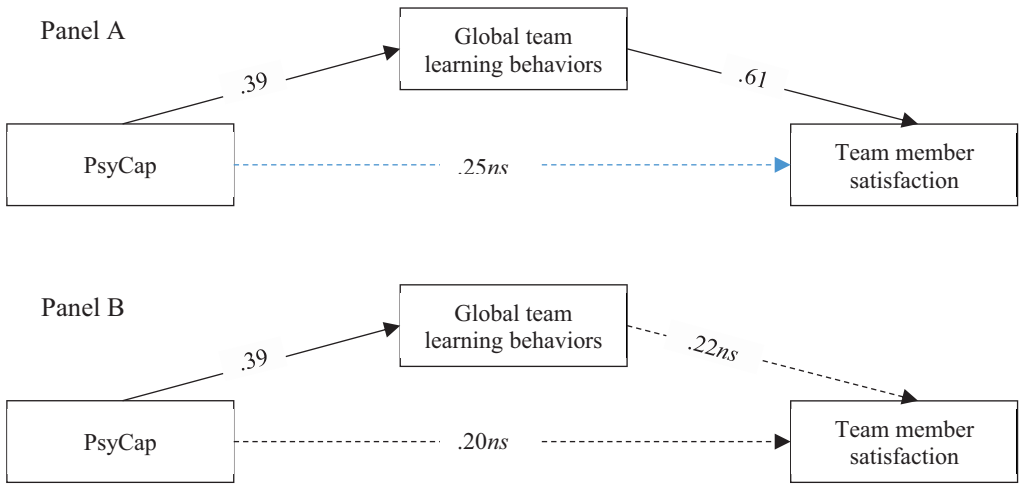

Figure 1. *Results of the simple mediation analyses (Model 4) that tested the total mediator role of global team learning behaviors in the relationship between PsyCap and two of the team effectiveness criteria, including team member satisfaction (Panel A) and team viability (Panel B)*

Furthermore, results revealed that the relation between PsyCap and team viability was not mediated by the global team learning behaviors. In particular, although PsyCap and global team learning behaviors were positively related (b = .39, boot 95%CI [.27; .52]), both were not significantly associated with team viability (b = .20, boot 95%CI [-.12; .48]; b = .22, boot 95%CI [-.08; .57]). Also, the b coefficients are graphically illustrated in Figure 1, Panel B. Thus, hypothesis H_{1c} did not received empirical support.

Taken together, these results show that the proposed linkages between PsyCap and multiple criteria of team effectiveness through global team learning behaviors did no receive full empirical supported as expected.

Individual team learning behaviors as mediators between PsyCap and team effectiveness criteria

To test the hypothesis that individual team learning behaviors mediate the relation between PsyCap and team performance (H2a), team member satisfaction (H2b) and team viability (H2c), we considered in the mediation analysis only the team learning behaviors that significantly correlated with PsyCap and the three criteria of team effectiveness. As reflection on processes, reflection on outcomes and feedback-seeking behaviors had no significant association with team performance and team viability, they were excluded from the subsequent mediation analyses. In addition, experimenting was not correlated with team viability and, in consequences, it was excluded too from the mediation analysis that had as outcome variable team viability.

The results of the mediation analyses are presented in Table 3.

Table 3. *Results of the mediation analyses on the mediator role of individual team learning behaviors between PsyCap and team effectiveness criteria (N = 190)*

Variable	Team performance			Team member satisfaction			Team viability		
	b	*BootLLCI*	*BootULCI*	*b*	*BootLLCI*	*BootULCI*	*b*	*BootLLCI*	*BootULCI*
1. PsyCap	.20	-.01	.38	.20	-.08	.45	.13	-.20	.41
2. Co-construction of meaning	.02	-.18	.23	-.04	-.27	.24	.11	-.19	.46
3. Exploring different perspectives	.23	-.09	.52	.51	.10	.83	.36	-.04	.76
4. Error analysis	.24	.02	.52	.31	-.11	.77	.16	-.16	.53
5. Error communication	-.06	-.32	.22	-.07	-.45	.34	-.12	-.47	.23
6. Reflection on processes				.15	-.21	.52			
7. Reflection on outcomes				-.04	-.33	.28			
8. Feedback-seeking behavior				-.03	-.28	.19			
9. Experimenting	-.26	-.40	-.13	.02	-.19	.22			
R^2	.15			.24			.09		
F	5.48***			6.45***			3.62		

Results of the mediation analysis revealed that Hypothesis 2a was received partial empirical support (see Figure 2). Specifically, PsyCap was positively related to co-construction of meaning (b = .34, boot 95%CI [.19; .48]), exploring different perspectives (b = .30, boot 95%CI [.21; .41]), error analysis (b = .41, boot 95%CI [.27; .54]), error communication (b = .47, boot 95%CI [.33; .60]), and experimenting (b = .31, boot 95%CI [.09; .57]). In contrast, PsyCap was not associated to team performance (b = .20, boot 95%CI [-.01; .38]). Furthermore, only error analysis and experimenting as team learning behaviors had significant relationships with team performance. An increase in error analysis was associated with a better team performance (b = .24, boot 95%CI [.02; .52]), while an increase in experimenting correlated with a lower team performance (b = -.26, boot 95%CI [-.40; -.13]). Thus, these results suggest that only error analysis and experimenting as team learning behaviors acted as mediators in the relationship between PsyCap and team performance.

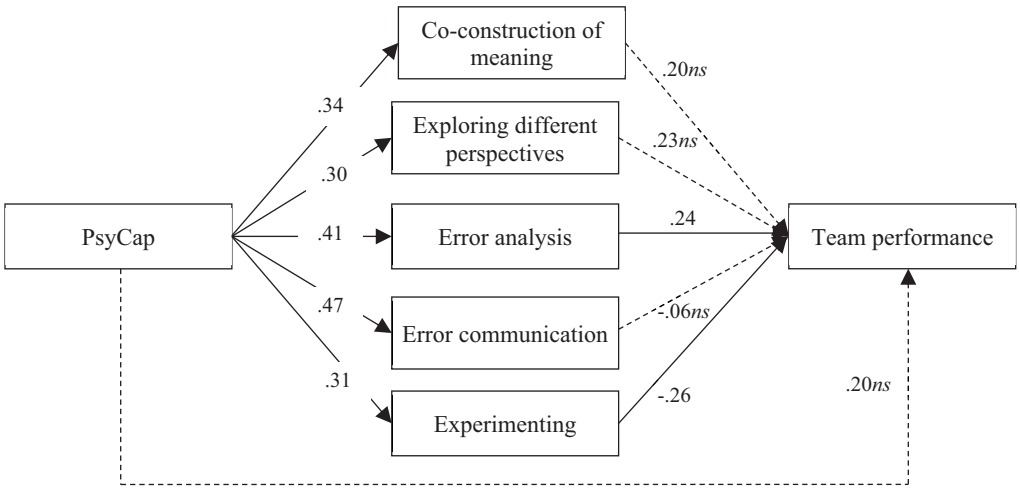

Figure 2. *Results of the parallel mediation analyses (Model 4) that tested the total mediator role of team learning behaviors in the relationship between PsyCap and team performance as team effectiveness criteria*

The results of the mediation analysis that had as criterion variable team member satisfaction indicated that only one team learning behavior totally mediated the relationship between PsyCap and team member satisfaction (Table 3, see Figure 3). Specifically, although all the eight team learning behaviors were positively related to PsyCap (Table 4), only exploring different perspectives was positively associated to team member satisfaction (b = .51, boot 95%CI [.10; .83]). In addition, PsyCap was not significantly related to team member satisfaction (b = .20, boot 95%CI [-.08; .45]). The total effect size was .49, $p \leq .001$, 95%CI [.28; .70], the total indirect effects were .28, 95%CI [.15; .50], while the indirect effect through exploring different perspectives was .15, 95%CI [.03; .28]. Thus, Hypothesis 2b received partial empirical support.

Moreover, we found that none of the four team learning behaviors included in the analysis mediated the relationship between PsyCap and team viability (Table 3). Also, PsyCap was not associated to team viability (b = .13, boot 95%CI [-.20; .41]) (Figure 4). Thus, Hypothesis 2c was not empirically supported.

Table 4. *Results of the mediation analyses on the mediator role of individual team learning behaviors between PsyCap and team effectiveness criteria – relation between PsyCap and team learning behvaiors (N = 190)*

Variable	*PsyCap*				
	b	*BootLLCI*	*BootULCI*	R^2	F
1. Co-construction of meaning	.34	.19	.48	.10	21.87***
2. Exploring different perspectives	.30	.21	.41	.14	31.09***
3. Error analysis	.41	.27	.54	.14	31.19***
4. Error communication	.47	.33	.60	.19	43.06***
5. Reflection on processes	.49	.35	.66	.18	40.23***
6. Reflection on outcomes	.44	.28	.61	.14	30.16***
7. Feedback-seeking behavior	.36	.19	.54	.09	17.54***
8. Experimenting	.31	.09	.57	.05	9.38**

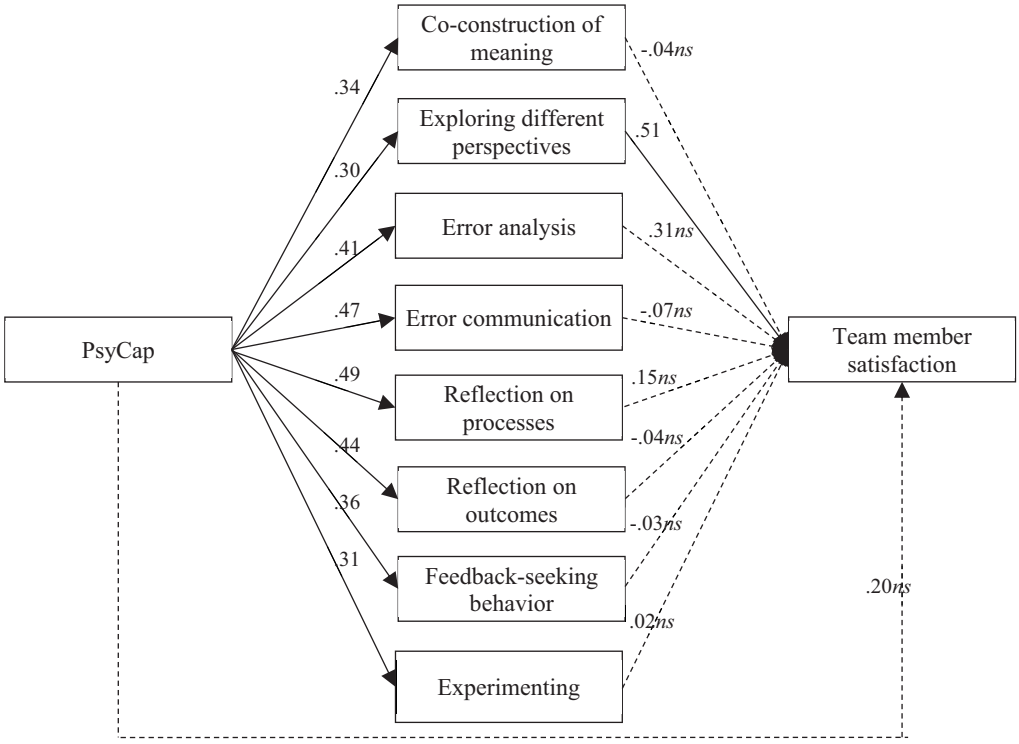

Figure 3. *Results of the parallel mediation analyses (Model 4) that tested the total mediator role of team learning behaviors in the relationship between PsyCap and team member satisfaction as team effectiveness criteria*

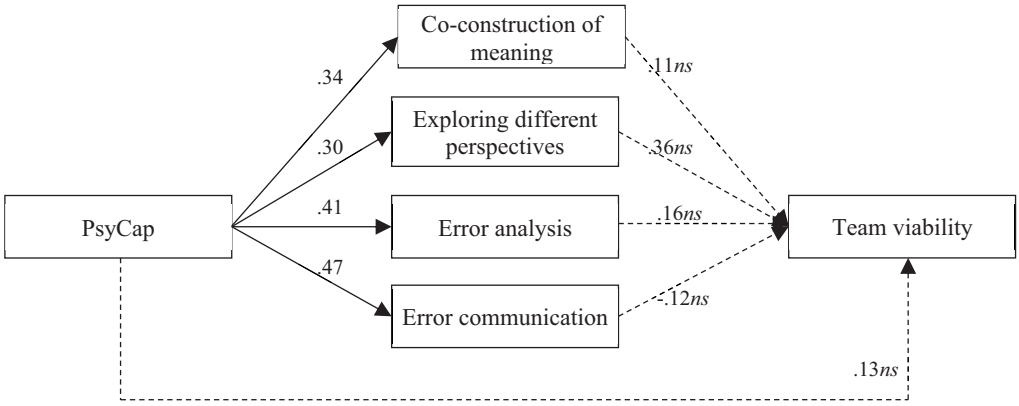

Figure 4. *Results of the parallel mediation analyses (Model 4) that tested the total mediator role of team learning behaviors in the relationship between PsyCap and team viability as team effectiveness criteria*

Discussion

This study examined the mediator role of team learning behaviors, considered simultaneously from a global and a multidimensional perspective, in the relation between PsyCap and multiple team effectiveness criteria, including team performance, team member satisfaction and team viability. Hypothesis 1 was partially supported as global team learning behaviors totally mediated only the relationship between PsyCap and team member satisfaction. These findings provide further evidence to support the assertion that team learning behaviors measured as a global concept play a different role in transforming inputs of a team, mainly employees' PsyCap, in multiple high-quality outcomes, such as a good performance, a high level of members' satisfaction towards team and a strong sense of team viability. Hypothesis 2 was also partially supported. It has been shown that exploring different perspectives, error analysis, and experimenting, are more important than other team learning behaviors in mediating the relation between employees' PsyCap and multiple team effectiveness criteria, including team performance and team member satisfaction.

Together, these findings revealed that when team learning behaviors were considered from a global and a multidimensional perspective, they had different mediator roles in the relationship between PsyCap and the three team effectiveness criteria. In this sense, it was found that global team learning behaviors masked the significant mediator role of various individual team learning behaviors in the relation between PsyCap and two of the team effectiveness criteria, including team performance and team member satisfaction. Considering team learning behaviors from a multidimensional perspective allowed a nuanced perspective on their mediator role. This is most evident in the mediating effects between PsyCap and team effectiveness criteria represented by team performance and team satisfaction. Contrary to what was expected, global and multidimensional team learning behaviors did not mediated the relation between PsyCap and team viability. Taken together, these results enhance the knowledge on the critical role of team reflection and action processes on the achievement of team desired performance and affective outcomes. Also, they confirm that one of the factors that had a substantial contribution to the inconsistent results of the research on team learning and team effectiveness is related to the measurement of this concept (Wilson et al., 2007).

Additionally, by examining multidimensional team learning behaviors in the relation between PsyCap and other team effectiveness criteria than team performance such as team satisfaction and viability, this study expands the results obtained by Savelsbergh et al. (2009). Similarly, there were no significant associations between reflection behaviors on processes and team performance. The lack of associations between global and some individual team learning behaviors and team effectiveness criteria can be explained by the existence of other mediators or moderators such as transactive memory (Mo & Xie, 2009) or shared mental models (Van den Bossche, Gijselaers, Segers, Woltjer, & Kirschner, 2011). We did not measured in our study neither transactive memory, nor shared mental models. Also, as suggested by IMOI models (Ilgen et al., 2005) the relation between team learning and team outcomes could be a non-linear one.

Another relevant finding of the present study revealed the significant relationship between employees' PsyCap and their perception on learning behaviors of their team. These findings answer the existing calls in the literature to extend the range of the studies on PsyCap in work teams (Avey, Patera, & West, 2006; Wright & Quick, 2009; Youssef & Luthans, 2009). Therefore, these findings evidenced the association between employees' motivational inputs and their actions conducted with other members of their team to collect and to process data that permit them to adapt and to improve their work activity. Additionally, the mediating effects of some team learning behaviors shows that these type of team behaviors can be considered as mechanism through which employees' psychological resources, such as PsyCap, contributes to team effectiveness. It is

important to notice that not all team learning behaviors mediated the relation between positive psychological capital and team effectiveness criteria. Furthermore, some of these behaviors were identified as total or no mediators. Similar to previous research (Van der Vegt & Bunderson, 2005), this study revealed that existing resources in the team are related to team performance through certain team learning behaviors. Even more, this study showed that PsyCap as team members' resources is related to other team effectiveness criteria such as team satisfaction only through certain team learning behaviors.

Our findings have implications on team effectiveness management, mainly on how the process of team learning should be conducted. In this sense, considering the aim for which a team was created, there can be a greater focus on team learning behaviors that strongly associate with team effectiveness criteria that are relevant to team members, managers or clients. Additionally, the total mediating effects of some team learning behaviors between PsyCap and multiple team effectiveness criteria suggest that team management should consider the resources that employees' bring in activities of their work teams.

The contributions of this study must be considered in the light of some limitations. First, it is important to mention that all the measurements were self-reports. Additionally, as in other previous study, data were collected from members of the teams. As Hackman (1987) mentioned what a group or a team considers as being a high performance it might not meet the standards required by its manager or clients. The use of the same type of instruments and sources of data to measure the variables included in this study may contribute to the increase of common-method variance (Podsakoff & Organ, 1986). This might influence our results (Johnson, Rosen, & Djurdjevic, 2011). In this sense, other recent studies have shown that although common-method variance had an inflationary effect on observed relationships, this effect completely offset by the attenuating effect of measurement error (Lance, Dawson, Birkelbach, & Hoffman, 2010). However, we consider that the use of multiple instruments and sources in the same study would have provided more informative results. Also, the participants were members of the teams activating in five fields of activity. Thus, it is important to examine if team type may act as a moderator of the relationships identified in this study. Also, the simultaneous collection of the data has implications on considering the causality nature of the relationships between variables. Another limitation regards the level of analysis. Given that the number of the work teams included in this study was below 30 (Maas & Hox, 2004), the analyses were limited only to the individual level of analysis using linear and not multilevel regression analyses. Also, the sample size is rather small relative to the number of the predictor and mediator variables considered in the mediation analyses.

Studies with multiple sets of data collected in different time points from larger samples would be more informative on the direction of causality between variables. Also, the use of mixed research designs with multiple sources and combining the advantages of qualitative and quantitative research could permit the examination of individual team members' interpretations on the investigated team phenomenon when they fill in quantitative instruments.

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References

Allen, N. J., & Hecht, T. D. (2004). The 'romance of teams': Toward an understanding of its psychological underpinnings and implications. *Journal of Occupational and Organizational Psychology, 77*, 439–461. doi: 10.1348/0963179042596469

Avey, J. B., Patera, J. L., & West, B. J. (2006).The implications of positive psychological capital on employee absenteeism. *Journal of Leadership and Organizational Studies, 13*(2), 42-60. doi: 10.1177/10717919070130020401

Avey, J. B., Reichard, R. J., Luthans, F., & Mhatre, K. H. (2011). Meta-analysis of the impact of positive psychological capital on employees attitudes, behaviors and performance. *Human Resource Development Quarterly, 22*(2)*,* 127-152. doi: 10.1002/hrdq.20070

Avey, J. B., Wernsing, T. S., & Luthans, F. (2008). Can positive employees help positive organizational change? Impact of psychological capital on relevant attitudes and behaviors. *The Journal of Applied Behavioral Science, 44,* 48-70. doi: 10.1177/0021886307311470

Bacon, D. R., Sauer, P. L., & Young, M. (1995). Composite reliability in structural equation modeling. *Educational and Psychological Measurements*, *55*(3), 394-406.

Bang, H., Fulesang, S. L., Ovesen, M. R., & Eilertsen, D. E. (2010). Effectiveness in top management group meetings: The role of goal clarity, focused communication, and learning behavior. *Scandinavian Journal of Psychology, 51*, 253-261. 10.1111/j.1467-9450.2009.00769.x

Bell, S. T., & Marentette, B. J. (2011). Team viability for long-term and ongoing organizational teams. *Organizational Psychology Review, 1*(4), 275-292. doi: 10.1177/2041386611405876

Bentler, P. M., & Wu, J.C. (2003). *EQS structural equations program version 6.1.* Encino, CA: Multivariate Software.

Bogler, R., & Somech, A. (2019) Psychological capital, team resources and organizational citizenship behavior. *The Journal of Psychology, 153*(8), 784-802, doi: 10.1080/00223980.2019.1614515

Brunner, M., & Süβ, H. M. (2005). Analyzing the reliability of multidimensional measures: An example from intelligence research. *Educational and Psychological Measurement, 65*(2)*,* 227-240. doi: 10.1177/0013164404268669.

Bunderson, J. S., & Sutcliffe, K. M. (2003). Management team learning orientation and business unit performance. *Journal of Applied Psychology, 8*, 552-560. doi: 10.1037/0021-9010.88.3.552

Byrne, B. M. (2006). *Structural equation modeling with EQS: Basic concepts, applications, and programming (2nd ed.).* Mahwah, New Jersey: Lawrence Erlbaum Associates.

Byrne, B. M. (2008). Testing for multigroup equivalence of a measuring instrument: A walk through the process. *Psicothema*, *20*(4), 872-882.

Chan, C. C., Pearson, C., & Entrekin, L. (2003). Examining the effects of internal and external team learning on team performance. *Team Performance Management: An International Journal*, *7/8*, 174-181.

Chirică, S. (1996). *Psihologie Organizaţională. Modele de diagnoză şi intervenţie.* Cluj-Napoca: Casa de Editură şi Consultanţă "Studiul Organizării".

Clapp-Smith, R., Vogelgesang, G., & Avey, J. (2009). Authentic leadership and positive psychological capital: The mediating role of trust at the group level of analysis. *Organizational Studies, 15*(3), 227-240. doi 10.1177/1548051808326596

Comrey, A. L., & Lee, H. B. (1992). *A first course in factor analysis (2nd ed.).* Hillsdale, NY: Erlbaum.

Dawkins, S., Martin, A., Scott, J., & Sanderson, K. (2015). Advancing the conceptualization and measurement of psychological capital as a collective construct. *Human Relations, 68*, 925-949. doi: 10.1177/0018726714549645

DeChurch, L. A., & Mesmer-Magnus, J. R. (2010). The cognitive underpinnings of effective teamwork: A meta-analysis. *Journal of Applied Psychology, 95*(1), 32-53. doi: 10.1037/a0017328

Decuyper, S., Dochy, F., Van den Bossche, P. (2010). Grasping the dynamic complexity of team learning: An integrative model for effective team learning in organisations. *Educational Research Review, 5*(2), 111-133. doi: 10.1016/j.edurev.2010.02.002

Delgado Piña, M. I., Martínez, A. M. R., & Martínez, L. G. (2008). Teams in organizations: A review on team effectiveness. Team Performance Management, 14(1-2), 7-21. 10.1108/13527590810860177

Drach-Zahavy, A., & Pud, D. (2010). Learning mechanism to limit medication administration errors. *Journal of Advanced Nursing, 66*(4), 794-805. doi: 10.1111 /j.1365-2648.2010.05294.x

Edmondson, A. (1999). Psychological safety and learning behavior in work teams. *Administrative Science Quarterly*, *44*, 350-383.

Edmondson, A. C., Dillon, J. R. & Roloff, K. S. (2007). Three perspectives on team learning: Outcome improvement, task mastery, and group process. *The Academy of Management Annals, 1*(1), 269-314. doi: 10.1080/078559811

Edwards, J. R. (2001). Multidimensional constructs in organizational behavior research: An integrating analytical framework. *Organizational Research Methods, 4*, 144-192. doi: 10.1177/109442810142004

Gibson, C. B., & Vermeulen, F. (2003). A healthy divide: Subgroups as a stimulus for team learning. *Administrative Science Quarterly, 48*, 202-239. doi: 10.2307/3556657

Gil, F., Alcover, C. M., & Peiró, J. M. (2005). Work team effectiveness in organizational contexts: Recent research and applications in Spain and Portugal. *Journal of Managerial Psychology, 20*(3/4), 193-218. doi: 10.1108/02683940510589000

Hackman, J. R. (1987). The design of work teams. In J. Lorsch (Ed.), *Handbook of organizational behavior* (pp. 315-342). Englewood Cliffs, NJ: Prentice Hall.

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, *6*(1), 1-55. doi: 10.1080/10705519909540118

Ilgen, D. R., Hollenbeck, J. R., Johnson, M., & Jundt, D. (2005). Teams in organizations: From Input-Process-Output models to IMOI models. *Annual Review of Psychology, 56*, 517-543. doi: 10.1146/annurev.psych.56.091103.070250

Johnson, R. E., Rosen, C. C., & Djurdjevic, E. (2011). Assessing the impact of common method variance on higher order multidimensional constructs. *Journal of Applied Psychology, 96*(4), 744-761. doi: 10.1037/a0021504

Jordan, M. H., Field, H. S., & Armenakis, A. A. (2002). The relationship of group process variables and team performance: A team-level analysis in a field setting.

Small Group Research, 33(1), 121-150. doi: 10.1177/1046496402033001004

Kayes, A. B., Kayes, D. C., & Kolb, D. A. (2005). Experiential learning in teams. *Simulation Gaming, 36*, 330-354. doi: 10.1177/1046878105279012

Katzenbach, J. R., & Smith, D. K. (1993). *The wisdom of teams: Creating the high-performance organization.* Boston: Harvard Business School.

Kline, R. (2011). *Principles and practice of structural equation modeling (3rd ed.)*. New York: Guilford Press.

Kostopoulos, K., & Bozionelos, N. (2011). Team exploratory and exploitative learning: Psychological safety, task conflict and team performance. *Group and Organization Management*, 36(3), 385-415. doi: 10.1177/1059601111405985

Kozlowski, S. W., & Bell, B. S. (2003). Work groups and teams in organizations. In W. C. Borman, D. R. Ilgen, & R. J. Klimoski (Eds.), *Industrial and Organizational Psychology, vol. 12* (pp. 333-375). Hoboken: John Wiley & Sons.

Kozlowski, S. W., & Ilgen, D. R. (2006). Enhancing the effectiveness of work groups and teams. *Psychological Science in the Public Interest, 7*(3), 77-124. doi: 10.1111/j.1529-1006.2006.00030.x

Knapp, R. (2010). Collective (team) learning process models: A conceptual review. *Human Resources Development Review, 9*(3), 285-299. doi: 10.1177/1534484310371449

Lance, C. E., Butts, M. M., & Michels, L. C. (2006). The sources of four commonly reported cutoff criteria: What did they really say? *Organizational Research Methods, 9*(2), 202-220. doi: 10.1177/1094428105284919

Lance, C. E., Dawson, B., Birkelbach, D., & Hoffman, B. J. (2010). Method effects, measurement error, and substantive conclusions. *Organizational Research Methods, 13*, 435-455. doi: 10.1177/1094428109352528

Luthans, F., Youssef, C. M., & Rawski, S. L. (2011). A tale of two paradigms: The impact of psychological capital and reinforcing feedback on problem solving and innovation. *Journal of Organizational Behavior Management, 31*(4), 333-350. doi: 10.1080/01608061.2011.619421

Luthans, F., Avolio, B. J., Avey, J. B., & Norman, S. M. (2007). Psychological capital: Measurement and relationship with performance and satisfaction. *Personnel Psychology*, *60*(3), 541-572. doi: 10.1111/j.1744-6570.2007.00083.x

Luthans, F., Youssef, C. M., & Avolio, B. J. (2007). *Psychological capital. Developing the human competitive edge.* New York: Oxford University Press.

Maas, C. J. M., & Hox, J. J. (2004). Robustness issues in multilevel regression analysis. *Statistica Neerlandica, 58*, 127-137. doi: 10.1046/j.0039-0402.2003.00252.x

Marquardt, M., Ng, C. S., & Goodson, H. (2010). Team development via action learning. *Advances in Developing Human Resources, 12,* 241-259. doi: 10.1177/1523422310367810

Mathieu, J. E., Luciano, M. M., D'Innocenzo, L., Klock, E. A., & LePine, J. A. (2019). The development and construct validity of a team processes survey measure. *Organizational Research Methods*, 1-33. doi: 10.1177/1094428119840801

Mathieu, J. E., Gallagher, P. T., Domingo, M. A., & Klock, E. A. (2019). Embracing complexity: Reviewing the past decade of team effectiveness research. *Annual Review of Organizational Psychology and Organizational Behavior, 6*(1), 17-46. doi: 10.1146/annurev-orgpsych-012218-015106

Mathieu, J. E., Gilson, L. L. (2012). Criteria issues and team effectiveness. In Kozlowski, S. J. W. (Ed.), *Oxford Handbook of Industrial and Organizational Psychology* (pp. 910-930). New York, NY: Oxford University Press.

Mathieu, J., Maynard, M. T., Rapp, T., & Gilson, L. (2008). Team effectiveness 1997-2007: A review of recent advancements and a glimpse into the future. *Journal of Management, 34*, 410-486. doi: 10.1177/0149206308316061

McCarthy, A., & Garavan, T. N. (2008). Team learning and metacognition: A neglected area of HRD research and practice. *Advances in Developing Human Resources, 19*, 509-524. doi: 10.1177/1523422308320496

McGrath, J. E. (1964). *Social psychology: A brief introduction*. New York: Holt, Rinehart & Winston.

Mo, S., & Xie, X. (2009). Team learning, transactive memory systems and team performance: A longitudinal study based on the IMOI approach. *Front. Bus. Res. China, 4*(3), 409-422. doi: 10.1007/s11782-010-0104-1

Ortega, A., Sánchez-Manzanares, M., Gil, F., & Rico, R. (2010). Team learning and effectiveness in virtual project teams: The role of beliefs about interpersonal context. *The Spanish Journal of Psychology, 13*(1), 267-276. doi: 10.1017/s113874160000384x

Ortega, A., Sánchez-Manzanares, M., Gil, F., & Rico, R. (2012). Enhancing team learning in nursing teams through beliefs about interpersonal context. *Journal of Advanced Nursing*, 00(0), 000–000. doi: 10.1111/j.1365-2648.2012.05996.x

Paulus, P. B., & Van der Zee, K. (2004). Should there be a romance between teams and groups? *Journal of Occupational and Organizational Psychology, 77*(4), 475-480. doi: 10.1348/0963179042596496.

Podsakoff, P. M., & Organ, D. W. (1986). Self-reports in organizational research: Problems and prospects. *Journal of Management, 12*, 531-544.

Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, and Computers*, *36*(4), 717–731. doi: 10.3758/BF03206563.

Recardo, R. J., Wade, D., Mention III, C. A. M., & Jolly, J. A. (1996). *Teams: Who needs them and why?* Houston, TX: Gulf Publishing Company.

Rego, A., Owens, B., Yam, K. C., Bluhm, D., Cunha, M. P. e, Silard, A., … Liu, W. (2019). Leader humility and team performance: Exploring the mediating mechanisms of team PsyCap and task allocation effectiveness. *Journal of Management, 45*(3), 1009–1033. doi: 10.1177/0149206316688941

Rousseau, V., Aubé, C., & Savoie, A. (2006). Teamwork behaviors: A review and an integration of frameworks. *Small Group Research, 37*, 540-570. doi: 10.1177/1046496406293125

Rousseau, V., & Aubé, C. (2010). Team self-managing behaviors and team effectiveness: The moderating effect of task routineness. *Group & Organization Management, 35*(6), 751–781. doi: 10.1177/1059601110390835

Rus, C. L., Băban, A., & Jesus, S. N. (2012). Învăţarea în echipã şi eficacitatea echipelor de muncã. Sinteza analizei studiilor publicate. *Psihologia Resurselor Umane, 10*(1), 70-90.

Rus, C. L., & Jesus, S. N. (2010). Psychological capital in organizational context: A meta-analytic study. In M. Milcu (Ed.), *Modern Psychology Research: Quantitative research vs. Qualitative research? Conference Proceedings* (pp. 142-151). Sibiu: Editura Universitară.

Savelsbergh, C., Gevers, J. M. P., van der Heijden, B. I. J. M., & Poell, R. F. (2012). Team role stress: Relationships with team learning and performance in project teams. *Group & Organization Management, 37*(1), 67–100. doi: 10.1177/1059601111431977

Savelsbergh, C. M., van der Heijden, B. I., & Poell, R. F. (2009).The development and empirical validation of a multidimensional measurement instrument for team learning behaviors. *Small Group Research OnlineFirst*, doi: 10.1177/1046496409340055.

Savelsbergh, C. M., van der Heijden, B. I., & Poell, R. F. (2010). Attitudes towards factors influencing team performance: A multi-rater approach at establishing the relative importance of team learning behaviors in comparison with other predictors of team performance. *Team Performance Management, 16*(7-8), 451-474. doi: 10.1108/13527591011090682

Singh, A. K., & Muncherji, N. (2007). Team effectiveness and its measurement: A framework. *Global Business Review, 8*, 119-133. doi: 10.1177/097215090600800108

Sitzmann, T., & Ely, K. (2011). A meta-analysis of self-regulated learning in work-related training and educational attainment: What we know and where we need to go. *Psychological Bulletin, 3*, 421-442. doi: 10.1037/a0022777

Tekleab, A. G., Quigley, N. R., & Tesluk, P. E. (2009). A longitudinal study of team conflict, conflict management, cohesion, and team effectiveness. *Group Organization Management*, *34*, 170-205. doi: 10.1177/1059601108331218

Van den Bossche, P., Gijselaers, W., Segers, M., Woltjer, G., & Kirschner, P. A. (2011). Team learning: Building shared mental models. *Instructional Science, 39*(3), 283-301. doi: 10.1007/s11251-010-9128-3.

Van den Bossche, P., Segers, M., & Kirschner, P. A. (2006). Social and cognitive factors driving teamwork in collaborative learning environments. *Small Group Research, 37*, 490-521. doi: 10.1177/1046496406292938

Van Der Vegt, G. S., & Bunderson, J. S. (2005). Learning and performance in multidisciplinary teams: The importance of collective team identification. The Academy of Management Journal, 48(3), 532-547. doi: 10.2307/20159674

Van Emmerik, I. J. H., Jawahar, I. M., Schreurs, B., & DeCuyper, N. (2011). Social capital, team efficacy and team potency: The mediating role of team learning behaviors. *Career Development International, 16*, 82-99. doi: 10.1108/13620431111107829

Van Woerkom, M., & Croon, M. (2009). The relationship between team learning activities and team performance. *Personnel Review, 38*(5), 560-577. doi: 10.1108/00483480910978054

Walumbwa, F. O., Luthans, F., Avey, J. B., & Oke, A. (2009). Authentically leading groups: The mediating role of collective psychological capital and trust. *Journal of Organizational Behavior, XX, X*. doi: 10.1002/job.653.

West, M. A., Borrill, C. S., & Unsworth, K. L. (1998). Team effectiveness in organizations. In C. L. Cooper & I. T. Robertson (Eds.), *International Review of Industrial and Organizational Psychology* (Vol. 13, pp. 1-48). Chichester: John Wiley & Sons Ltd.

West, B. J., Patera, J. L., & Carsten, M. K. (2009). Team level positivity: Investigating positive psychological capacities and team level outcomes. *Journal of Organizational Behavior*, *30*, 249-267. doi: 10.1002/job.593

Wheelan, S. A., Murphy, D., Tsumura, E., & Kline, S. F. (1998). Member perceptions of internal group dynamics and productivity. *Small Group Research, 29*, 371-393. doi: 10.1177/1046496498293005

Wiese, C. W., & Burke, C. S. (2019). Understanding team learning dynamics over time. *Frontiers in Psychology, 10*, 1417, 1-14. doi: 10.3389/fpsyg.2019.01417

Weick, K. E., & Sutcliffe, K. M. (2006). Mindfulness and the quality of attention. *Organization Science, 17*(4), 514-525. doi: 10.1287/orsc.1060.0196

Wiedow, A., & Konradt, U. (2011). Two-dimensional structure of team process improvement: Team reflection and team adaptation. *Small Group Research, 42*(1), 32-54. doi: 10.1177/1046496410377358.

Wilson, J. M., Goodman, P. S., & Cronin, M. A. (2007). Group learning. *Academy of Management Review, 32*(4), 1041-1059. doi: 10.2307/20159355

Wright, T. A., & Quick, J. C. (2009). The emerging positive agenda in organizations: Greater than a trickle but not yet a deluge. *Journal of Organizational Behavior, 30*, 147-159. doi: 10.1002/job.582

Yeh, Y. J., & Chou, H. W. (2005). Team composition and learning behaviors in cross-functional teams. *Social Behavior and Personality, 33*(4), 391-402. doi: 10.2224/sbp.2005.33.4.391

Youssef, C. M., & Luthans, F. (2009). An integrated model of psychological capital in the workplace. In A. Linley, S. Harrington, & N. Garcea (Eds.), *Oxford Handbook of positive psychology and work* (pp. 277-288). New York: Oxford University Press.

Youssef, C. M., & Luthans, F. (2011). Positive psychological capital in the workplace: Where we are and where we need to go. In K. M. Sheldon, T. B. Kashdan, & M. F. Steger (Eds.), *Designing the future of positive psychology*. Oxford: Oxford University Press.

Zaccaro, S. J., Ely, K., & Shuffler, M. (2008). The leader's role in group learning. In V. I. Sessa & M. London (Eds.), *Work group learning: Understanding, improving & assessing how groups learn in organizations* (pp. 193-214). New York: Taylor & Francis Group, LLC.

Zaccaro, S. J., Marks, M. A., & DeChurch, L. A. (2012). Multiteam systems: An introduction. In S. J. Zaccaro, M. A. Marks, & L. A. DeChurch (Eds.), *Multiteam systems: An organization form for dynamic and complex environments*. Retrieved from http://www.psypress.com/multiteam-systems-9781848728691.

Zellmer-Bruhn, M., & Gibson, C. (2006). Multinational organizational context: Implications for team learning and performance. *Academy of Management Journal, 49*(3), 501-518. doi: 10.2307/20159778

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EVENT REVIEW

The National Conference of Industrial and Organizational Psychology "Horia D. Pitariu" 19th Edition, May 9-11, 2019, Iași, Romania

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In May 2019 the 19th edition of the National Conference of Industrial and Organizational Psychology "Horia D. Pitariu", reunited researchers and practitioners from all over the country at the "Alexandru Ioan Cuza" University from Iași. The organizers proposed the *impact of technology on work*, as the central theme of the conference, inviting the scientific community to discuss and analyze the way technological advances generate changes in the way we work, and how these changes affect human resource practices.

The *keynote speaker* was Prof. José M. Peiró from the University of Valencia, who is not only member of the Research Institute of Human Resources Psychology, Organizational Development and Quality of Working life (software), but also a senior researcher of the Economics Research Institute of Valencia (IVIE) and former president of the International Association of Applied Psychology and of the European Association of Work and Organizational Psychology. Moreover, he is a fellow member of the Society for Industrial and Organizational Psychology (SIOP), the European Academy of Occupational Health Psychology (EAOHP) and the Spanish Academy of Psychology. He has published about 200 articles and book chapters on entrepreneurship and innovation, team and organizational climate and culture, and on work socialization processes as well as youth labor market entry, unemployment, and overqualification. He presented an analysis of the main digital transformations and their implications for the jobs, qualifications, and competencies, with special attention to the transformation of the professional jobs and also to changes in working conditions, working arrangements, and employer-employee relations.

Three *state of the art* presentations offered even more insight into the ways that technological advances and modern working practices influence our understanding of vocation, our possibilities to measure relevant organizational phenomena, and our career paths in the context of globalization and accelerated urbanization. Prof. dr. Constantin Ticu, from the Alexandru Ioan Cuza University from Iași, talked about the gap between research and practice, and the ethical and practical implications of being a practitioner without understanding research and being a researcher without knowledge of the practical realities of our field. Lect. Dr. Andrei Rusu, from The Vest University of Timișoara has presented interesting research using modern technology to detect and investigate unconscious biases in the recruitment and selection process. Prof. Dr. Petru Curșeu has talked about career development in the context of digitalized, intelligent cities, and the challenges that are provoked by these new social-cognitive systems.

The 8 *workshops* related to the central theme created the time and space for even more thorough discussions. Dr. Marian Popa offered an applied view over network analysis, it's challenges and advantages, and showed the audience software options that can be used for this type of data analysis. Dr. Daniela Victoria Zaharia discussed work-life balance in the context of arising work characteristics driven by technology. A team composed of Dr. Iuliana Zavadovschi, Dr. Camelia Soponaru, and Dr. Cristina Maria Bostan presented individual and organizational level interventions in resolving critical incidents. Further, Dr. Petru Curseu analyzed organizations through the lens of socio-technical designs, and Dr. Lavinia Ţânculescu talked about ways to teach and develop digital competencies to employees in order to help them adapt to the accelerated digitalization of the world of work. Dr. Cornel Mincu addressed the issue of increasing stress levels and presented mindfulness-based techniques to prevent and reduce stress in organizations. Cătălin Taşcă and Dr. Cristian Opariuc-Dan took the audience to the East in a workshop about Chinese meditation techniques and functional optimization used to increase efficiency at work and optimize personal performance. Finally, George Gunnesch-Luca has offered an introduction to creating dynamic documents in RMarkdown, papaja, and Knitr.

The "Horia Pitariu" prize is offered annually at this conference for the best research published in the field of occupational and industrial psychology from the previous year. This year, the prize was awarded to Gabriel Fischman for his contribution as first author to the paper entitled „Qualitative job insecurity and in-role performance: a bidirectional longitudinal relationship?", published in the European Journal of Work and Organizational Psychology in 2018, in collaboration with Hans de Witte, Coralia Sulea and Dragos Iliescu. This study offered a novel approach in integrating diverging theoretical predictions, showing that the causal relationships between qualitative job insecurity and in-role performance differ between lower and higher professional levels.

Since 2014, there are also 2 annual research grants awarded to new projects written by students. This year Diana-Alina Oancea-Matei and Alexandra Maftei from the Alexandru Ioan Cuza Univesity from Iaşi received one of the grants for their research proposal entitled " Moral licensing and ethical organizational behavior: empirical evidence within the academic field regarding the inclusion of people with physical disabilities". The other prize has been offered to Elena-Andreea Gheorghe from the Babes-Bolyai University from Cluj-Napoca, for her research project on work-team creativity: „How do we increase creativity at the group level: the importance of task-conflict, cognitive complexity, and collective emotional intelligence".

To conclude, the 19th edition of this conference opened discussions and debates about relevant issues of modern organizational life. These discussions involved a large variety of participants from well-known professors in this field with vast experience both in research and practice, to Ph.D. students and HR practitioners. Researchers from different universities and backgrounds shared their work and findings, and the newly formed relations opened the door to future national collaborations.

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EVENT REVIEW

International Workshop on Teamworking 23rd Edition, September 5-6, 2019, Cluj-Napoca, Romania

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2019 marked the 23rd edition of International Workshop on Teamworking (IWOT) and the first edition in an Eastern European Country. IWOT took place in Cluj-Napoca County, Romania and was hosted by Work and Organizational Psychology Research Center (WOPRC) from the Faculty of Psychology and Educational Sciences, Babeș – Bolyai University.

The aim of IWOT is to offer a multi-disciplinary arena for research on teamworking, and this year's focus was on diversity – **"The challenges of working with diversity in social systems"**. In order to stimulate discussion and cooperation between academics and practitioners, the 23rd edition of IWOT included three keynote presentations, a workshop and several sessions dedicated to presenting current research on teams in general and diversity in particular.

The keynote speakers were Professor Astrid Homan (University of Amsterdam, The Netherlands), Professor Sandra Schruijer (TIAS Business School & Utrecht University, The Netherlands) and Professor Smaranda Boroș (Vlerick Business School, Belgium). The first day was opened by Prof. Astrid Homman's lecture on "The challenges of working in and with diverse teams". Her address helped us disentangle the effects of team diversity on team performance by taking into consideration the (mis)matching between the two processes triggered by diversity, namely intergroup bias and information elaboration, as well as the leader's actions, that can be either person focused or task focused. In her research, Prof. Homan also explores how groups can effectively perform and work together, addressing a number of different topics, such as the role of group diversity, and potential moderators, such as leadership, emotions, reflexivity, regulatory focus, and personality. Currently Astrid Homan serves as the editor in chief of Organizational Psychology Review and she is member in the editorial boards of several top tier management and applied psychology journals. Her research published in journals like Journal of Applied Psychology, Academy of Management Journal, Journal of Personality and Social Psychology, Personality and Social Psychology Bulletin, Organizational Behavior and Human Decision Processes, Psychological Science, is impactful and highly cited.

Sandra Schruijer opened the second day of the conference and focused her keynote presentation on "Developing multiparty collaboration: A group dynamics approach". Her talk helped us understand the social dynamics of multiparty collaboration, and the role of diversity, trust and conflict in complex settings such as multi-party systems. Sandra Schruijer is Professor of Organizational Psychology at TIAS Business School and Professor of Organization Science at the Utrecht University School of Governance,

Utrecht University and she teaches in the domain of interorganizational conflict and collaboration, organizational change and development and leadership. Her research uses a variety of research methods and designs and was published in journals like International Journal of Action Research, European Journal of Work and Organizational Psychology, British Journal of Social Psychology and Group Dynamics. Sandra leads Professional Development International, an institute that organizes professional development programs and consults organizations and managers with respect to collaboration and large-scale change.

Smaranda Boroș, Professor of Intercultural Management and Organizational Behavior at Vlerick Business School, continued with a keynote titled: "**From 'me' to 'we' or from 'we' to 'me'? Tensions of social identity and change across cultures**". The presentation started by addressing the tensions between what brings people together and what sets them apart, and how the same elements can play both roles. It then moved towards exploring the current organizational approaches in handling diversity, by also pointing out the organizational hypocrisy, namely the contradictions between the narratives regarding the value of diversity within organizations as compared with the practices and routines regarding diversity management. Additionally, Prof. Boroș's research interests focus on team dynamics, diversity in teams, gender and management and finally organizational and group identification. She has published papers on these topics in journals such as the British Journal of Management, the British Journal of Social Psychology, the International Journal of Conflict Management, Social Psychology, the Journal of Managerial Psychology, the International Journal of Psychology and Group Dynamics. She has an extensive experience in executive education and coaching and worked in several countries on embedded management development interventions.

Next to the keynote presentations, the conference also hosted several oral presentation sessions that covered topics focused on team diversity and dynamics, as well as team and workplace interventions. Moreover, the second day of the conference also involved a more hands on experience with the workshop "**The third entity: developing empathy through systemic thinking"** held by Smaranda Boroș.

The 23rd edition of IWOT was a success as it brought together national and international researchers and practitioners to exchange ideas on better understanding and managing diversity in teams and organizations and it helped build a network that will support creating positive, proactive and productive teams.

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IN MEMORIAM

In memoriam Professor Fons van de Vijver

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Alphonsius Josephus Rachel ("Fons") van de Vijver was a world-renowned Dutch psychologist. His work is so profound and impactful that it is difficult to characterize. Probably his most brilliant contributions are in the field of cross-cultural psychology, but naming him a cross-cultural psychologist would do an injustice for his many contributions to research methodology, international testing and other domains where he has been active in.

It was with great sadness that we received on June 1st the news of his sudden and untimely death, at the age of only 66 years. Although retired from Tilburg to Maidenwell (Brisbane, Australia), Fons was still extremely active in conducting research, publishing, giving lectures and workshop, participating in conferences and advising students and colleagues. His death has been received with a heavy heart by all those who knew him.

Fons was born on October 4, 1952 in Koewacht (The Netherlands) and died on June 1, 2019 in Maidenwell, Queensland, Australia, at the age of 66. Fons had studied psychology at Tilburg University in the Netherlands, where he also earned his PhD, and where he stayed as a faculty member for all his career. Fons has held a Professorship in cross-cultural psychology at Tilburg University, the Netherlands as well as a number of other formal collaborations with institutions of higher education: extraordinary Professorships at in South Africa (The North-West University) and in Australia (the University of Queensland), and a senior researcher fellowship in Russia (the Higher School of Economics in Moscow).

Fons is likely the most frequently cited cross-cultural psychologist in the world. He authored or co-authored a significant number of peer-reviewed publications (over 400!) and many of them are highly influential. His probably greatest contribution was in the domain of cross-cultural comparisons, specifically bias and equivalence. He covered however a large number of other topics, both in methodology, testing and assessment, multiculturalism, response sets, emic vs. etic approaches, acculturation, migration, translations and adaptations, large-scale testing and others.

Fons was a member of a large number of professional organizations, among others the International Association for Cross-Cultural Psychology (IACCP), the International Test Commission (ITC), the International Association of Applied Psychology (IAAP), the European Association of Psychological Assessment (EAPA), the International Academy for Intercultural Research (IAIR). He has held leadership positions in many of these and other organizations and has been honored with fellowships and awards for both his intellectual and scientific accomplishments and for his service for these communities. He has served in editorial roles in over a dozen peer-reviewed journals, most prominently for the Journal of Cross-Cultural Psychology. Among others, Fons has received the American Psychological Association's Award for Distinguished Contributions to the International Advancement of Psychology (for his contributions to international cooperation and to the advancement of knowledge of psychology), the Fellows Award of the International Test Commission, and the Fellows Award of the International Association of Applied Psychology (for contributions to applied psychology).

Fons van de Vijver was a committed scientist with great integrity, an excellent scholar and a giant in his field. But more than anything, Fons was a kind, warm, open-hearted person, who had the power to inspire and enthuse, both by speaking to large audiences and in informal and personal one-to-one discussions.

Fons was a friend of Romania: he has visited our country three times, being invited as Keynote speaker in various conferences. He has been the Guest Editor of one issue of this very journal (Issue 2/2017). He enjoyed Romania, and especially loved the old Saxon cities in Transylvania – Sibiu and Brasov more than any others.

Our heartfelt sympathies go to Fons' family, to his friends and colleagues. To paraphrase a good colleague and his words about Fons, I will also say that many of you believe that we will miss his contributions tremendously, but those who had the privilege to know him personally will miss his friendship more. May he rest in peace.

Psihologia Resurselor Umane, **17** (2019), 123-126

PUBLISHING STANDARDS

Psychology of Human Resources – guide for authors

THE EDITORS

This document represents the "Guide for Authors". It covers the format and language to be used for manuscripts submitted to Human Resources Psychology. Also, this document can be found on the webpage of the Romanian Association of Industrial and Organizational Psychology (www.apio.ro).

This "Guide for Authors" follows the 6th APA Publication Manual.

Manuscript Submission and Format

All manuscripts for the journal Human Resources Psychology should be submitted to the following e-mail address: revista@apio.ro.

To edit the manuscript please use Times New Roman 12-point type, 1.5 line spacing and the A4 page setting. Each page will be numbered in the upper right corner. The top and side margins should be left of at least one inch or 2.54 cm. A full example of a manuscript can be found in the 6th APA Publication Manual.

Publications

Accepted papers are copy-edited and retyped. Authors have to review edits and proofread their work. The editor of Human Resources Psychology will contact the corresponding author after the editor assigns your work to an issue.

If your work is accepted, please keep the editor informed of changes in your contact information and of long absences.

Front Page

The first page of the manuscript should include the following information:

1. Title

The title should be a concise statement of the main topic and should identify the variables or theoretical issues under investigation and the relationship between them. It should be typed in sentence case, centered between left and right margins, and positioned in the upper half of the page.

2. Author name(s) and institutional affiliation(s)

Author name(s) will be presented in the following form: first name, middle initial(s), and last name.

Institutional affiliation should reflect the institution/location where the author(s) were when the research was conducted. When an author has no institutional affiliation, the city and state of residence below the author´s name should be specified. The institutional affiliation should be centered under the author's name, on the next line.

3. Author´s note

This section should include the following:

- First paragraph should include the departmental affiliations at the time of the study for all authors as follows: name of the author as it appears in the byline, comma, department name, comma, university name, semicolon, next

author name, and so on, and end with a period.
- Second paragraph should include any changes in author affiliation subsequent to the time of the study as follows: [author´s name] is now at [affiliation].
- Third paragraph should include acknowledgments (only for grants or other financial support, any special agreements concerning authorship, thanks for personal assistance) and special circumstances (disclose them before the acknowledgements in this paragraph).
- Fourth paragraph should include information about the person to contact in terms of mailing address and e-mail.

Place the author note on the title page, below the title, byline, and affiliation. Center the label *Author Note.* Start each paragraph of the note with an indent, and type separate paragraphs for the authors' names and current affiliations, changes in affiliations, acknowledgments, and special circumstances, if any, along with the person to contact. The author note is not numbered or cited in the text.

Abstract Page

The abstract as well as the title of the work go on page 2. The abstract should be no longer than 150 words. The label *Abstract* should appear in sentence case, centered, at the top of the page. Type the abstract itself as a single paragraph without paragraph indentation. Place a running head (short title).

The abstract will be written in English. It is necessary to include 3-5 key words after each abstract, in all these three languages.

Main body text pages

In preparing your manuscript, begin the introduction on page 3. Type the title of the manuscript in sentence case centered at the top of the page, and then type the text. The remaining sections of the article follow each other without a break; do not start a new page when a new heading occurs.

This section should include the following:

- Introduction of the problem. This section will present the specific problem under the study and describe the research strategy. There is no need to label this section as Introduction.
- Explore importance of the problem. This section states why the problem deserves new research. State explicitly this problem according to the type of the study (empirical study, literature review and meta-analysis, methodological paper and case study).
- Describe relevant scholarship by discussing the relevant related literature and demonstrating the logical continuity between previous and present work.
- State each tested hypothesis clearly and provide a theoretical argument for how it was derived from theory or is logically connected to previous data and argumentation.

Method

This section describes in detail how the study was conducted, including conceptual and operational definitions of the variables used in the study. Authors should include the following:

- Sample description, by describing the main characteristics with particular emphasis on characteristics that may have bearing on the interpretation of results.
- Sampling procedure by describing the procedures for selecting participants in terms of sampling method, the percentage of the sample approached that participated, the number of participants who selected themselves into the sample.
- Sample size, power and precision.
- Measures and covariates by describing the methods used to collect data and to enhance the quality of the measurements.
- Research design.
- Experimental manipulations or procedures.
- Task description.

Results

This section summarizes the collected data and the analysis performed on the data to test the proposed hypotheses. Report the data analysis in sufficient detail to justify your conclusions. For more information please consult the 6th APA Publication Manual.

Discussion

This section evaluates and interprets the implications of the results, especially with respect to original hypotheses. Examine, interpret, and qualify the results and draw inferences and conclusions from them. Emphasize any theoretical or practical consequences of the results.

Also, the limits of the study and possible future studies can be considered in this section.

References

References are your entries in the *alphabetical list at the end* of your article or research note. This list should include all the works you have cited throughout the manuscript. The references should be formatted as follows:

1. Periodicals (selective examples)

Author, A.A, Author, B. B., & Author, C. C. (year). Title of article. *Title* of *Periodical, xx,* pp-pp. doi: xx.xxxxxxxxxx

Author, A. A., Author, B. B., Author, C. C., Author, D. D., Author, E. E., Author, F.F., … Author, Y.Y. (year). Title of article. *Title* of *Periodical, xx,* pp-pp. doi: xx.xxxxxxxxxx

Author, A.A, Author, B. B., & Author, C. C. (year). Title of article. *Title* of *Periodical, xx,* pp-pp.

Author, A.A., & Author, B.B. (in press). Title of article. *Title of Periodical.* Retrieved from http://cogprints.org/5780/1/ECSRAP.F07.pdf

2. Books

Author, A. A. (year). *Title of work.* Location: Publisher.

Author, A. A. (year). *Title of work.* Retrieved from http://www.xxxxxxx

Author, A. A. (year). *Title of work.* doi: xxxxx

Editor, A. A. (Ed.) (year). *Title of work.* Location: Publisher.

3. For chapters in a book or entry in a reference book (selective example)

Author, A.A., & Author, B.B. (year). Title of chapter or entry. In A. Editor, B. Editor, & C. Editor (Eds.), *Title of book* (pp. xxx-xxx). Location: Publisher.

Author, A.A, &Author, B.B. (year). Title of chapter or entry. In A. Editor & B. Editor (Eds.), *Title of book* (pp. xxx-xxx). Retrieved from http://www.xxxxxxx

Author, A.A., & Author, B.B. (year). Title of chapter or entry. In A. Editor, B. Editor, & C. Editor (Eds.), *Title of book* (pp. xxx-xxx). Location: Publisher. doi: xxxxxxxx

4. Meeting and symposia (selective examples)

Contributor, A.A., Contributor, B.B., Contributor, C.C., & Contributor, D.D. (Year, Month). Title of contribution. In E.E. Chairperson (Chair), *Title of symposium.* Symposium conducted at the meeting of Organization Name, Location.

Presenter, A.A. (Year, Month). *Title of paper or poster.* Paper or poster session presented at the meeting of Organization Name, Location.

5. Unpublished works (selective examples)

Author, A.A. (Year). Title of manuscript. Unpublished manuscript [or "Manuscript submitted for publication," or "Manuscript in preparation"].

For a detailed description of the procedure related to the citation of other types of work than those listed above, consult the 6th APA Publication Manual.

Footnotes

Footnotes are used to provide additional content or to acknowledge copyright permission status.

Appendices

The appendices of the manuscript (labeled APPENDIX A, APPENDIX B etc.) contain materials that supplements article content such as lengthy methodological procedures, calculations of measures, scales etc.

Tables and Figures

The author should number all tables and figures with Arabic numerals in the order in which they are first mentioned in the text, regardless of whether a more detailed discussion of the table or figure occurs later in the paper. The author should label them as Table 1, Table 2, and so on or Figure 1, Figure 2, and so on. List all tables first followed by figures. Place tables and figures after appendices at the end of the manuscript, and indicate the position of each in the text as follows:

Insert Table 1 about here

Each table or figure needs an introductory sentence in your text. The format agreed is the standard (canonical) one. Each table should report one type of analysis (which is identified in the title), and each vertical column and horizontal row should contain only one type of data.

Citation

It is important to put in the Reference section every work you have cited throughout the manuscript. The author can cite in-text as follows:

1. One author

Name and year: It has been found that X is associated with Y (Author, year)

Year only: Author (year) has found that

2. Two authors

When a work has two authors, the author should cite both names every time the reference occurs in the text.

When a work has three, four, or five authors, you should cite all authors the first time the reference occurs but in the subsequent citations, include only the surname of the first author followed by et al., (not Italicized and with a period after al.) and the year.

3. Two or more cited works

The author should order citations *alphabetically.* Designate two or more works by one author (or by an identical group of authors) published in the same year by adding "a," "b," and so forth, after the year.

4. Works with no identified author or with an Anonymus author

When a work has no identified author, the author should cite in text the first few words of the reference list entry (usually the title) and the year. Use double quotation marks around the title of an article, a chapter, or a web page and italicize the title of a periodical, a book, a brochure, or a report:

on organizational commitment ("Study Report", 2011)

the book *Motivational Outcomes* (2011)

5. Page numbers in citations

To cite a specific part of a source, the author should indicate the page, chapter, figure, table, or equation at the appropriate point in text. Always give page numbers for quotations.

(Johnny, 2011, p. 13)

6. Secondary sources

When the original work is out of print, unavailable through usual sources, the author should give the secondary source in the reference list and in the text you should name the original work and give a citation for the secondary source

Minnie's report (as cited in Smith, 2011).

Thank you for paying attention to the conventions outlined in this guide – it will help the work of everyone involved in the publication of this journal.