

ARTICLES

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THE INFLUENCE OF PSYCHOLOGICAL CAPITAL ON INTERNAL LEARNING IN TEAMS: THE MEDIATING ROLE OF THE PERCEIVED TEAM STRUCTURE

Influência do capital psicológico na aprendizagem interna em equipes: Papel mediador da estrutura percebida da equipe

La influencia del capital psicológico en el aprendizaje interno del equipo: El papel mediador de la estructura percibida del equipo

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ABSTRACT

Whereas past research on internal learning has focused on evaluating how the observed learning rates affect collaborative interactions among the various actors, we extend this literature by analyzing internal learning in teams and the role of psychological capital in this process. This study aims to analyze the mediating role of the perceived team structure in the relationship between positive psychological capital and internal learning in teams. Therefore, a self-report questionnaire was applied to 480 college students to test this relationship, using structural equation modeling. The results confirmed the mediating role of the perceived team structure in the relationship between psychological capital and internal learning in teams. Our work underlines the role of psychological capital in academic settings. On the other hand, due to rapid changes in today's society, university students who will be future employees need to cultivate psychological capital in order to achieve better learning outcomes.

KEYWORDS | Positive psychological capital, perceived team structure, internal learning in teams, learning process, undergraduate students.

RESUMO

Pesquisas anteriores sobre a aprendizagem interna concentraram-se em avaliar como as taxas de aprendizagem observadas afetam as interações colaborativas entre os vários atores. Assim, agregamos valor a essa literatura ao analisar a aprendizagem interna em equipes e o papel do capital psicológico nesse processo. Este estudo tem como objetivo analisar o papel mediador da estrutura percebida da equipe na relação entre capital psicológico positivo e aprendizagem interna em equipes. Portanto, um questionário foi aplicado a 480 estudantes universitários para testar essa relação, usando a metodologia de modelagem de equações estruturais. Os resultados confirmaram o papel mediador da estrutura percebida da equipe na relação entre capital psicológico e aprendizagem interna em equipes. Argumentamos que este trabalho reforça o papel do capital psicológico em contextos acadêmicos. Por outro lado, devido às rápidas mudanças verificadas atualmente na sociedade, os estudantes universitários que são futuros funcionários precisam desenvolver o capital psicológico, a fim de obterem melhores resultados de aprendizagem.

PALAVRAS-CHAVE | capital psicológico positivo, estrutura percebida da equipe, aprendizagem interna em equipes, processo de aprendizagem, estudantes de graduação.

RESUMEN

La investigación previa sobre el aprendizaje interno se ha centrado en evaluar cómo las tasas de aprendizaje observadas afectan las interacciones colaborativas entre los diversos actores. Por lo tanto, agregamos valor a esta literatura al analizar el aprendizaje interno en equipos y el papel del capital psicológico en este proceso. Este estudio tiene como objetivo analizar el papel mediador de la estructura percibida del equipo en la relación entre el capital psicológico positivo y el aprendizaje interno en los equipos. Por lo tanto, se aplicó un cuestionario a 480 estudiantes universitarios para probar esta relación, utilizando la metodología de modelado de ecuaciones estructurales. Los resultados confirmaron el papel mediador de la estructura percibida del equipo en la relación entre el capital psicológico y el aprendizaje interno en los equipos. Sostenemos que este trabajo refuerza el papel del capital psicológico en contextos académicos. Por otro lado, debido a los rápidos cambios observados en la sociedad actual, los estudiantes universitarios que son futuros empleados necesitan desarrollar capital psicológico para obtener mejores resultados de aprendizaje.

PALABRAS CLAVE | capital psicológico, estructura de equipo percibida, aprendizaje interno del equipo, proceso de aprendizaje, estudiantes de pregrado.

INTRODUCTION

Studies on individual learning show that it is at the heart of change and renewal (Argote & Miron-Spektor, 2011). Collaborative activities that lead to individual learning are considered critical to achieving different positive outcomes (Song, Lim, Kang, & Kim, 2014). Identification of the degree of involvement of individuals in the learning process has been considered the key issue in previous research (Bresman, 2010). Thus, learning theories tend to emphasize goal orientation and collaborative interactions between the various actors in order to minimize errors and improve individual performance (Bunderson & Reagans, 2011).

The study of the background of individual learning focuses essentially on explaining the differences in observed learning rates and evaluates how other factors, such as the perceived team structure, interact to influence learning (Bresman & Zellmer-Bruhn, 2013). Although these approaches indicate certain individual learning processes, there remains a need for a more theoretical construction and effective practical applications that more comprehensively analyze how learning factors are facilitated (Yoon & Kayes, 2016). As Bunderson and Boumgarden (2010) advocate, knowing more about the antecedent factors that affect individual learning is a valuable contribution, as it improves our understanding of learning processes.

Positive Psychological Capital (PsyCap) is a higher-order construct that integrates psychological resources (eg, self-efficacy), motivational resources (eg, hope), and other positive psychological resources (eg, optimism and resilience). We argue that PsyCap can be one of the above-mentioned antecedents, as it is considered to be a useful predictor of important results in academic settings (Datu & Valdez, 2019; Luthans, Luthans, & Jensen, 2012). For Siu, Bakker, and Jiang (2014), students and employees all work to achieve specific goals, such as good academic performance, completion of the course and their attainment of an academic degree. They also argued that PsyCap is a useful personal resource that assists in achieving objectives, and can, therefore, help university students face up to the challenges of their studies.

Previous research indicates the need for further studies on how to integrate psychological capital in the learning process (Daspit, Mims, & Zavattaro, 2015). Herrmann (2013) notes that there 'are very few studies that attempt to look at internal learning beyond the organizational field. The present study intends to fill this gap in the research, by describing an approach to incorporating psychological capital and internal learning in teams. The aim of this study, therefore, is to analyze the mediating role of the perceived team structure in the relationship between positive psychological capital and internal learning in teams.

Daspit et al. (2015) provided empirical evidence in support of the positive influence of psychological capital on the learning process of students during an online course. No evidence, however, has been gathered from analyzing the mediating role of the perceived team structure in the relationship between psychological capital and other variables, such as internal learning, which we believe to be an important theoretical contribution of this study.

For Schaubroeck, Carmeli, Bhatia, and Paz (2016), if there is no adequate learning process, team members will have difficulty in developing and implementing best practices for coordinating their actions when environmental changes require new approaches. We argue that this study could lead to certain practical implications because internal learning in teams allows students to focus on understanding concepts for relating new ideas to previous knowledge and experiences.

The remainder of this work is organized as follows. First, there is a literature review and the rationale for the hypotheses is presented. We then set out the methodological option and procedures, which are followed by an analysis of the results. We finally discuss the results and conclude with the implications of our findings.

LITERATURE REVIEW AND HYPOTHESES

Psychological capital

Theoretical and empirical studies have supported the contention that positive psychological capital is as an emergent nuclear construct related to different positive outcomes, thus allowing for a positive evaluation of the circumstances and the probability of success, with effort and perseverance as motivating factors (Heleda et al., 2015; Luthans, Avey, Avolio, & Peterson, 2010).

According to Luthans, Avey, Avolio, Norman, and Combs (2006), positive psychological capital is broadly defined as the positive psychological state of development of an individual, who can be characterized as: (1) having the confidence to take on challenging tasks and make the necessary effort to succeed (self-efficacy); (2) taking a positive approach to success, now and in the future (optimism); (3) persevering in achieving goals and, where necessary, redirecting their paths according to their goals in order to achieve success (hope); and (4) being able to overcome obstacles and adversity to achieve success (resilience), without ever giving up. In general, theoretical research considers four capacities of positive psychological capital, namely: self-efficacy, optimism, hope and resilience (Newman, Ucbasaran, Zhu, & Hirst, 2014). These capacities are interconnected, so if one is affected (e.g., optimism), others (eg, hope, self-efficacy and/or resilience) are also likely to be affected over time as well (Peterson, Luthans, Avolio, Walumbwa, & Zhang, 2011).

The attributes of these capacities can be defined as follows: (1) Self-efficacy - refers to the individual confidence that raises motivation levels and the cognitive resources that result in excellent performance (Bandura, 1982; Newman et al., 2014). (2); Optimism - is increasing the positive attributes and expectations with regard to the realization of future events (Harms & Luthans, 2012); (3) Hope – a cognitive set derived from the interaction between agency (oriented determination to achieve goals) and directional plans (planning steps that lead to achieving objectives) Walumbwa, Luthans, Avey, and Oke (2011); and (4) Resilience - the capacity that allows individuals to face up to adversity, or to adjust to it in a positive manner (King, Newman, & Luthans, 2015).

Chen and Lim (2012) pointed out that these four basic positive psychological capacities are likely to affect outcomes synergistically and are best represented by a higher-order construct called positive psychological capital. Avey (2014) argues that PsyCap is not a single dimension (for example, simply optimism), but is rather a shared variation of all four dimensions. These four positive psychological capacities, therefore, are part of a larger, second-order construct, called PsyCap.

The combination of the four psychological capacities (self-efficacy, optimism, hope, and resilience) provide a high level of psychological capital that allows an individual to focus on performing tasks and pursuing success in completing these tasks (Peterson et al., 2011). More specifically, these capacities were determined to meet the criteria of inclusion, research, and validation of the measures of psychological capital as a theory, thus enabling it to be broadly developed and have greater impact (Walumbwa et al., 2011).

According to Daspit et al. (2015), psychological capital is a set of individual motivations that stimulate the development of learning outcomes. The expected relationship between psychological capital and individual learning, however, is not obvious and remains open to further investigation.

Internal learning in teams

Learning capacity and the individual adaptation of the actors are fundamental to the long-term performance and success of organizations (Argote & Miron-Spektor, 2011).

Edmondson (1999, p. 353) conceptualized individual learning in teams as 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.

This process allows for a more comprehensive and robust understanding of future possibilities through the use of different information that is derived from the perceptions and perspectives of the team members, and by the critical analysis and evaluation of past actions (Bunderson & Reagans, 2011).

Individual work in a team enables communication and the sharing of knowledge - thus transforming the individual perspectives of perceived team members into explicit concepts that can positively influence other members (Kayes, Kayes, & Kolb, 2005; Kostopoulos, Spanos, & Prastacos, 2013). The different perspectives and experiences of each individual are also what makes the interpersonal learning process possible through the formal or informal sharing of knowledge (Bunderson & Reagans, 2011).

Therefore, internal learning is based on the team members' own experiences in generating new solutions and adopting novel approaches by way of inter-member interactions (Bresman & Zellmer-Bruhn, 2013). Internal learning can provide the team with opportunities to learn about all aspects of their work (Bresman, 2010). According to Bresman and Zellmer-Bruhn (2013), the internal learning process is crucial because team members can obtain and master the latest information about technologies and markets (external learning), but without an effective internal learning process, this knowledge may not be properly harnessed (Bresman & Zellmer-Bruhn, 2013).

In this context, an analysis of individual learning in a team should essentially consider the internal learning of team members, since factors that promote internal learning end up driving external learning (Bresman & Zellmer-Bruhn, 2013). This is particularly important given the fact that individual learning can be enhanced by the inclusion of new and challenging tasks (Jiang, Jackson, & Colakoglu, 2015).

It has been suggested that the learning process is the main psychological and behavioral mechanism by which individuals acquire the skills and knowledge necessary for facing up to and succeeding in competitive environments (Yoon & Kayes, 2016). Despite the theoretical and practical conceptualization of PsyCap and the learning process, there are few studies that analyze the influence of psychological capital on the individual learning process. This study, therefore, integrates these two concepts.

Psychological capital and internal learning in teams

The influence of PsyCap on the learning process is indicated as being relevant by authors such as Yoon and Kayes (2016). These authors emphasize that in many situations the learning process requires employees to face challenges, reflect on errors, and successfully perform tasks that involve risk.

When team members are actively involved in discussions that are geared toward achieving the stated objectives, they have the opportunity to exchange ideas and, in turn, share perceptions about the different alternatives that have been identified and, as a result, multiply the achievement of their goals, thus increasing their positive psychological capacities (Dawkins, Martin, Scott, & Sanderson, 2013).

According to Huang and Luthans (2014), in this context, individuals with a high level of psychological capital tend to distinguish themselves from others because of their ability to face up to challenging tasks, which can

boost the learning process. Thus, the internal learning process requires collaborative reflection on the team's experiences, with the objective of improving the collaboration capacity and the interaction patterns of its members (Schaubroeck et al., 2016). It is along these lines that we propose the following hypothesis:

H1: Psychological capital positively influences internal learning in teams.

Psychological capital and the perceived team structure

According to Bunderson and Boumgarden (2010), the perceived team structure refers to the division of labor into tasks and the relationships that are established according to the tasks that are assigned. Bresman and Zellmer-Bruhn (2013) point to two main dimensions of perceived team structure: (1) specialization, which is the horizontal division of labor (e.g. tasks and roles); and (2) formalization, which is the explicit articulation of objectives, priorities, and procedures.

Previous research has highlighted the benefits of the perceived team structure with regard to issues of efficiency, predictability, and the accomplishment of tasks. For example, Bresman and Zellmer-Bruhn (2013) emphasized that teams can create structures for themselves that fit the demands of their individual tasks. It has also been shown that the perceived team structure might be considered when there are few plans and procedures specifying how the work should be carried out (Bunderson & Boumgarden, 2010).

Individuals with a high level of psychological capital tend to generate positive expectations that encourage them to achieve defined goals and deal with adverse situations (Newman et al., 2014). On the other hand, other authors, such as Bresman and Zellmer-Bruhn (2013), have stressed the relevance of the perceived team structure, arguing that structure allows team boundaries to be defined by dividing up tasks and allocating responsibilities by subtask.

The division of labor makes it possible to perform specific tasks that team members must complete to achieve their stated goals, which requires high levels of psychological capital for a better performance (Salas, Shuffler, Thayer, Bedwell, & Lazzara, 2014). As Siu et al. (2014) stated, individuals with high levels of PsyCap promote a positive approach within a team and can effectively improve the processes, priorities and working procedures of university students.

Ortega-Maldonado and Salanova (2017) found that students use their psychological capabilities to define tasks or reach academic goals. This research also shows that in numerous challenging academic situations, students may need a high level of psychological capital to exert the effort necessary for completing defined tasks and introducing a positive attribution with regard to succeeding when problems and adversity appear. Individuals with high levels of psychological capital have the ability to structure their work to achieve the desired goals (Goertzen & Whitaker, 2015). Taking this conclusion into account, we hypothesize that:

H2: Psychological capital positively influences the perceived team structure.

The perceived team structure and internal learning in teams

The perceived team structure enables the actions of team members to be shaped and may be applicable to various types of perceived teams and organizational units (Bresman & Zellmer-Bruhn, 2013). Teams that have high-level collective perceptions are more likely to recognize and seize the emerging opportunities that are conducive to the learning process (Jansen, Kostopoulos, Mihalache, & Papalexandris, 2016).

For Noe, Clarke, and Klein (2014), the perceived team structure facilitates the learning process, precisely because it promotes interactions between team members. In such a context, learning presupposes that the activities and individual efforts of team members are oriented toward achieving objectives that have been defined by a process of activity formalization and specialization (Bunderson & Reagans, 2011).

The learning process depends on the existence of defined objectives and shared tasks within the team (Mathieu, Tannenbaum, Donsbach, & Alliger, 2014). Therefore, as work structuring has become increasingly important in education and in the workplace, more emphasis is being placed on the learning process and on individual learning capacity (Kayes et al., 2005). For these reasons we argue that the perceived team structure contributes to internal learning. Thus, we assume that:

H3: The perceived team structure positively influences internal learning in teams.

The mediating role of the perceived team structure

Previous research has paid little attention to the mediating role of the perceived team structure in developing learning processes that have an internal focus (Bresman & Zellmer-Bruhn, 2013). Similarly, Bunderson and Boumgarden (2010) argue that the perceived team structure is a category of a team's characteristics that researchers often ignore. For Crawford and Lepine (2013), these team process theories have focused more on the content and temporal relevance of work.

We argue that the perceived team structure can mediate the relationship between psychological capital and internal learning. In reflecting on the mediating role of the perceived team structure, Bunderson and Boumgarden (2010) emphasize that it has important implications for individual learning with an internal focus.

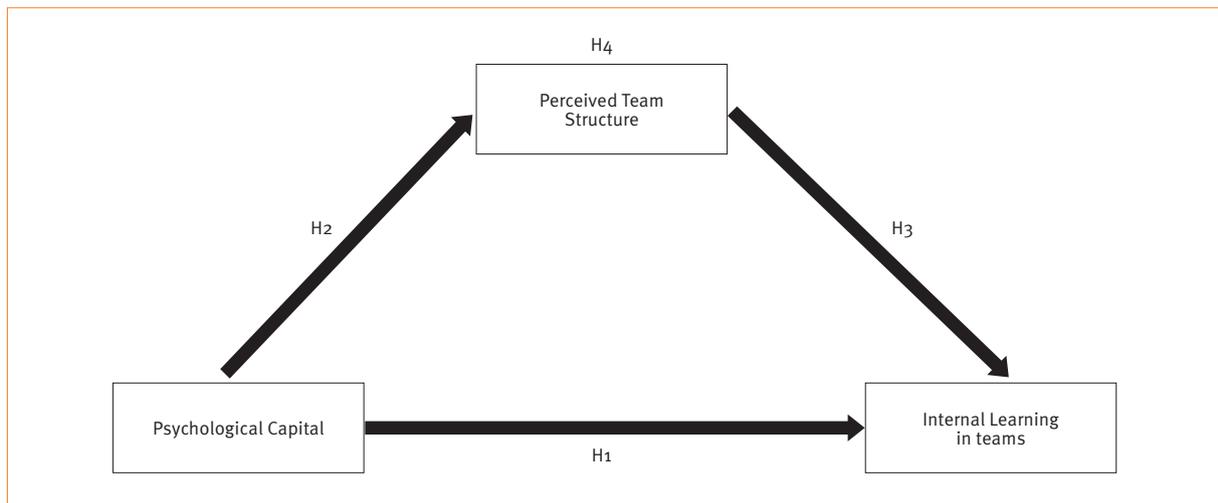
Psychological capital allows student attitudes to be influenced when structuring activities and tasks, which can create conditions that are favorable to the internal learning process. As Nielsen, Newman, Smyth, Hirst, and Heilemann (2016) stress, individuals with a high level of PsyCap have the confidence (self-efficacy) necessary for dealing with the challenging tasks they face at work, and believe they will be able to face up to these challenges (optimism) by redirecting paths to facilitate goals (hope) and recover from adversity (resilience). For Nigah, Davis, and Hurrell (2012), these abilities were considered to be personal psychological resources that individuals can use to structure both their tasks and the relationships that are established according to the tasks that are defined, which contributes to the individual learning process.

In line with this, we argue that the perceived team structure functions as a mediating mechanism, linking psychological capital to student learning. Although there is little evidence of the effect of psychological capital on internal learning by way of the perceived team structure, there is increasing evidence that psychological capital is linked to a trend that maintains the cognition and assessments of an individual and enables them to handle a variety of situations. Such situations include an individual having the confidence to undertake challenging tasks, generate alternative solutions in adversity, persevere under difficult circumstances, and recover quickly from failures and learn from them (Harms, Krasikova, & Luthans, 2018). This evidence leads us to formulate the following hypothesis:

H4: The perceived team structure mediates the relationship between PsyCap and internal learning in teams.

A conceptual model of the mediating role of the perceived team structure in the relationship between psychological capital and internal learning in teams is presented in Figure 1. The conceptual model also presents the hypotheses being studied.

Figure 1. A conceptual model of the relationship between psychological capital, perceived team structure and internal learning in teams



METHOD

Participants and the procedure

Study participants were undergraduate students from three large higher education institutions (two public and one private). These higher education institutions were selected from a list of eight such institutions. They were selected by random sampling, as suggested by Lohr (1999).

Students from 13 different undergraduate courses (including Psychology, Pedagogy, Clinical and Organizational Psychology, Linguistics-Portuguese, Geography, Physiotherapy, Accounting and Taxation, Biology and History) took part in this study. Collection of the data was authorized by the board of each institution and permission was granted by the professor of each of the modules in which the survey took place.

Participants voluntarily completed the questionnaire in person during the class period, using paper and a pencil. Study participants also completed a questionnaire about their work in a team as related to specific course units. As the two study variables (perceived team structure and internal learning) were obtained from students who worked in teams, we also asked them to think about their individual work with other team members rather than the work of the team as a whole, as recommended by Lee, Kwon, Shin, Kim, and Park (2018). It is also been shown that to measure a construct at the individual-level of analysis of individuals who worked in teams, they need to respond by having a team member as reference (Jehn, 1995).

During this phase in the research, 600 surveys were distributed and 480 valid surveys (an 80% response acceptance rate) were received back during the month of August 2018. All participants were informed that participation was voluntary and that the collected data would be handled by the researchers involved in the study in a confidential way and would be used only for purposes of the study. All participant questions were addressed during the data collection process.

Of the participants, 54 percent were men and their average age was 24 (the ages ranged from 17 to 58). The most significant courses were Economics (25 percent), Business Management (12 percent), Nursing (11 percent) and Linguistics-English (8 percent), with 64 percent of the participants studying in the morning, 2 percent in the afternoon, and 34 percent in the after-work period. Furthermore, 61 percent of the students were in their first year, 21 percent in the second year, 11 percent in the third year and 7 percent in the fourth year.

Measures

PsyCap. We used the version of the 24-item questionnaire that was adapted for academic research by [Luthans et al. \(2012\)](#). The 24 items that measure psychological capital were adapted from published scales that have been used in previous studies, such as those by [Luthans and Luthans \(2014\)](#) and [Luthans, Luthans, and Palmer \(2016\)](#).

The scale comprises four subscales with 6 items each, corresponding to positive psychological capacities, that evaluate: self-efficacy (e.g.: “I feel confident when I look for a solution to a long-term problem”); hope (e.g.: “If I found myself in a difficult situation at work of course, I could think of many ways to get out of it”); resilience (e.g.: “When I come across an obstacle in my studies, I find it difficult to recover and move forward”); optimism (e.g.: “In terms of my studies, I’m optimistic about what’s going to happen in the future”).

The responses were given on a 6-point Likert scale, from (1) “Totally Disagree” to (6) “Totally Agree”. According to [Luthans et al. \(2012\)](#), the 24-item positive psychological capital scale presented in the original study has a Cronbach’s α of 0.90.

Perceived team structure. We used the scale developed and validated by [Bunderson and Boumgarden \(2010\)](#), consisting of 9 items with two subscales, specialization (e.g.: “Our individual tasks are very clear and we don’t deviate from them”), and formalization (e.g.: “We follow a very structured work schedule”). Cronbach’s Alpha reported by the authors is 0.75. In a later study, [Bresman and Zellmer-Bruhn \(2013\)](#) validated the scale and found a Cronbach Alpha of 0.73. The responses were given on a 7-point Likert scale, from (1) “Totally Disagree” to (7) “Totally Agree”.

Internal learning in teams. We used the scale that was developed and initially validated by [Edmondson \(1999\)](#), and later confirmed and validated by [Bresman and Zellmer-Bruhn \(2013\)](#), which relates to internal learning and has 7 items. As examples of the items we have: “We regularly reserve time to find ways to improve the group’s work processes” and “People in the team often speak up to test assumptions about issues under discussion”. The response scale used is a 7-point Likert type scale, from (1) “Totally Disagree” to (7) “Totally Agree” with a Cronbach Alpha of 0.71.

The total scale with 40 items was translated into Portuguese using the translation/retroversion method. The original scale and translated versions were carefully compared at this stage by a native English speaker, with a Portuguese-English language professor assisting us in this process.

Control variables. Previous research (e.g., [Schneider & Preckel, 2017](#)) argued that student learning outcomes may be influenced by the year of their course. We included this demographic variable, therefore, in our analyses. The year of the course was a self-report measure.

Measurement validity

We ran a confirmatory factor analysis for each construct to examine their factorial structure. The quality of the local adjustment of the model was based on the factorial weights and individual item reliability. We also examined convergent validity (i.e., composite reliability) (Fornell & Larcker, 1981).

Confirmatory factor analysis, which was carried out using Amos software on the Positive Psychological Capital scale, resulted in adequate values. The model has moderate and good factorial weights ($\lambda \geq 0.30$) and appropriate individual reliabilities ($r_2 \geq 0.10$). The final model has excellent adjustment indices* ($\chi^2(145) = 242.993$, $r < 0.001$; TLI = 0.908; CFI = 0.922; GFI = 0.949; SRMR = 0.044; RMSEA = 0.038). The Cronbach Alpha for the Positive Psychological Capital dimension was 0.86. It is important to emphasize that in this study we used PsyCap as a second-order factor, since several studies have shown that PsyCap as a second-order construct has a stronger impact on results than the four psychological capacities separately (Alessandri, Consiglio, Luthans, & Borgogni, 2018; Avey, Reichard, Luthans, & Mhatre, 2011; Badran & Youssef-Morgan, 2015).

Adequate values were obtained using confirmatory factor analysis for the Perceived Team Structure scale. The model has moderate and good factorial weights ($\lambda \geq 0.40$) and appropriate individual reliabilities ($r_2 \geq 0.16$). The final model has good adjustment indices $\chi^2(26) = 89.137$, $r < 0.001$; TLI = 0.899; CFI = 0.927; GFI = 0.962; SRMR = 0.045; RMSEA = 0.071. The Cronbach alpha for the team structure was 0.82.

Adequate values were obtained using confirmatory factor analysis for the Internal Learning scale. The model has moderate and good factorial weights ($\lambda \geq 0.40$) and appropriate individual reliabilities ($r_2 \geq 0.16$). The final model has excellent adjustment indices ($\chi^2(7) = 23.797$, $r < 0.001$; TLI = 0.950; CFI = 0.977; GFI = 0.984; SRMR = 0.034; RMSEA = 0.071). Cronbach's alpha coefficient for internal learning is 0.76.

RESULTS

Descriptive statistics

Table I presents the means, standard deviations, Cronbach's alphas (in parentheses) and Pearson's correlations of the variables being studied. According to Table I, the internal consistencies are generally acceptable. The perceived team structure mediation model on internal learning was adjusted to 480 respondents. The model has an acceptable adjustment ($\chi^2(450) = 716.726$, $r < 0.001$; TLI = 0.90 CFI = 0.902; GFI = 0.915; SRMR = 0.050; RMSEA = 0.035).

We used a structural equation modeling power analysis program with an anticipated effect size of 0.144 at a probability level of 0.05 and a statistical power level of 0.80, as suggested by Westland (2010). The results showed that in order to have a sample size that was acceptable for testing the research hypotheses, this study needed a minimum of 379 participants. We consequently argued that the sample size of the present study (480 students) indicates that the explanatory power is acceptable.

Table 1. Means, standard deviations and correlations between study variables

Study Variables	M	SD	Maximum	Minimum	1	2	3	4
1. Year of the course	1.63	0.93	4	1	-			
2. Psychological Capital	4.75	0.57	5.90	2.04	0.031	(0.86)		
3. Perceived Team Structure	4.46	1.08	7.00	1.00	-0.099*	0.335**	(0.82)	
4. Internal Learning in teams	4.00	1.19	7.00	1.00	-0.015	0.275**	0.507**	(0.76)

N = 480; Cronbach's α s (in parentheses)

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

Assessing common method bias

Richardson, Simmering, and Sturman (2009) pointed out that common method bias might have significant implications for the relationships between the measurements of different constructs. For Podsakoff et al. (2003), the use of statistical remedies might possibly minimize the effects of common method bias on the study findings. Since the data from this study were obtained from the same source, we evaluated the effect of this variation by re-estimating the measurement model, adding a latent common method factor (Harman's single-factor test).

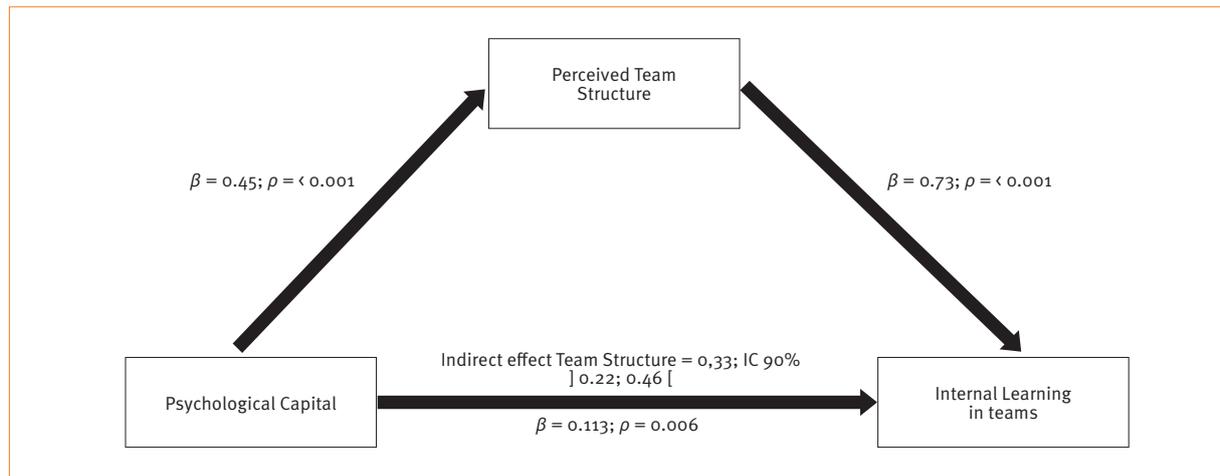
The model fit without the common method factor produced the following adjustment indices: ($\chi^2(422) = 663.455$, $r < 0.001$; TLI = 0.901; CFI = 0.911; GFI = 0.918; SRMR = 0.049; RMSEA = 0.035). While the inclusion of the common method factor only slightly improved the model fit in certain indices, the results are as follows: ($\chi^2(421) = 666.986$, $r < 0.001$; TLI = 0.899; CFI = 0.909; GFI = 0.919; SRMR = 0.039; RMSEA = 0.035).

However, the proportion of total variance explained by this method factor was 15 percent, below the 25 percent suggested by Williams et al. (2010). We argue, therefore, that same-source bias cannot be considered a threat to the findings of this study.

Hypothesis tests

In relation to the hypothesis test, we adopted a bootstrap approach with a 90% confidence interval over the indirect standardized effects. The adjusted model explains 55% of the variability of Internal Learning. The results show that psychological capital has a positive and statistically significant influence on internal learning ($\beta = 0.113$; $p = 0.006$). Hypothesis H1 is, therefore, supported. PsyCap had a significant and positive influence on the perceived team structure ($b = 0.45$; $r < 0.001$), thus supporting H2. Perceived team structure is significantly and positively associated with internal learning ($b = 0.73$; $r < 0.001$), which supports H3. The results show that perceived team structure fully mediates the relationship between psychological capital and internal learning (indirect effect = 0.33; 90% CI limits to] 0.22, 0.46], thus supporting hypothesis H4.

Figure 2. Final model



DISCUSSION

The aim of this study was to analyze the mediating role of the perceived team structure in the relationship between psychological capital and internal learning. The results confirmed the existence of a positive relationship between psychological capital and internal learning. This highlights the importance that positive psychological capacities have on building strength and contributing to the alertness of individuals, thus contributing to internal learning (Chen & Lim, 2012).

Individuals with these psychological capacities exert efforts which, when well executed, lead to certain successful results (Stajkovic & Luthans, 1998). This relationship between psychological capital and internal learning seems to happen because of the strong link between psychological capital and successful academic outcomes (Luthans, Luthans, & Chaffin, 2018). Learning activities also require concrete and substantial efforts, such as identifying problems, and seeking information for solving problems (Huang & Luthans, 2014).

The relationship between psychological capital and perceived team structure was also confirmed. As Luthans et al. (2018) reported, individuals with high levels of psychological capital deal best with errors, failure, and setbacks, and usually do not allow difficult circumstances to prevent them from achieving high levels of performance. These factors may be sufficient to encourage individuals to seek other relevant paths for clearly defining their objectives and procedures. Psychological capital is also important for revealing individual psychological factors related to the structuring process (Daspit et al., 2015).

A longitudinal (4-week interval) study of 391 Dutch university students showed that personal resources, such as self-efficacy, hope, optimism, and resilience are indeed important in predicting greater student involvement in achieving better outcomes (Ouweneela, Blanca, & Schaufeli, 2011).

The third hypothesis on the positive relationship between perceived team structure and internal learning was also confirmed. This result seems to confirm what was reported by Bunderson and Boumgarden (2010) that the identification of roles among group members facilitates information sharing and makes it possible to perform tasks that can boost the learning process. Structure is fundamental to the learning process, as learning requires

some level of confidence and the potential to achieve the desired performance. In turn, this requires a clear definition of objectives and procedures (Yoon & Kayes, 2016).

Finally, the mediating role of the perceived team structure in the relationship between psychological capital and internal learning has been confirmed. This finding is consistent with previous research (e.g. Bunderson & Boumgarden, 2010), which argues that the perceived structure can promote learning and create a safe environment within the team, thus facilitating the sharing of information. The perceived structure of the activities also tends to provide experimentation and the search for new insights, which may have a positive impact on the learning process (Bunderson & Boumgarden, 2010).

CONCLUSIONS

Studies conducted over the years have shown that psychological capital is related to several important outcomes, both inside and outside the work environment (e.g. Dawkins et al., 2013; Krasikova, Lester, & Harms, 2015; Luthans, Youssef, & Rawski, 2011; Luthans & Youssef-Morgan, 2017; Newman et al., 2014). The aim of this study was to analyze the mediating role of the perceived team structure in the relationship between psychological capital and internal learning. The study provided empirical evidence of the influence of psychological capital on the internal learning process by way of the perceived team structure. Therefore, we argue that this study is important, not only because it can be applied in academic settings for enhancing the student learning process, but also because it raises new theoretical issues and challenges for future studies.

Theoretical and practical implications

The study contributes to the literature in different ways. We provide evidence that the relationship between psychological capital and internal learning is mediated by the perceived team structure. This confirms that one of the distinctive features of psychological capital, and one that has an important practical contribution to make, is its openness to change and development (Choi & Lee, 2014; Han, Brooks, Kakabadse, Peng, & Zhu, 2012; Nwanzu & Babalola, 2019).

It also provides additional empirical evidence for the idea that psychological capacities, such as self-efficacy, hope, optimism, and resilience, can be used to enhance the internal team learning process. These results are important because they underline the need for training interventions that are designed to develop psychological capacities (Rebello, Dimas, Lourenço, & Palácio, 2018). Studies by Luthans and Youssef-Morgan (2017) present insights and practical guidelines for developing PsyCap.

Limitations and future directions

This study has its limitations. One limitation concerns the potential problem of common method bias, since we used the same source for collecting the data. In addressing this issue in the study results, we used statistical remedies, such as the addition of the latent factor method. The results show that common method bias cannot be considered a threat to the findings of this study. However, further research may alleviate the potential common method bias problem by collating data from multiple sources (e.g. obtaining psychological capital measures from students, teachers, and the managers of higher education institutions).

On the other hand, the PsyCap questionnaire used in this study is traditionally applied in organizational settings. Although we used the version of the questionnaire adapted for academic research by Luthans (2012), we encourage future researchers to further examine the applicability of the PsyCap instrument in other contexts, outside the work environment.

NOTE

*Acceptability parameters of Structural Equation Modelling (Hair, Anderson, Tatham, & Black, 1995):

- Chi-Square (χ^2): p-value $\leq 0,05$.
- Goodness of Fit Index (GFI): ≥ 0.90 .
- Comparative Fit Index (CFI): ≥ 0.90 .
- Tucker-Lewis Index (TLI): ≥ 0.90 .
- Root Mean Square Error of Approximation (RMSEA): ≤ 0.08
- Standardized Root Mean Square Residual (SRMR): ≤ 0.08

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AUTHORS' CONTRIBUTIONS

The authors declare that they participated in all stages of development of the manuscript. Rosa Lutete Geremias designed, prepared, carried out the data collection process, and written the article. Miguel Pereira Lopes revised the section of the analysis and discussion and corrected the entire manuscript. André Escórcio Soares analyzed and verified the data in this article. All authors contributed to the article and approved the submitted version.