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EDITORIAL

Translated version



JORGE CARNEIRO
Editor-in-Chief

NEW EDITOR-IN-CHIEF CELEBRATES INDEXING IN ABS LIST AND COMMENTS ON CHALLENGES

Dear readers, authors, reviewers and editors of *Journal of Business Management (RAE-Revista de Administração de Empresas)*,

It gives me great pleasure to write my first editorial as editor-in-chief. I am grateful for the confidence placed in me by Prof. Maria José Tonelli, whom I succeed and who, along with her competent editorial team, has managed this journal in such a notable manner.

Over the past five years *RAE* has received more than 900 articles a year, on average! I want to thank, therefore, those authors who honor us with their work, as well as the scientific editors and reviewers for the invaluable services they provide. We shall continue to count on your contributions! I am also grateful for the institutional and financial support we receive from Fundação Getulio Vargas and the São Paulo School of Business Administration.

RAE is rated A2 by Qualis CAPES and listed by the major international indexing databases, such as JCR/WoS and Scopus.

I am proud to tell you that *RAE* was this year included in the Association of Business Schools (ABS) ranking, which is one of the most prestigious in the scientific world. I am lucky, therefore to be starting off having been preceded by editors (I mention here only those from the last 20 years, Maria José Tonelli, Eduardo Diniz, Flavio Vasconcelos, Francisco Aranha, Carlos Osmar Bertero and Thomaz Wood Jr.) and a team of extremely competent people who laid down the foundations of this success, which it is now up to me to maintain and expand.

In addition to *RAE,* two other Brazilian Administration journals also entered the ABS ranking: *RAC* and *RAUSP*. This achievement reflects the fact that the quality and relevance of our journals are being recognized, and this is a welcome sign for those other Brazilian Administration journals that strive for excellence in their editorial processes.

Our main challenges, which are also the goals of *RAE,* are:

- to continually improve the strict standards of editorial quality by which the journal has always been characterized;
- to renew our scientific editorial team on a regular basis, by always attracting researchers with a renowned reputation, including young talent;
- to increase the journal's internationalization in terms of the authors, readers and respective citations;
- to encourage researchers to suggest material for special issues, and to be the guest editors of them; this is a fertile path to the internationalization we have been exploring;
- to encourage authors to highlight the implications and social impact of their studies, in addition to their scientific contribution;
- to "educate" the research community on a continuous basis so we become increasingly better authors, editors and reviewers in a voluntary process of mutual strengthening and collective learning;
- to underline the journal's ethical principles and editorial transparency more and more, and to engage with the trends of open science.

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I invite you to read the articles published in this issue. Continuing with the journal's pluralistic approach, this issue includes articles on organizational studies, marketing and human resource management. Also included are a critical personal reflection in the Pensata section and a book review:

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Enjoy your reading!

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MOVING MEMORIES: STORIES OF THE TINA MARTINS SHELTER IN THE FIGHT AGAINST GENDER VIOLENCE

Memórias em movimento: Histórias da casa Tina Martins no combate à violência de gênero

Recuerdos en movimiento: Historias de la casa Tina Martins en la lucha contra la violencia de género

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ABSTRACT

This article presents different stories and memories of the Tina Martins Women's Referral Center. To this end, we moved away from the qualitative studies of history and memory in organizational studies that are based on the historic turn, which aims to go beyond the production of narratives that resort to the past as a tool for reproducing the power relations of the present. A vast amount of material was compiled from observing participants, including a field notebook, event records, and photographs, and individual interviews were recorded and transcribed. The results were organized into two main thematic axes: the first presents the process that led to the Center's foundation and the political disputes over its space, while the second addresses the meanings present in the group's everyday life. Given the construction of diversified and procedural historical narratives, this article proposes some critical reflections on the Center's experience that were discussed with its members, and instigates, via memories, the adoption of the historical approach to organizational studies.

KEYWORDS | Memory, gender violence, social movements, Casa Tina Martins, History.

RESUMO

O objetivo deste artigo é apresentar as diversas histórias e memórias da Casa de Referência da Mulher Tina Martins. Para isso, partiu-se dos estudos qualitativos sobre história e memória nos Estudos Organizacionais baseados na virada histórica (historic turn), a qual visa ir além da produção de narrativas que utilizam o passado como ferramenta de reprodução das relações de poder do presente. Por meio de uma observação participante, foi construído um vasto material, como um caderno de campo, registros de eventos, fotografias e entrevistas individuais gravadas e transcritas. Esses resultados foram organizados em dois percursos temáticos principais: primeiro, apresentou-se o processo de criação da Casa, envolvendo as disputas políticas pelo seu espaço. Em seguida, foram trabalhados os sentidos presentes no cotidiano do grupo. Tendo em vista a construção de narrativas históricas diversificadas e processuais, foram propostas algumas reflexões críticas sobre a experiência da Casa, discutidas junto às integrantes, instigando, por meio das memórias, trabalhos históricos no campo dos Estudos Organizacionais.

PALAVRAS-CHAVE */ Memórias, violência de gênero, movimento social, Casa Tina Martins, História.*

RESUMEN

Este artículo tiene como objetivo presentar las diversas historias y recuerdos de la Casa de Referencia de la Mujer Tina Martins. Para ello, se partió de los estudios cualitativos sobre historia y memoria en los Estudios Organizacionales basados en el giro histórico (historic turn), cuyo objetivo es ir más allá de la producción de narrativas que utilizan el pasado como herramienta para reproducir las relaciones de poder del presente. A través de una observación participante, se construyó un vasto material, como un cuaderno de campo, registros de eventos, fotografías y entrevistas individuales grabadas y transcritas. Estos resultados se organizaron en dos caminos temáticos principales: primero, se presentó el proceso de creación de la Casa. Luego, se abordaron los sentidos presentes en la vida diaria del grupo. Como conclusión, se propusieron algunas reflexiones críticas sobre la experiencia de la Casa, discutidas con las mujeres del grupo, promoviendo a través de recuerdos trabajos históricos en el campo de los Estudios Organizacionales.

PALABRAS CLAVE */ Recuerdos, violencia de género, movimiento social, Casa Tina Martins, Historia.*

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INTRODUCTION

The *Map of Violence* (Waiselfisz, 2015) and the project entitled *Gender and Politics in Latin America* (Corrêa & Kalil, 2020) show that gender violence persists in Brazil. It is a complex phenomenon that branches into different spheres of everyday life and presents specific challenges for each social stratum (Narvaz & Koller, 2006; Segato, 2003). One must bear in mind that despite the progress achieved through women's struggles, such as the creation of public policies and the Maria da Penha Law (Law No. 11.340), many other challenges lie ahead, especially for non-white women, given the significant increase in femicide rates in Brazil (Waiselfisz, 2015).

In this context, the *Casa de Referência da Mulher Tina Martins* ("Tina Martins' Women's Referral Center", hereinafter the TMWRC or "Center"), which was founded in 2016 by the Olga Benário Feminist Movement, began with the occupation of a cafeteria in a building that used to house the Federal University of Minas Gerais (UFMG) School of Engineering. The TMWRC trajectory began with a tense, 87-day negotiation with the Minas Gerais state government and culminated with the provisional cession of a listed building in downtown Belo Horizonte, which is now maintained by the movement's female members.

The project is currently part of the *Rede Estadual de Enfrentamento à Violência contra a Mulher do Estado de Minas Gerais* ("Minas Gerais State Network for Coping with Violence against Women"), and stands alongside other government organizations and agencies, such as the *Centro de Apoio à Mulher Benvinda* ("Benvinda Women's Support Center") and the *Núcleo de Defesa dos Direitos da Mulher em Situação de Violência* (NUDEM, "Center for the Defense of Women's Rights".) Since the network is mobilized to fill gaps left by the government in state towns outside the capital, just a fraction of the most critical cases is referred to the TMWRC, which, despite being in the state capital, has a state-wide scope of action. It is worth noting that the femicide rate in Minas Gerais is higher than the national average, with 1.3 homicides for every 100,000 women, or 136 cases in 2019 (Velasco, Caesar, & Reis, 2020).

This paper presents the different stories and memories of that experience, based on the accounts of women who have participated in the project since it was set up. To this end, the study distances itself from qualitative, historical organization approaches based on the historic turn, which aims to go beyond the production of narratives that resort to the past to reproduce power relations in the present (Godfrey, Hassard, O'Connor, Rowlinson, & Ruef, 2016). By way of participant observation, extensive research material was compiled, including a field notebook, event records, photographs, and individual interviews. These data were organized to prepare diversified and procedural historical narratives that can address the complexity of the meanings produced by the social movement during its trajectory.

The third section describes this paper's methodology in greater depth, following discussion of history and memory in management studies, and of gender violence. By immersing ourselves in the group, we sought to question the apparent dichotomy between theory and practice in science, particularly in management studies (Carrieri, Perdigão, Martins, & Aguiar, 2018; Gabriel & Carr, 2002). In this sense, this study moves towards presenting the results of women's practices in the context of a social movement against gender violence, and incorporating their memories as a source for constructing academic knowledge in organizational studies. This, in turn, encourages historical discussions that focus on minor subjects, and shows how memory can access different forms of knowledge and historicize the diverse resistance tactics adopted by and in social organizations.

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THE HISTORICAL PERSPECTIVE AND MEMORIES IN MANAGEMENT STUDIES

Various studies in recent times have addressed the contributions of historical perspective and memory to organizational studies, among which the following stand out: Clark and Rowlinson (2004); Costa, Barros and Martins (2010); Rowlinson, Booth, Clark, Delahaye and Procter (2010); Vizeu (2010); Souza and Costa (2013); Barros and Carrieri (2015); Maclean, Harvey and Clegg (2016); Coraiola, Foster and Suddaby (2017); Carrieri *et al.* (2018); Costa e Silva (2019); Carrieri and Correia (2020); and Decker, Rowlinson and Hassard (2020). What they all have in common is that they discuss the advances made and the possibilities that the interdisciplinary approach offers, by presenting alternative ways to overcome the concentration of management studies framing the great stories, subjects, and narratives.

The recent increase in historical studies in management was pointed out by Clark and Rowlinson (2004), who emphasize the academic production that is based on the historic turn. Vizeu (2010) argues that such studies are associated with the methodological and epistemological turns of social sciences that occurred in the second half of the 20th century, which dealt with the practices and discourses adopted in academia.

According to Clark and Rowlinson (2004), the influence of the historical perspective led to the "simple" and "scientific" variables in management studies being questioned. Therefore, the historic turn opened up research possibilities in the field to novel methodological tools, objects of investigation, and views on past events, in addition to reflections on historical narratives and the role of history that depart from the notion of the past as a process and a context (Costa *et al.*, 2010). This movement also underlines the relevance of minor events, narratives, practices, and knowledge forms that are promoted by minor subjects who have been typically disregarded in the knowledge creation process (Barros & Carrieri, 2015; Carrieri *et al.*, 2018; Joaquim & Carrieri, 2018).

Recent discussions, such as those by Joaquim and Carrieri (2018), Wanderley and Barros (2018), Costa e Silva (2019), and Carrieri and Correia (2020), endorse the historical contributions to organizational studies, and in doing so, they highlight the geographically localized knowledge that is produced outside the so-called global cities. In this sense, these authors urged Brazilian researchers to overcome the ahistorical character of management studies, by encouraging them to mitigate local dependence on foreign studies when reflecting on the subject. This line of reasoning justifies historical studies being conducted into non-business organizations, since the very choice for this study object distinguishes it from key studies in the field. Costa e Silva (2019) adds to this by stating that studies that address the historical approach to management are scarce, which points to the real need for advancing the particularities and procedures applied to the area by combining documentary sources, official historical reports, and oral accounts.

As for memories, the study objects reveal a diversity of themes and reflections. Whether individual or collective, memory is not a passive repository of facts; on the contrary, it is an incalculable cultural product (Guarinello, 2004). This position is also adopted by Neves (2010) and Joaquim and Carrieri (2018) who stress the constructive and reconstructive character of the meanings that constitute memory, and distance themselves from the objective notion that perceives it as a mere passive depository of facts, occurring in the present while addressing events and issues in the past.

Finally, this paper is framed by the historical approach, insofar as it does not regard history as linear, unique, and hegemonic. Instead, analysis of the narratives is heterogeneous, plural and multiple, while emphasizing the fact that those here portrayed always represent just a few among many possibilities, situated in a historical moment that influences the perception and the way the research is conducted. In this sense, we highlight the relationship

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between history, memory, and knowledge, whose core is in the way in which the subjects ground their narratives in knowledge backgrounds that are specific to each reality, thus producing new ways of existing and resisting.

GENDER VIOLENCE AND REMEMBRANCES OF A POSSIBLE FUTURE

"The river that everything drags is known as violent, but nobody calls violent the margins that arrest him." (Bertold Brecht)

Violence against women is present in the State, the media, institutions, culture, art, politics, the labor market, and in family relationships (Bandeira, 2014; Saffioti & Correa, 2001). It has different dimensions (psychological, physical, sexual, reproductive, and economic) and takes various forms, such as sexual harassment, rape, assault, threats, forced sterilization, and murder. (Teles & Melo, 2017). Interestingly, these multiple facets are not disassociated, but often overlap; for instance, it is not uncommon for economic violence to occur alongside psychological violence (Cardoso, 1997; Gregori, 1993).

This complexity reveals a form of oppression that has been ingrained in the formation of subjects throughout human trajectory, even if it has been transfigured by historical periods and geographic specificities (Lerner, 1986; Mohanty, 1984). Indeed, this has resulted in a dynamic in which women occupy positions of subjection and resistance by creating unexpected and sometimes collective means of disobedience (Narvaz & Koller, 2006). In this sense, although used as a backdrop, gender violence has always been present in various feminist currents and approaches, and this plural movement has sought to "denormalize" violent situations that have been naturalized by common sense (Segato, 2003; Pintos & Solís, 2002).

In the context of this study, it should be noted that the basis of the group here observed is so-called "Marxist feminism", as the name of the movement that founded the TMWRC proclaims. Many female scholars have studied this strand that originated in the late 19th century and gained prominence in Brazil in the 1980s in the context of the country's re-democratization (Pedro, Mello, & Oliveira, 2005). It was during this period that national public policies, such as women's police stations, were implemented, triggering the establishment of state networks for tackling violence against women, such as the one currently in force in Minas Gerais (Martins, Cerqueira, & Matos, 2015; Santos & Izumino, 2005).

Brazilian authors, such as Heleieth Saffioti (1987, 2001, 2015) and Zuleika Alambert (2004), were pioneers in the development of Marxist feminism, and were influenced by the classic works of Alexandra Kollontai (1977) and Rosa Luxemburg (2002). Key figures, like Angela Davis (2016), Patricia Hill Collins (2017, 2019), and Nancy Fraser (2009), have recently stood out in the international scenario and sought to address gender inequality, and consequently violence against women, from a Marxist perspective, while pointing out that class struggle is paramount for tackling it.

Delving deeper into Marxism, Saffioti (2013, 2015) disputes the idea that economic liberalism can be a path for female emancipation through women entering the labor market. On the contrary, the author claims that women are the driving force of the capitalist production and accumulation system, since they are in charge of reproducing and caring for individuals in all spheres of life, although they often receive no remuneration at all (Arruzza, Bhattacharya, & Fraser, 2019).

Saffioti (1995) warns that this problem "knows no frontiers of social class, culture form, or degree of economic development [...] it is enforced at all stages of women's lives by strangers or relatives/acquaintances, particularly

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the latter" (p. 8). Gender violence is at the heart of the constitution of modern subjects and, even when violence is perpetrated by women, "they do not have, as a social category, a project for the domination-exploitation of men" (Saffioti & Correa, 2001, p. 116).

At the same time, authors such as Carneiro (2001) and Buck-Morss (2017) add that without the expropriation of the land of racialized individuals, and the erasure of their subjectivity through slavery, economic accumulation by the contemporary world's capitalists would have been impossible. Particularly in Brazil, Carneiro (2001) draws attention to the fact that "the myth of racial democracy, by de-racializing through the apologetics of miscegenation" (p. 14), has concealed racial inequality, and allowed the material memories of slavery to be perpetually repeated. Along these same lines, Saffioti (1987) also demonstrated how " women, indigenous people, blacks, mulattoes, homosexuals, and bisexuals constitute groups that, by definition, cannot aspire to positions of command" (p. 95) and highlighted "the endemic character of gender violence" (p. 95).

Despite the advances achieved so far, the structural character of gender violence and women's resistance throughout history have been overshadowed by the media outlets, which usually focus on scandalous events of explicit aggression (Pintos & Solís, 2002). From this perspective, any future project requires a form of feminism that touches the lives of peripheral, black, poor, lesbian, prostitute, transsexual, obese, elderly, Latin American, African, Eastern, and Global Southern women; in other words, those dissenting women who have not mastered the hegemonic language that is overvalued by those institutions that ensure visibility in society. Ultimately, as D'Alessandro (2017, our translation) claims, this movement does not depend only on women, but on the whole of society and nature, which has led to the statement: "if there's a future ahead, it's feminist" (p. 43).

METHODOLOGY: FOR WHAT (OR WHO) ARE THE METHODS?

"Some memories are omens." (Lévy & Robins, 2019).

To introduce the different stories and memories of the TMWRC, we conducted participant observation (Serva & Jaime, 1995) and five in-depth interviews (Balasch & Montenegro, 2003). In addition to compiling the material that was made available to the group, the researchers' participation in the Center's activities allowed them to establish a closer relationship with the women, thus integrating both ways of approaching the experience in question. They joined the TMWRC's activities in April 2018 when they collected photographic records that were later returned to the group and used illustratively in the research.

To overcome the notion that relates the political dimension exclusively to subjects who are members of, or engaged in social movements, different Center groups were investigated, namely coordinators, residents, interim residents, and other participants. However, this was not carried out on the same grounds. Even though these women integrate freely, some shelters are currently vulnerable or exposed, and therefore required us to consider certain ethical precautions. To avoid reproducing the patriarchal manner in which other institutions operate, we decided not to interview the women living in this situation directly, but to resort to their public discourse as disclosed via the social media or during open events.

According to Balasch and Montenegro (2003), narrative production is a methodology that emerges in critical social psychology, whose purpose is to produce texts between researchers and participants collectively. This occurs

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in a specific "situation for which a series of sessions is scheduled and in which both parties speak and comment on aspects – previously agreed upon – regarding the phenomenon studied" (Balasch & Montenegro, 2003, p. 19, our translation). It is worth clarifying that during this stage no data or information analysis was carried out, as is typical of qualitative perspectives, which consider interpretations as possible ways of revealing a reality that hides between the lines of what is actually said.

As for the scope of action of the participation resulting from the research, it was quite diverse and included: (1) participation in the Center's main everyday activities; (2) participation in the Center's weekly studies on feminism and socialism; (3) recording and editing events, that is, producing potential material for publicizing the project; (4) a fundraising initiative with the university, carried out through the submission of extension projects that articulated the Center's activities within the scope of the university extension; and (5) the organization of exchange activities, with coordinators being invited to participate in the academic environment by way of lectures.

The triangulation of participant observation tools, secondary data, and interviews generated a vast amount of material. The interviews followed the format of a simple conversation and were fully transcribed. Two public events were also recorded and transcribed to collect the discourses of other female research subjects who are members of the state network coping with violence against women. Table 1, which can be found after the references section, shows how the interviews were conducted. It describes the respondents, as well as their scope of action in organizing the project.

Table 1. **Compiled material: building a research corpus**

Type of Material	Fictitious Name	Area of Action	Date
Interview No. 1	Violeta Parra	Communication	Jul/2018
Interview No. 2	Hilda Hilst	Psychology	Jul/2018
Interview No. 3	Rosa Luxemburg	Social Care	Jul/2018
Interview No. 4	Margarida Alves	Sheltering	Jul/2018
Interview No. 5	Alexandra Kollontai	Law/Legal	Nov/2018
"Deconstructions" Event	Pagu	General	Nov/2017
"Tina Resists" Event	Alexandra Kollontai	Law/Legal	Jun/2018
	Cora Coralina	Former shelter resident	

The real names of the participants have been concealed. To identify them for the purposes of this study, each one was asked to point to a feminist figure who represented them. This procedure did not follow any form of prescribed methodology, but was used in a lighthearted manner to illustrate the connections between the memories and narratives revealed by the research. The narratives recalled by the subjects were considered to be parts of the same process, which, in turn, allowed them to revisit their life's trajectories and the new temporalities to be explored by this research (Neves, 2010).

From this epistemological perspective, all research is perceived as a "narrative by which the researcher elaborates a comprehensive text on the phenomena they seek to account for" (Mayorga, 2013, p. 348). Going beyond objective data analysis, the research is designed from participation and listening to the words that are used for constructing a text that is anchored by different voices. The methodological challenge lies in searching

for ways to carry out this construction without submitting it to the authority of positivist interpretation, which tends to reduce events to an assumed causal relationship.

According to Foucault (1972), one possibility is not denying "the intrinsic intelligibility of confrontation" (p. 30) or avoiding "the random and open reality of this intelligibility" by not attributing a single original explanation to such events. In fact, Foucault (1996) stresses that we must not lose sight of the fact that discourse is always "a violence which we do to things" (p. 53). By adopting this knowledge conception as the basis of the "historical gaze", continuous reflection on the insertion of the researcher in the field becomes more important than a list of data analysis procedures. Therefore, it is up to researchers to consider themselves as the "objects of continuous reflection", and to recognize themselves as "part of society, rather than its antithesis or opposition" (Mayorga, 2013, p. 347).

The following sections organize these narratives by presenting some of the crucial moments and stories in the Center's trajectory. To this end, the key themes were articulated to organize the women's accounts in the light of history and memory theories. The results were organized into two sections, starting with the process that led to the creation of the Center, and its political disputes and interactions with the state government. Some of the accounts about the Center given during the survey were then retrieved to clarify the meanings of the experience, as well as other meanings that are present in the group's everyday life. In addition to retrieving that part of the process that led to the creation of the Center, aspects concerning immersion in the field were also highlighted, such as the construction of new meanings for resisting and denaturalizing gender violence.

FROM THE OCCUPATION TO THE CENTER: MOVING MEMORIES

According to Bastos *et al.* (2017), government's omission with regard to housing policies, especially since the 2000s, has strengthened the struggles for revolutionary forms of housing organization, such as urban occupation. The Tina Martins occupation is part of a larger scenario that has developed increasingly unexpected forms of mobilization. Margarida, who has been an active member of the Olga Benário Movement since it was founded, recalls how the initiative came about:

> We are partners of other movements, such as the *Movimento de Luta nos Bairros, Vilas e Favelas* ("Movement for the Struggle in Neighborhoods, Villages, and Favelas", MLB), which fights for housing and has mainly female members. We thought: "Look, let's take the experience of this movement as an example and organize a women's occupation, specifically for women, to treat and take care of women (Interview with Margarida).

There is, however, an aspect that distinguishes the Tina Martins occupation from other initiatives, which has placed it in a select group of innovative movements that are in a struggle in the urban space. The project claimed a place in order to meet demands for strengthening vulnerable populations, such as sheltering women at risk and preventing violence.

The Center's initiative came about because of the "need to have means that could assist women who needed to leave a violent environment so they could rebuild their lives, which included creating conditions for them to go on living" (Interview – Margarida). The occupation began when some of the members of the Olga

Benário Movement occupied the cafeteria of a building that had not been used for over 10 years in downtown Belo Horizonte, and which used to house the UFMG School of Engineering.

Going deeper into the planning of the occupation, Pagu recalls gender violence incidents that occurred during the militant actions carried out by movements associated with the Olga Benário Movement. She explains that the fight against this form of violence goes beyond the institutional possibilities presented to women, thus awakening in the movement's members an interest in designing actions that could encompass the entire experience of women's resistance.

> For instance, this was one of the reasons why we founded Tina Martins, after something that happened during one of the occupations. There was a woman who turned to us every time she suffered violence until it reached a point where we had to tell her: "Look, you have to turn him in." She got up courage, went down to the station, filed a police report, but when she got home, her partner stabbed her to death. So, this is the reality of most women. They have nowhere to go (extract from Pagu's speech at *Desconstruções* ["Deconstructions"]), an event held by NEOS-UFMG).

In the same speech, in a retrospective look at the occupation initiatives, Pagu recalls the "women's struggle against [Eduardo] Cunha"[1] in February 2016, which for her was a milestone in the context of extremely polarized social movements. In a context in which political struggles are fragmented, the agenda of the "women's struggle for life" (and therefore against domestic violence) emerged as a possibility for unifying the actions of social movements. As far as Margarida remembers, that was supposed to be "a point of convergence for all the divergences existing in the feminist movement, which had been discussing the March 8 street rally" (Interview with Margarida). The idea for the occupation also came up in 2013, with the participation of the Olga Benário Movement during the Eliana Silva urban occupation in Barreiro, Belo Horizonte, which also housed some of the Olga Benário groups.

During the negotiations with the state government, the main argument against the movement was that the Women's Referral Center would be housed in a building that, up until that moment in time, had been used as the parking lot for a military institution. The members of the movement also proved that no document provided for the beginning of the shelter's construction, or funds being received via a public bidding process before 2017, which would entail a wait of at least two years. Margarida remembers that the occupation was not intended to turn into a Referral Center like it is today; the initial plan was to use it merely as a way of complaining.

> At first, we thought that the occupation was going to be just complaining, that the police would soon come and evict us, and beat the women, I mean, we thought it wouldn't last long. And we soon realized that we needed to stay because in the early hours of the morning women began showing up, asking us what the place was, telling us that they needed a place like that where they could get help. So, since we'd organized the occupation, we started welcoming these women. Then the partners, lawyers, psychologists, social workers, and activists from different backgrounds began to show up, you know? [People working] in the social movement area, to show solidarity (Interview with Margarida).

Emphasizing the urgency of the problem, the members of the Olga Benário Movement resorted to statistical data to argue why a place like Tina Martins was needed. Rosa presented clear data revealing the context of the Minas Gerais Network for Coping with Violence against Women, which indicated there were approximately 300 shelter requests per day, whereas only a meager 13 individuals were sheltered across the state. After several

1 Former President of the Chamber of Deputies of Brazil.

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phases of negotiations, the government allowed the Center to occupy a listed building in downtown Belo Horizonte, which would be home to the project for two years.

There is currently a consensus among all participants regarding the slogan they created. Alexandra, the group's legal coordinator, and several other participants expressed their view on the situation as follows: "I think Tina Martins is like the lyrics to that song, which goes 'With the State, against the State and beyond the State'" (Interview with Alexandra). Nonetheless, a feeling of helplessness is frequently mentioned in the statements by the movement members, even though they often feel included in the State Network for Coping with Violence against Women. Rosa shows how she perceives the network, acknowledging that her responsibility goes beyond mediating the conflict involving the listed building:

> The State of Minas Gerais has 853 municipalities, 52 women's referral centers and a public prosecutor's office that helps women who are the victims of domestic violence. [There is only] one prosecutor's office in the entire state, and very few DEAMS [*Delegacias Especializadas de Atendimento à Mulher*, "Specialized Women's Police Stations"], I think there are 67 of them for the entire state. So, it's a policy that we struggle to... We've been struggling to expand our assistance for a while now, everything related to tackling violence against women.

Figure 1. **Femicides in the state**



Source: Center's outbuilding, photographed by the authors.

Margarida recalls participating in the negotiations with government representatives and understands that it is the duty of the State not only to cede the building (which was done but in unsanitary conditions), but also to make it habitable and ensure it has good infrastructure: "We were the ones who squatted in it; the government just ceded the building. We don't rely on any form of public investment." The recalled process converges to a historical and daily understanding of the practices developed by ordinary subjects, according to Carrieri *et al.* (2018). Along this line, Hilda remembers some frequent problems in the Center's routine, which were aggravated by the fact that the building is listed:

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> There are plumbing issues, and you can't have anyone fix them. So, sometimes we need to replace a shower, but the electrical system is no good. [...] We know that there are several infrastructure issues, but since this is an occupation and the building belongs to the government, you can't do anything because I think ... If there was goodwill, we would've already done a joint effort, but we can't do anything (Interview with Hilda).

It is paramount to delimit these boundaries, as the relationship of these women with the State is not only indirect, but objective, leading to situations of personal confrontation. The political experience of Casa Tina Martins, as perceived by its members' memories and accounts, can show ways of denaturalizing gender violence through political struggle activities and initiatives. This process is in line with Neves' (2010) guidelines and shows how memory can revisit past events that are reinterpreted by present interests.

PAST AND PRESENT IN THE ORGANIZATION OF NEW MEANINGS

Introducing the Casa Tina Martins organization from its narratives and memories is far from being a linear task; on the contrary, it is a process of reconstructing various narratives about the fight against gender violence. Although from that perspective it was possible to outline measures, notes, and maps, the Center and its foundations would be translated into discourse, the *loci* of enunciations, functions, spaces, and meanings, acquiring new forms of materialization in this academic space. Figure 2, which has been subtitled using Hilda's words, shows the Center's facade in dialogue with crocheted items, which illustrate the way it looked at the time of the research.

Figure 1. **"This vast world that a Referral Center is"**



Source: Center's facade, photographed by the authors.

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But what is a referral center? We recall the question asked by one of the coordinators herself when telling us about her first steps: "It was something I always asked myself: is this a shelter, or is it a referral center?" (Interview with Hilda). The term "referral" has the function of introducing the Center as a form of additional guidance for women. From their everyday lives, the Center's members show some of the shortcomings involved in its conception as a shelter, as a counterpoint to a referral center. Rosa explains that the priority of a referral institution is to assist women in the long run to envision future prospects for themselves. According to her, there has been reflection on

> [...] what was possible to propose to these women as a future prospect, so as not only to protect them from violence but to reintroduce them back into society. Because violence often takes these women out, it pushes them even further into a private space, into centers and shelters (Interview with Rosa).

This perspective is in line with Saffioti's (1987) theories on the structural character of gender violence, which is not limited to isolated incidents of verbal or physical aggression. This is why we need a form of resistance on multiple fronts that employs various organizational practices, such as a "sheltering schedule", which refers to the time that each participant is willing to stay in the Center coordinating other actions and initiatives.

While this is how members organize themselves to ensure that at least one individual remains in the Center, which is open 24 hours a day, it also represents a possibility for organizational learning that welcomes new collaborators. Furthermore, this promotes ties and alignment and the consolidation of fundamental responsibilities for the continuity of the work carried out by the organization, as Alexandra reports in the following speech:

> We have a vision, a well-defined direction about how we should defend this Center, what kind of policy we defend, so we must all be on the same page. [...] When you belong to a movement you understand the politics, you get more involved, you have a greater responsibility because you know what it means, [you understand] that this Center is only open because of Olga, it's not independent [from the social movement]. When you have no ties with a political movement, you can just wake up and say: "Well, I'm not going, I don't want this anymore, I'm done", and then leave. But then what happens to our work? (Interview – Alexandra).

Other services and actions take place in parallel with the bureaucratic sheltering collaboration. Psychological, legal, or assistance services are carried out in a separate room that is adjacent to the administration sector. The organization of the sections is planned so that most public rooms, such as the lobby, the living room, and the outside building where public events are held, are decorated with photos depicting important historical and feminist female figures, such as Bárbara de Alencar and Pagu, as well as with symbols of collective actions against gender violence, such as the Latin American movement *Ni una menos,* and other feminist initiatives. Figure 3 shows some of the images that refer to important women throughout history, such as Espertirina Martins, a Brazilian activist after whom the Center was named.

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Figure 2. **Outbuilding walls**



Source: Center's outbuilding, photographed by the authors.

The group is organized to take in women who have suffered violence in order to address the problem more effectively from a structural standpoint. Indeed, this perspective relates to all the women involved, as they have been the victims of gender violence themselves. This type of experience aims to overcome the bureaucratic methods normally adopted by formal institutions. Alexandra reports that the intake is done by listening to the women who come to the Center while trying to "understand what she needs, whether it is psychological, legal assistance, etc. Sometimes all she needs is to spend an afternoon here and to get some advice [...]" (Interview with Alexandra). Women are taken in on a daily basis, within an array of possibilities, in a manner that is not always guided by prescription, but based on respect for each participant's space, which, in turn, allows for everyday coexistence.

Although we have no analytical intention to attribute a hidden meaning to such accounts, when we follow the perspective proposed by this paper's methodology, we can look at the narratives of their organizational tactics, whose ultimate goal is to denaturalize gender violence. One of the group's main strategies refers to the experience promoted by uninterrupted exposure to different voices and ways of living in the occupied environment.

The circulation and interaction of women with different profiles, poor, black, mothers, lesbians, young, elderly, white, peripheral, central, and educated, most of whom benefit from affirmative actions, is a unique opportunity to break with the current context, whose communication channels promote the problems of dominant groups as a universal social reality, as pointed out by Pintos and Solís (2002). Saffioti (1987) and Fraser (2009) demonstrated the imposition on women throughout history of fulfilling the task of social reproduction, while Carneiro (2001) and Buck-Mors (2017) highlighted the centrality of the oppression of racialized populations as the foundation of that same process. That said, another important aspect of the Center's organization is the fact that most women sheltered by the organization are black.

On the other hand, the project's coordinators and volunteers, mostly women from the lower classes, have found a unique opportunity in that space to exercise a form of collective reception along with potentially transforming social engagement. There is also a minority of upper-class volunteers who also discussed their own experiences

as victims of violence, and their awareness of the fact that every action or initiative for tackling violence is only possible when the structural dimension of gender inequality is embraced. Indeed, this corroborates Saffioti (1987) who affirms that gender violence is a society-wide problem.

Furthermore, history and memory are connected by retrieving the historical narratives of important female figures in Brazilian and world history, such as Olga Benário, Rosa Luxemburg, and Marielle Franco, who are introduced by way of everyday recollections in the organization of events for the general public. In parallel with other activities, such as providing shelter and organizing fairs, workshops, movie clubs, talks, and open classes, the Center promotes a recollection of political issues, which are not very evident in everyday life, such as democracy, dictatorship, immigration, racism, and health.

Figure 4 shows an example of this articulation of meanings, from the display of an old copy of *Lampião da Esquina*, a newspaper targeting homosexual readers that was published between 1978 and 1981 and had ties with the alternative press after the political opening that followed the Brazilian Military Dictatorship that seized power in Brazil in 1964 (Ferreira, 2012).

Figure 3. **Exhibition of the newspaper *Lampião da Esquina***



Source: "Tina Resists" event, photographed by the authors.

Finally, an organization such as Casa Tina Martins finds a promising interlocution with history in organizational studies into the memories of struggles against gender violence. Management studies have traditionally shied away from their social responsibility, even though the field has instrumentally resorted to human sciences as one of its primary organizational development tools, but neglected discussing central issues regarding women and society (Cappelle, Melo, Brito, & Brito, 2004). Resuming historical discussions on female subjects who were not the initial focus of studies conducted in the area is paramount for moving towards a form of historical and plural management (Carrieri & Correia, 2020).

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FINAL REMARKS

This article analyzed an organization that aims to tackle gender-based violence. In doing so, it integrated the epistemology of history and memory, and gave a brief conceptual overview of gender in organizational studies. We relied on history and memory in organizational studies as a framework for addressing, in this specific case, an organization founded to help tackle violence against women, the "Tina Martins' Women's Referral Center".

Going beyond the institutional conception of organizations as fixed entities that are endowed with a practical and objective purpose, we sought to shed light on other organizational meanings, such as the creation of alternative perspectives through the circulation of historical narratives of dissident subjects and, consequently, of social transformation. This paper debated, experienced, and assimilated the actions carried out by the female research subjects and aimed to show how they manage to articulate a form of feminism that goes beyond a select group of 1 % of women considered by theoretical or liberal feminism, by constantly retrieving narratives concerning women's struggle against violence.

Through their everyday practices within the scope of an organization, the group members established a possibility for exercising their critical, current, and intersectional feminism. This academic space has enabled the reconstruction of these accounts through the emergence of recent memories, which were constructed during the interviews by the participant observation method. This procedural path does not require any kind of knowledge generalization, or the establishment of a truth that hides from actual experience. Instead of reaching a single conclusion, several impressions were woven together with the other members of the group, such as the difficulty of creating a horizontal relationship between all the Center's participants due to the challenges involved in the autonomous maintenance of their everyday lives, and the different needs inherent in the participation of each group, which comprises residents, interim residents, coordinators, volunteers, etc.

It is also worth noting that participation in a social movement does not imply full emancipation or freedom, but refers to the adequacy of other coexistence systems, which, in turn, prompt discussion on the values ingrained in culture and the organization of life. Even though they point to situations in the past, the memories retrieved in this survey serve present interests, that is, situated at the moment when they are invoked, such as the challenges posed by problems that remain confined to the current time of recall. This is what makes memories so rich; they are not static. On the contrary, they are a changeable phenomenon, marked by lapses, forgetfulness, and highlights according to the rhythm of the narrative in the present, as explained by Neves (2010).

This research contributes theoretically to organizational studies by advancing an approach to organizations that are typically marginalized by mainstream administration. It also brings to the forefront female subjects who have been rendered invisible and silenced in a field of knowledge that has traditionally been dedicated to studying large (business) organizations, important individuals (those who hold the greatest power), and great stories (especially successful ones). Likewise, history and memory are enriched with the possibility of recording historical facts through plurality, thus helping reject those narratives that are intended to be unique and universal, which started with the decision to listen to those who have been constantly silenced. In this sense, there is not only one memory, but several, which are managed by the subjects and transform the process of remembering into a political, transformative, and intentional one. We suggest that future studies should address popular forms of organization based on collectivity, as well as the memories of groups that are ignored by government and remain outside the core discussions in management studies.

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REFERENCES

Alambert, Z. (2004). *A mulher na história, a história da mulher*. Brasília, DF: Fundação Astrojildo Pereira.

Arruzza, C., Bhattacharya, T., & Fraser, N. (2019). *Feminismo para os 99%: Um manifesto*. São Paulo, SP: Boitempo Editorial.

Balasch, M., & Montenegro, M. (2003). Una propuesta metodológica desde la epistemología de los conocimientos situados: Las producciones narrativas. *Encuentros en Psicología Social*, *1*(3), 44-48. Retrieved from: https://cutt.ly/jlXLoUK

Bandeira, L. M. (2014). Violência de gênero: A construção de um campo teórico e de investigação. *Sociedade e Estado*, *29*(2), 449-469. doi:10.1590/S0102-69922014000200008

Barros, A. N., & Carrieri, A. P. (2015). O cotidiano e a história: Construindo novos olhares na administração. *RAE-Revista de Administração de Empresas*, *55*(2), 151-161. doi: 10.1590/S0034-759020150205

Bastos, C., Magalhães, F., Miranda, G., Tonucci, J. B., Cruz, M., & Velloso, R. C. (2017). Entre o espaço abstrato e o espaço diferencial: Ocupações urbanas em Belo Horizonte. *Revista Brasileira de Estudos Urbanos e Regionais*, *19*(2), 251-266. doi: 10.22296/2317-1529.2017v19n2p251

Buck-Morss, S. (2017). *Hegel e o Haiti*. São Paulo, SP: N-1 Edições.

Cappelle, M. C. A., Melo, M. C. O. L., Brito, M. J. M., & Brito, M. D. (2004). Uma análise da dinâmica do poder e das relações de gênero no espaço organizacional. *RAE-eletrônica*, *3*(2), 1-17. Retrieved from: https://rae.fgv.br/rae-eletronica/vol3-num2-2004/analise-dinamica-poder-relacoes-genero-no-espaco-organizacional

Carneiro, S. (2011). *Racismo, sexismo e desigualdade no Brasil*. São Paulo, SP: Selo Negro, 2011.

Carrieri, A. P., & Correia, G. F. A. (2020). Estudos organizacionais no Brasil: Construindo acesso ou replicando exclusão? *RAE-Revista de Administração de Empresas*, *60*(1), 59-63. doi: 10.1590/S0034-759020200107

Carrieri, A. P., Perdigão, D. A., Martins, P. G., & Aguiar, A. R. C. (2018). A gestão ordinária e suas práticas: O caso da Cafeteria Will Coffee. *Revista de Contabilidade e Organizações*, *12*, 1-13. doi: 10.11606/issn.1982-6486.rco.2018.141359

Clark, P., & Rowlinson, M. (2004). The treatment of history in organization studies: Towards an 'historic turn'? *Business History*, *46*(3), 331-352. doi: 10.1080/0007679042000219175

Collins, P. H. (2017). Se perdeu na tradução? Feminismo negro, interseccionalidade e política emancipatória. *Revista Parágrafo*, *5*(1), 6-17. Retrieved from: http://revistaseletronicas.fiamfaam.br/index.php/recicofi/article/view/559

Collins, P. H. (2019). *Pensamento feminista negro: Conhecimento, consciência e a política do empoderamento. São Paulo, SP:* Boitempo Editorial.

Coraiola, D., Suddaby, R., & Foster, W. M. (2017). Mnemonic capabilities: Collective memory as a dynamic capability. *RAE-Revista de Administração de Empresas*, *57*(3), 258-263. doi: 10.1590/S0034-759020170306

Corrêa, S., & Kalil, I. (2020). *Brasil: ¿La catástrofe perfecta?* Projeto Gênero e Política na América Latina. Observatório de Sexualidade e Política (SPW). Rio de Janeiro, RJ. E-Book. ISBN: 978-85-88684-90-4.

Costa, A. S. M., Barros, D. F., & Martins, P. E. M. (2010). Perspectiva histórica em administração: Novos objetos, novos problemas, novas abordagens. *RAE-Revista de Administração de Empresas*, *50*(3), 288-299. doi: 10.1590/S0034-75902010000300005

Costa, A. S. M., & Silva, M. A. C. (2019) A pesquisa histórica em administração: Uma proposta para práticas de pesquisas. *Revista Administração: Ensino e Pesquisa, 20*, 1-20. doi: 10.13058/raep.2019.v20n1.1104

D'Alessandro, M. (2017). Si hay futuro, es feminista. In: Angilletta, F., D'Alessandro, M., & Mariasch, M. (2017). ¿ El futuro es feminista?. Buenos Aires: Capital Intelectual.

Davis, A. (2016). *Mulheres, raça e classe*. São Paulo, SP: Boitempo Editorial.

Decker, S., Rowlinson, M., & Hassard, J. (2020). Rethinking history and memory in organization studies: The case for historiographical reflexivity. *Human Relations*, 0(00), 1-33. doi: 10.1177/0018726720927443

Ferreira, C. (2012). Imprensa homossexual: Surge o Lampião da Esquina. *Revista Alterjor*, *1*(1), 1-13. Retrieved from https://www.revistas.usp.br/alterjor/article/view/88195

Foucault, M. (1972). *Microfísica do poder*. Rio de Janeiro, RJ: Edição Graal.

Foucault, M. (1996). *Ordem do discurso*. São Paulo, SP: Edições Loyola.

Fraser, N. (2009) O feminismo, o capitalismo e a astúcia da história. *Mediações-Revista de Ciências Sociais*, *14*(2). 11-33. doi: 10.5433/2176-6665.2009v14n2p11

Gabriel, Y., & Carr, A. (2002). Organizations, management and psychoanalysis: An overview. *Journal of Managerial Psychology*, *17*(5), 348-365. doi: 10.1108/02683940210432600

Gregori, M. F. (1993). As desventuras do vitimismo. Revista Estudos Feministas, 1(1), 143.Retrieved from: https://periodicos.ufsc.br/index.php/ref/article/download/15998/14498

Godfrey, P. C., Hassard, J., O'Connor, E., Rowlinson, M., & Ruef, M. (2016). What is organizational history? Toward a creative synthesis of history and organization studies. *Academy of Management Review*, *41*(4), 590-608. doi: doi.org/10.5465/amr.2016.0040

Guarinello, N. L. (2004). História científica, história contemporânea e história cotidiana. *Revista Brasileira de História*, *24*(48), 13-38. doi: 10.1590/S0102-01882004000200002

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Joaquim. N. F., & Carrieri, A. P. (2018). Construção e desenvolvimento de um projeto de história oral em estudos sobre gestão. *Organizações & Sociedade*, *25*(85), 303-319. doi: 10.1590/1984-9250857

Kollontai, A. (1977). Selected Writings. Londres: Allison & Busby.

Lerner, G. (1986). The origin of prostitution in ancient Mesopotamia. *Signs*: *Journal of Women in Culture and Society*, *11*(2), 236-254. doi:10.1086/494218

Lévy, J. L., & Robins, E. (Prods.). (2019). *Atlantique*. Belgique, France et Senegal: Les Films du Bal Frakas Productions; Cinekap.

Luxemburgo, R. (2002). Reforma ou revolução (Transcrição de Fernando Araújo). Luxemburg Internet Archive. Retrieved from https://www.marxists.org/portugues/luxemburgo/1900/ref_rev/index.htm

Maclean, M., Harvey, C., & Clegg, S. T. (2016) Conceptualizing historical organization studies. *Academy of Management Review, 41*(4), 609-632. doi: 10.5465/amr.2014.0133

Martins, A. P. A., Cerqueira, D., & Matos, M. V. M. (2015). *A institucionalização das políticas públicas de enfrentamento à violência contra as mulheres no Brasil* (nota técnica). Brasília, DF: IPEA.

Mayorga, C. (2013). Pesquisar a juventude e sua relação com a política: Notas metodológicas. *Estudos de Psicologia*, *18* (2), 343-350. doi: 10.1590/S1413-294X201300020002

Mohanty, C. T. (1984). Under Western eyes: Feminist scholarship and colonial discourses. *Boundary*, *2*, 333-358. doi: 10.1057/fr.1988.42

Narvaz, M. G., & Koller, S. H. (2006). Mulheres vítimas de violência doméstica: Compreendendo subjetividades assujeitadas. *Psico*, *37*(1), 7-13. Retrieved from https://revistaseletronicas.pucrs.br/ojs/index.php/revistapsico/article/view/1405

Neves, L. (2010). *História oral: Memória, tempo, identidades* (2ª ed.). Belo Horizonte, MG: Autêntica.

Pedro, J. M., de Mello, S. C., & de Oliveira, V. B. F. (2005). O feminismo marxista e o trabalho doméstico: discutindo com Heleieth Saffioti e Zuleika Alambert. *História Unisinos*, *9*(2), 132-138. Retrieved from: http://revistas.unisinos.br/index.php/historia/article/view/6419

Rowlinson, M., Booth, C., Clark, P., Delahaye, A., & Procter, S. (2010). Social remembering and organizational memory. *Organization Studies*, *31*(1), 69-87. doi: 10.1177/0170840609347056

Saffioti, H. (1987). *O poder do macho*. São Paulo, SP: Editora Moderna.

Saffioti, H. (1995). *Violência de Gênero*: Poder e Impotência. Rio de Janeiro, RJ: Revinder.

Safiotti, H. (2015). *Gênero patriarcado violência* (2ª ed.). São Paulo, SP: Expressão Popular.

Safiotti, H., & Corrêa, M. (2001). Contribuições feministas para o estudo da violência de gênero. *Cadernos Pagu*, *16*, 115-136. doi: 10.1590/S0104-83332001000100007

Santos, C. M., & Izumino, W. P. (2005). Violência contra as mulheres e violência de gênero: notas sobre estudos feministas no Brasil. *Estudios interdisciplinarios de América Latina y el Caribe, 16*(1), 147-163. Retrieved from: http://www3.tau.ac.il/ojs/index.php/eial/article/view/482

Segato, R. (2003). *Las estructuras elementales de la violencia*.. Bernal, Argentina: Universidad Nacional de Quilmes.

Serva, M., & Jaime, P., Júnior. (1995). Observação participante e pesquisa em administração: Uma postura antropológica. *RAE-Revista de Administração de Empresas*, *35*(1), 64-79. doi: 10.1590/S0034-75901995000300008

Solís, C. V., & Pintos, B. M. (2002). Gobernar la violencia: apuntes para un análisis de la rearticulación del patriarcado. *Política y Sociedad*, 39 (2), 415-435. Retrieved from: https://revistas.ucm.es/index.php/POSO/article/view/POSO0202230415A

Souza, E. M., & Costa, A. M. (2013). Usos e significados do conhecimento histórico em estudos organizacionais: uma (re) leitura do taylorismo sob a perspectiva do poder disciplinar. *Cadernos EBAPE.BR, 11*(1), 01-15. doi: 10.1590/S1679-39512013000100002.

Teles, M. A., & Melo, M. (2017). *O que é violência contra a mulher*. São Paulo, SP: Brasiliense.

Velasco, C., Caesar, G., & Reis, T. (2020, março 5). *Mesmo com queda recorde de mortes de mulheres, Brasil tem alta no número de feminicídios em 2019*. G1. Retrieved from https://g1.globo.com/monitor-da-violencia/noticia/2020/03/05/mesmo-com-queda-recorde-de-mortes-de-mulheres-brasil-tem-alta-no-numero-de-feminicidios-em-2019.ghtml

Vizeu, F. (2010). Potencialidades da análise histórica nos estudos organizacionais brasileiros. *RAE-Revista de Administração de Empresas*, *50*(1), 37-47. doi: 10.1590/S0034-75902010000100004

Waiselfisz, J. J. (2015). *Mapa da violência: Homicídio de mulheres no Brasil*. Brasília, DF: Flacso Brasil.

Wanderley, S., & Barros, A. (2018). Decoloniality, geopolitics of knowledge and historic turn: Towards a Latin American agenda. *Management & Organizational History*, *13*, 1-19. doi: 10.1080/17449359.2018.1431551

AUTHORS' CONTRIBUTIONS

All authors participated in the conceptualization, theoretical-methodological approach, data collection and analysis, writing and final review of the manuscript.

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AN ANALYSIS OF DETERMINANTS OF THE ADOPTION OF MOBILE HEALTH (MHEALTH)

Uma análise dos fatores que condicionam a adoção de Mobile Health (mHealth)

Un análisis de los factores que condicionan la adopción de Mobile Health (mHealth)

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ABSTRACT

Given the increasing use of the Internet and mobile technologies, this study is pertinent as it seeks to analyze the factors that determine the adoption of Mobile Health (mHealth). To that end, the proposed conceptual model integrates the Unified Theory of Acceptance and Use of Technology (UTAUT2), Perceived Health Condition, eHealth Literacy and Perceived Health Competence as determinants of the adoption of mHealth. To answer the research questions, we used an online questionnaire administered to a non-probabilistic sample of Brazilian and Portuguese individuals who have or have not used mHealth. Data were analyzed using SPSS and SmartPLS3 software. The results indicate that adoption of mHealth is heavily impacted only by some UTAUT2 variables. The 'Performance Expectancy' dimension was found to heavily impact the adoption of mHealth among both users and non-users.

KEYWORDS | Perceived health condition, eHealth literacy, perceived health competence, mHealth, UTAUT2.

RESUMO

Com a crescente utilização da internet e de tecnologias móveis, este estudo torna-se pertinente uma vez que busca analisar os fatores que condicionam a adoção de Mobile Health (mHealth). Para isso, o modelo conceitual proposto integra a Teoria Unificada de Aceitação e Uso da Tecnologia – Unified Theory of Acceptance and Use of Technology – Utaut2, Condição de Saúde Percebida, e-Literacia em Saúde e Competência de Saúde Percebida como determinantes da adoção do mHealth. Para responder às questões de pesquisa, utilizou-se um questionário on-line aplicado a uma amostra não probabilística de indivíduos brasileiros e portugueses que usaram e não usaram mHealth. Os dados foram analisados por meio dos softwares SPSS e SmartPLS3. Os resultados indicam que a adoção ao mHealth é fortemente impactada apenas por algumas variáveis da Utaut2. Entre os resultados, destaca-se o forte impacto da dimensão da "Expectativa de Desempenho" na adoção ao mHealth, tanto entre os utilizadores como entre os não utilizadores.

PALAVRAS-CHAVE */ Condição de Saúde Percebida, E-Literacia em Saúde, Competência de Saúde Percebida, mHealth, Utaut2.*

RESUMEN

Con el uso creciente de Internet y las tecnologías móviles, este estudio se vuelve pertinente a medida que busca analizar los factores que determinan la adopción de la Mobile Health (mHealth). Para ello, el modelo conceptual propuesto integra la teoría unificada de aceptación y uso de la tecnología UTAUT2, condición de salud percibida, literacia en e-salud y competencia de salud percibida como determinantes de la adopción de la mHealth. Para responder a las preguntas de investigación, se utilizó un cuestionario online aplicado a una muestra no probabilística de individuos brasileños y portugueses que usaron y no usaron mHealth. Los datos se analizaron utilizando los softwares SPSS y SmartPLS3. Los resultados indican que la adopción de mHealth es fuertemente afectada solo por algunas variables de la UTAUT2. Entre los resultados se destacan el fuerte impacto de la dimensión 'expectativa de rendimiento' en la adopción de la mHealth, tanto entre los usuarios como en los no usuarios.

PALABRAS CLAVE */ Condición de salud percibida, literacia en e-salud, competencia de salud percibida, mHealth, UTAUT2.*

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INTRODUCTION

According to Bernhardt, McClain, and Parrott (2004), the prevalence of eHealth (electronic health services) is growing and will continue to grow grounded on the advantages offered by internet-based health communication and on the fact that companies themselves are benefiting from its implementation. These and other Internet-based health communication characteristics may suggest why previous research indicates that the Internet has great potential for disseminating health information to the general public (Cotten & Gupta, 2004).

According to Dwivedi, Shareef, Simintiras, Lal, and Weerakkody (2016), there is a need to restructure health care to keep it coherent and consistent with a dynamic, flexible, and mobile lifestyle, connected to an Information and Communication Technology (ICT) dominated society, and able to attract health care professionals and ICT consultants to design and implement professional mHealth systems.

According to the World Health Organization (WHO), Mobile Health or mHealth is defined as the medical practice with support for mobile devices, such as patient monitoring devices, smartphones, tablets, and other wireless devices, including the use of Short Message Service (SMS), 3G and 4G services, Global Positioning System (GPS) and Bluetooth. In the scientific literature, the term mHealth was first defined by Laxminarayan and Istepanian (2000) as "unwired e-med". In the last two decades, mHealth has evolved to become an important health communication channel for health care, health promotion, and health behavior monitoring (Steinhubl, Muse, & Topol, 2015).

The widespread use of smartphones has increased the influence of mobile technologies on the experience and consumption of health services. mHealth thus becomes a market that emerges together with the expansion of mobile communication technologies (Sweileh et al., 2017). Regarding mHealth, the literature suggests that the use of mobile health applications serves several purposes (Riley et al., 2011), including improving preventive healthcare, limiting the growth of health costs, reducing unnecessary medical visits, and improving the information of users who have come to actively seek health information over the Internet using mobile devices (Fox & Duggan, 2012). For Lee, Hoti, Hughes, and Emmerton (2015), health professionals are no longer the primary source of information, and the role of health service users is particularly relevant.

Kotz, Avancha, and Baxi (2009) stated in their study that social, behavioral, and technological issues involved in creating positive consumer beliefs leading to the adoption of mHealth systems are significantly different from traditional medical services in hospitals, and therefore this new context should be investigated.

In addition to information-seeking behaviors through smartphones, there has also been a significant increase in the number of available health applications (Fox & Duggan, 2012; Kratzke & Cox, 2012), since mHealth brings with it the promise of solving problems related to equal access to health care and also of providing a more effective response to new demands (Duque, Mamede, & Morgado, 2017). Mobile health applications have the potential to reach heterogeneous audiences, such as doctors, patients, nurses, or even healthy people (Free et al., 2010). According to the "mHealth App Developer Economics 2016" report by Research2guidance (2016), the market for mHealth applications is still young and dynamic, but it will continue to grow due to the advantages obtained by companies, which attain substantial profits from its use. It is estimated that there are currently more than 350,000 applications available at the Apple Store and Google Play.

However, the adoption of mHealth technologies depends on people's willingness to embrace change, replacing old habits (Shareef, Kumar, & Kumar, 2014). The existing literature suggests that the understanding of the general cognitive motivations that trigger the use of health applications is still limited. The use of mobile devices for health care is still a poorly documented and unexplored topic, as highlighted by Cameron, Ramaprasad, and Syn (2017).

According to Carlos, Magalhães, Vasconcelos, Silva, and Brasil (2016), in Brazil, the use of technology in health care is still a challenge. There is a need for deepening health knowledge as well as implementing initiatives that seek a socially inclusive and economically competitive development model (Gadelha & Costa, 2012).

A WHO (World Health Organization - WHO, 2019) report states that digital technologies offer concrete opportunities to address health system challenges, and thus offer the potential to improve the quality and extent of health services and practices. The report also highlights that digital health interventions can be used, for example, to facilitate targeted communication with users in order to expand contact coverage. Such interventions can also be targeted at health care professionals to give them more immediate access to clinical protocols through, for example, telemedicine meetings with other health care professionals. There are several ways in which digital technologies can be used to meet the needs of health systems, and these technologies continue to evolve due to the dynamic nature of the field.

Among the advantages of using mHealth, cited by Carlos et al. (2016), is the ability mobile devices have to assist users both in daily life and during rehabilitation or hospitalization. They can also assist health care providers during routine or emergency visits.

According to Biesdorf and Niedermann (2014), most people use health mobile technology applications because existing services do not meet their needs, or their quality is low. However, without an adequate understanding of the motivational and cognitive factors for the adoption and use of health applications, it becomes difficult to fully understand the use of these applications by individuals.

LITERATURE REVIEW

Perceived Health Condition

Research on prevention and health promotion widely recognizes that individual beliefs on health conditions are predictors of health behaviors (Becker & Janz, 1984). Perceived health, defined by Neter and Brainin (2012) as health self-assessed by people in comparison to other individuals of their age and sex, has a strong normative component since it represents a way for people to become aware of the need to adopt specific behaviors. Rai, Chen, Pye, and Baird (2013) suggest that consumers who feel healthier are more open to experimenting with health innovations. These authors base their opinion on the evidence that those with little health perception may have strong pre-existing relationships with health service providers and establish therapeutic routines that may result in resistance to service alternatives and consumption options (Bitner, Brown, & Meuter, 2000).

According to Shields and Shooshtari (2001), the change in lifestyle, physical condition, and psychological factors is valuable for the evolution of a more optimistic perspective on subjective health. In general, when a person assesses his or her health, he or she considers several factors that are often not identified in a physical assessment (Shields & Shooshtari, 2001).

Perceived Health Competence

According to Smith, Wallston, and Smith (1995), Perceived Health Competence (PHC) represents the degree to which an individual feels able to effectively manage his or her health outcomes, as well as the perception and control over behavior and the ability to achieve goals. The Perceived Health Competence Scale (PHCS) was developed by

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Smith et al. (1995) to provide a measure of perceived competence at an intermediate level for which it combines expectations of outcomes and behaviors.

Bachmann et al. (2016) developed a study to evaluate the effect of Perceived Health Competence on a patient's belief in their ability to achieve health-related goals. These authors stated that patients with low Perceived Health Competence might be at risk of a decline in health-related quality of life after hospitalization and therefore are a potential target for counseling and other behavioral interventions.

e-Literacy in health and mHealth adoption

e-Literacy in health represents "the ability to seek, find, understand, and appraise health information from electronic sources and apply the knowledge gained to addressing or solving a health problem" (Norman & Skinner, 2006b, p. 2). According to Bodie and Dutta (2008), a high level of e-Literacy in health not only reflects the ability to use the Internet to find answers to health-related questions but also implies the ability to understand the data found, evaluate its truthfulness, discern the quality of different health websites, and use quality information to make informed health decisions.

Better digital health literacy helps patients use mobile health technologies more effectively. Research shows that patients with less health knowledge are less likely to adopt mHealth technology (Mackert, Mabry-Flynn, Champlin, Donovan, & Pounders, 2016).

The main advantages of adopting mHealth are improved data exchange, time savings, reduced information loss, and also the collection of information from users without having to move from their home (Anantraman et al., 2002; Barrett, Strayer, & Schubart, 2004; Koop & Mösges, 2002). These advantages are not always obvious to users. The advantages that mHealth applications and services provide can be used by different medical specialties to improve the monitoring, prevention, and detection of disease. Thus, developing countries, where access to healthcare is difficult, seek to increase their effectiveness by integrating mHealth services into their healthcare systems (Déglise, Suggs, & Odermatt, 2012).

UTAUT and UTAUT2

UTAUT theory was conceived by Venkatesh, Morris, Davis, and Davis (2003) to unify eight existing theories and models: Theory of Reasoned Action (TRA); Technology Acceptance Model (TAM); Motivational Model (MM); Theory of Planned Behavior (TPB); Combined TAM and TPB (C-TAM-TPB); Personal Computer Utilization Model (MPCU); Innovation Diffusion Theory (IDT); and Social Cognitive Theory (SCT). Such theories address the topic of how users accept and use technology (Venkatesh & Morris, 2000; Venkatesh et al., 2003).

Since its original publication, the UTAUT has served as a reference model and has been applied in many studies on technologies in organizational and non-organizational environments (Dwivedi et al., 2016; Escobar-Rodríguez & Carvajal-Trujillo, 2014; Tan, 2013). Riffai, Grant, and Edgar (2012) find that UTAUT provides a refined view of how the determinants of intent and behavior have evolved over time. However, there is a need for systematic research and theorization on the salient factors that would explain the application of digital technology in the consumer context, particularly within mHealth.

In order to strengthen UTAUT's ability to explain, Venkatesh, Thong, and Xu (2012) developed the UTAUT2, an even more complete model in which they changed some of the existing relationships in the original UTAUT's conceptualization and introduced new connections and constructs to make UTAUT2 useful within the framework

of voluntary behavior, justifying its relevance within the framework of the adoption of mHealth. Thus, UTAUT2 will be used in this study, as it is more recent and more complete. Furthermore, it is more consistent with the proposal of the current study, which encompasses consumer behavior and the voluntary use of technology.

Research Assumptions and Conceptual Model

Based on the Utaut2 model and the dimensions of Perceived Health Condition, Perceived Health Competence, and e-Literacy in health, the conceptual model expressed in Figure 1 was formulated, with the following hypotheses discriminated with the respective theoretical support.

Perceived Health Condition, e-Literacy in Health and Adoption of mHealth

The Perceived Health Condition is not only related to the evaluation of physical health, but also to the incidence or prevalence of morbidity (which is the rate of a certain disease in relation to the total population studied) and mortality and, therefore, it is an important tool for evaluating health quality and peoples' lives (Leal, 2009). Based on a study with hypertensive people, Finkelstein (2000) suggests that the perception one has of his/her health influences the amount of health care resources used by confirming that there was a relationship between the number of visits to the doctor and the Perceived Health Condition.

In light of the above, the current study seeks to analyze whether individuals with worse self-perception tend to more easily adopt mHealth and develop eHealth-related skills. Thus, the following hypotheses are suggested:

H1: Perceived Health Condition positively influences e-Literacy in health.

H2: Perceived Health Condition positively influences the adoption of mHealth.

Perceived Health Competence and Adoption of mHealth

Smith et al. (1995) indicate that Perceived Health Competence is a predictor of intended and actual health behavior. Bachmann et al. (2016) developed a study among patients with cardiovascular disease and concluded that Perceived Health Competence predicts health behavior and health-related quality of life of patients, as well as health-related quality of life change after discharge. In the study by Smith et al. (1995), the perception of health competence was related to both intention and actual health behavior. Given the above, the following hypothesis is proposed:

H3: Perceived Health Competence positively influences the adoption of mHealth.

e-Literacy in Health and Adoption of mHealth

According to Cho, Park, and Lee (2014), health information obtained through health applications requires the competence of users to accurately understand the information accessed. Furthermore, there are cognitive differences in individuals' abilities to find and properly understand health information (Basu & Dutta, 2008; Norman & Skinner, 2006b). E-Health Literacy is closely related to an individual's cognition of his or her own ability to seek and understand online health information (Bodie & Dutta, 2008; Norman & Skinner, 2006a). Thus, it is conceivable to admit that a person with a high level of e-Literacy in health is more likely to perceive that he or she has a better capacity to use health applications, so the following hypothesis is proposed:

H4: e-Literacy in health positively influences the adoption of mHealth.

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UTAUT2 and mHealth adoption

In this section, each of UTAUT2's sub-dimensions are briefly characterized and their relationships with the adoption of mHealth are analyzed.

The first dimension to be analyzed refers to the expectation of performance, and it is defined as the degree to which an individual believes that the use of technology will help achieve performance gains in their tasks (Venkatesh et al., 2012). In the context of mobile banking, Luo, Li, Zhang, and Shim (2010) and Riffai et al. (2012) have concluded that performance expectation is a key factor for a user to accept the technology. Consequently, it is assumed that a user will adopt mHealth thinking about the benefits it can bring. In turn, the expectation of effort is defined as the degree of ease associated with using a system (Venkatesh et al., 2003). This construct reflects the perceived ease of use of an information system (Kuo & Yen, 2009; Luarn & Lin, 2005; Miltgen, Popovič, & Oliveira, 2013) and has a positive impact on behavioral intention to use the system. Among the studies that analyze the impact of expected effort on the intention to adopt a technology, Dwivedi et al. (2016) emphasize that expected effort has a positive influence on behavioral intention to adopt mHealth.

Social influence is a direct antecedent of behavioral intention (Oliveira, Faria, Thomas, & Popovič, 2014). Venkatesh et al. (2003) define social influence as the degree to which an individual realizes that it is important for others to believe that he or she uses the new technology or is in accordance with the expectations of others. People often become uncomfortable with uncertainty and, therefore, tend to interact with their social network to obtain an endorsement for their adoption decisions, thus suffering informative and normative social influences (Burkhardt & Brass, 1990; Katz & Tushman, 1979). However, it is also necessary to consider the facilitating conditions for the adoption of technology. These are defined as the degree to which an individual believes there is an organizational and technical infrastructure to support the use of the system (Venkatesh et al., 2003). Among the studies that analyze the impact of facilitating conditions on the intention to adopt a technology, Dwivedi et al. (2016) highlight that these have a positive influence on the behavioral intention to adopt mHealth. In light of the above, it is assumed that facilitating conditions have a positive influence on the adoption of mHealth.

Several articles demonstrate the influence of hedonic motivation on the intention and the actual use of that technology (Heijden, 2004; Thong, Hong, & Tam, 2006). Particularly in the consumer context, it has also been shown that hedonic motivation influences the acceptance and use of technology (Brown & Venkatesh, 2005; Childers, Carr, Peck, & Carson, 2001). Similarly, several authors point out cost-related factors to explain consumer behavior (Chong, 2013; Dodds, Monroe, & Grewal, 1991; Wei, Marthandan, Chong, Ooi, & Arumugam, 2009). Agarwal, Wang, Xu, and Poo (2007), Ong, Poong, and Ng (2008), and Xin (2004) have shown that costs can have a negative relationship with consumers' intentions to adopt 3G, a service that can be essential for mHealth adoption. Xin (2004) indicates that one of the reasons the SMS service is widely used by people is because of its low costs, so the price is predicted to negatively influence mHealth adoption.

As far as habit is concerned, it has been considered in many studies as a predictor of the use of a technology (Kim & Malhotra, 2005; Kim, Malhotra, & Narasimhan, 2005; Limayem, Hirt, & Cheung, 2007). Limayem et al. (2007) showed the direct effect of habit on the continued use of technology and a more moderate effect of habit on the intent to use, as the stronger the habit, the less important the conscious intention to use the technology is.

Given the above, this study intends to test whether the seven UTAUT2 dimensions described influence the adoption of mHealth. For this, we propose the following general hypothesis and its sub hypotheses:

H5: UTAUT2 dimensions influence mHealth adoption.

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The individual test of each dimension of UTAUT2 is performed to evaluate this hypothesis through the following sub hypotheses:

H5a: Performance expectations positively influence mHealth adoption.

H5b: Expected effort positively influences mHealth adoption.

H5c: Social influence positively influences mHealth adoption.

H5d: Facilitating conditions positively influence mHealth adoption.

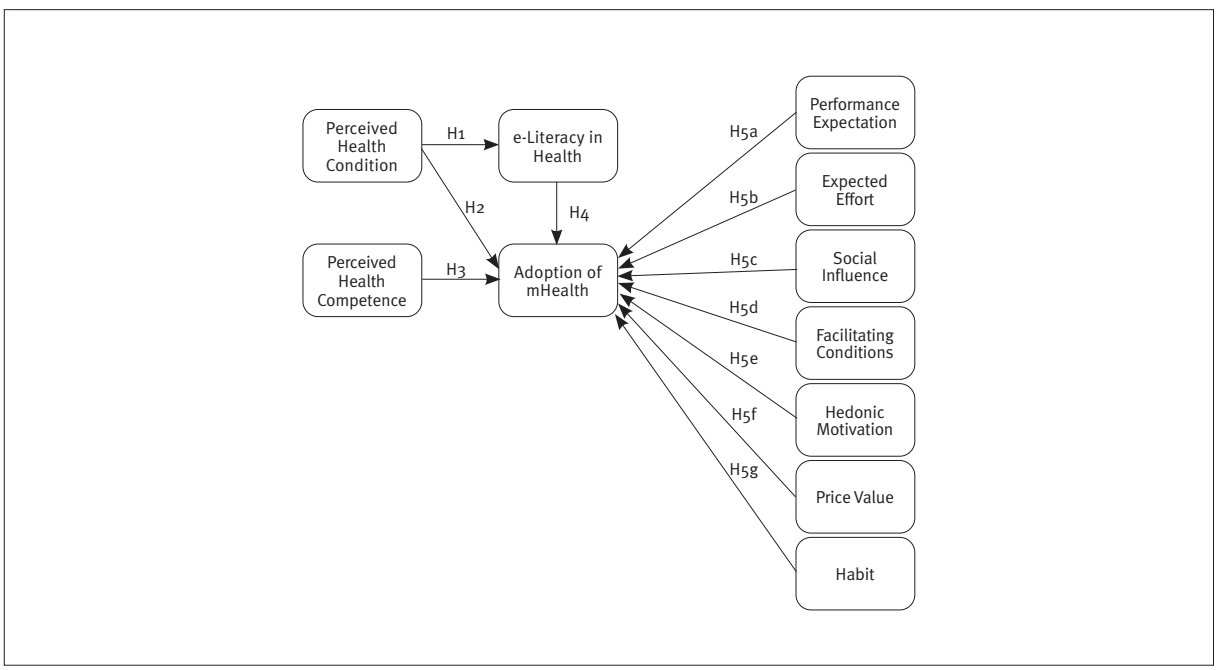
H5e: Hedonic motivation positively influences the adoption of mHealth.

H5f: The price value negatively influences the adoption of mHealth.

H5g: Habit positively influences the adoption of mHealth.

Figure 1 graphically summarizes the conceptual model, as well as the hypothesized relationships under study in this research.

Figure 1. **Initial Research Model**



METHOD

Data collection instrument and sample

This study adopts a quantitative methodology. In this sense, a questionnaire was developed and applied to collect the data needed to evaluate the hypotheses regarding the factors that impact the adoption of mHealth among Portuguese and Brazilians. It was decided to compare these two nationalities since, due to historical factors, they present many similarities. Thus, the intention was to ascertain to what extent these similarities are

perceptible concerning the use of mHealth technology. The questionnaire was subject to a pre-test with a group of Portuguese and Brazilian graduate students.

The pre-test was performed to uncover possible understanding problems that could bias the correct filling out of the questionnaire. Six pre-tests were performed in Portugal and six in Brazil. The pre-test respondents suggested changes in the wording of some items. In addition to these changes, a filter question was included to identify respondents who had already tried mHealth (group 1) and those who had never tried mHealth (group 2). This resulted in two groups, and subsequent analyses were conducted based on these two groups. Three pre-test respondents stated that whether or not they had experience with the technology interfered with how they interpreted the questions in the questionnaire. Thus, after the pre-test, it was deemed necessary to divide the sample into the above-mentioned groups to be able to identify whether the respondents' answers were based on their experience using mHealth or whether they responded based on a hypothetical situation.

The sample was obtained through a non-probabilistic sampling method, which implied the choice of the elements based on criteria defined by the investigator himself. Thus, invitations were sent to a large group of researchers' contacts containing the direct link to the questionnaire web page. The questionnaire was online through the LimeSurvey platform between April 2018 and July 2018. In the end, 326 valid answers were collected. Of this total, 120 respondents had already experienced mHealth, and 206 had not.

MEASURES

The review of the relevant literature allowed for the identification of the constructs and the scales for measurement that best fitted the research problem and that supported the development of the proposed conceptual model (Figure 1). The scales used in this study were based on previous research (e.g., Neter & Brainin, 2012; Norman & Skinner, 2006a; Smith et al., 1995; Tomás, Queirós, & Ferreira, 2014; Venkatesh et al., 2012), but some indicators had to be adjusted for the current research context.

For the e-Literacy in Health construct, the validated version for Portuguese by Tomás et al. (2014) of the original scale proposed by Norman and Skinner (2006a) was used. The authors provide, upon request, the complete set of items used for this study. For evaluation of the items of the various constructs, a 7-point Likert scale anchored in (1)-Totally disagree and (7)-Fully agree was applied.

RESULTS

Characterization of respondents

Respondents were divided into two groups based on whether or not they had experienced mHealth. Group 1 comprised those who had experienced mHealth, and group 2 consisted of those who had not experienced mHealth. Among group 1, 73.3% were female, and 26.7% were male. In group 2, 65.5% were female, and 34.5% were male. Regarding age group, in group 1, there is a predominance of two age groups, those aged between 18 and 29 years old and between 30 and 39 years old, totaling both 82.5% of the respondents. With regard to group 2, it can be observed that there is also the prevalence of two age groups, the one comprising individuals between 18 and 29 years of age and between 30 and 39 years of age, which make up 73.3% of the respondents.

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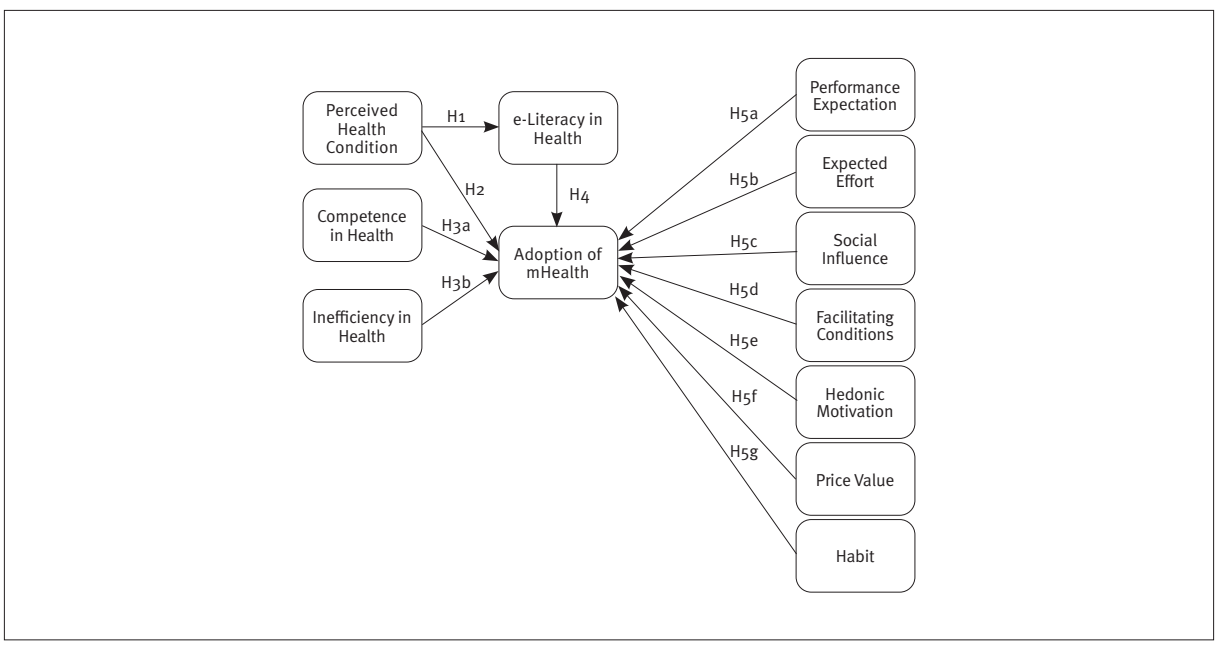
Regarding the nationality of the participants, the analysis revealed that in group 1, 36.7% were Portuguese; 62.5% were Brazilian, and 0.8% were of another (Belgian) nationality. Regarding the nationality of participants in Group 2, there is a greater balance between the Portuguese and Brazilians, 48.5% and 49%, respectively, 2.4% representing other nationalities (Angolan, English, and Uruguayan).

Regarding the origin of respondents, we look for significant differences between Portuguese or Brazilian participants. For this purpose, mean difference tests (t-test for independent samples) were performed, and the results indicated that there are no statistically significant differences between Portuguese and Brazilian respondents.

In the analysis of the several dimensions, it was verified that the scale for measure Perceived Health Competence (PHCS) presented some inconsistency, so we opted to perform an exploratory factor analysis (EFA), with oblique rotation in SPSS to evaluate the unidimensionality of the different indicators in the scale. It was defined that only factors with an eigenvalue higher than › 1 would be retained for analysis. Based on the analysis, two distinct factors were extracted. The first-factor groups items 1, 4, 5, and 8. The second-factor groups items 2, 3, 6, and 7. These two factors explain 61% of the total variance. The KMO (Measure of Sampling Adequacy) is considered good (0.80) and so is the respective Bartlett Sphericity Test (530.4; p‹ 0.001). It should be noted that there were no significant problems at the level of normality, homogeneity of variances, and linearity. Given the nature of the items, the first factor was called Health Competence, and the second factor, Inefficiency in Health. After this analysis, it was decided to subdivide the concept of PHCS into these two sub-dimensions, each one including four items. Based on the setting, the initial model was reformulated, and the final formulation is presented in Figure 2.

Partial Least Squares (PLS) SmartPLS 3.2.8 (Ringle, Wende, & Becker, 2015) was used to test the model in Figure 2. PLS works very well in the presence of complex models, and it is robust in the face of deviations from normality assumption and small samples (Duarte & Raposo, 2010). This method proposes that the analysis be done in two steps: 1) evaluation of the measurement model; 2) evaluation of the structural model.

Figure 2. **Final Research Model**



Evaluation of the measurement model

As far as the measurement model is concerned, the reliability analysis for each measurement scale for the two subgroups under analysis (group 1: those that had already tried mHealth; group 2: those that had not tried mHealth) was carried out in a first stage.

After the initial analysis for group 1 data, the indicators with factor loadings below 0.60 were removed. Then, to ensure the reliability of the different constructs, Cronbach's Alpha and the Composite Reliability index were calculated. The values for both criteria respect the minimum threshold of 0.70 (Fornell & Larcker, 1981) and, as such, show a good level of internal consistency in the responses (Bagozzi & Yi, 1988; Nunnally & Bernstein, 1994). The same conclusion was drawn for group 2. Likewise, the Average Variance Extracted (AVE) is satisfactory for all constructs (above 0.50) (Bagozzi & Yi, 1988) in both groups, with only one exception in group 2.

The discriminant validity indicates the degree of extension from which a given construct differs from the others. To assess discriminant validity two criteria were taken into account: 1) the indicators must have a greater weight in the respective construct than in all other constructs; 2) the square root of AVE, i.e., the values of the main diagonal of the table must be greater than all values (correlations) in the same line and column. As can be seen in Tables 1 and 2, both criteria are met for the two groups under analysis.

Table 1. **Correlations and discriminant analysis of Group 1 (already experienced mHealth)**

Grupo 1	**CFacil**	**EDesem**	**EEsforço**	**Hábito**	**ISocial**	**Ineficiência em Saúde**	**Motiv_ Hed**	**Condição de Saúde**	**Competência em Saúde**	**Preço**	**Adoção *mHealth***	**e-literacia**
CFacil	**0.754**											
EDesem	0.520	**0.875**										
EEsforço	0.675	0.361	**0.842**									
Hábito	0.227	0.381	0.150	**0.803**								
ISocial	0.274	0.218	0.151	0.280	**0.931**							
Ineficiência em Saúde	0.161	-0.064	0.206	-0.074	-0.107	**0.782**						
Motiv_Hed	0.179	0.230	0.240	0.309	0.201	-0.004	**0.823**					
Condição de Saúde	0.198	0.192	0.276	-0.016	-0.072	0.520	0.148	**0.784**				
Competência em Saúde	0.178	0.114	0.177	0.196	0.006	0.375	0.241	0.536	**0.747**			
Preço	0.189	0.042	0.310	0.103	0.235	0.073	0.279	0.155	0.156	**0.702**		
Adoção *mHealth*	0.437	0.705	0.328	0.505	0.298	-0.138	0.437	0.047	0.153	0.137	**0.819**	
e-literacia	0.392	0.250	0.423	0.163	0.026	0.219	0.118	0.369	0.434	0.046	0.217	0.829

Table 2. **Correlations and discriminant analysis of Group 2 (did not experience mHealth)**

Grupo 2	Cond_ Facil	Exp_ Esfor	Exp_ desemp_	Ineficiencia_	Infl_ soc	Motiv_ Hed	PHC	PHCs	Preço	eHealth	hábito	mAdopt
Cond_Facil	**0.728**											
Exp_Esfor	0.457	**0.914**										
Exp_ desemp_	0.415	0.305	**0.929**									
Ineficiencia_	0.066	0.114	-0.061	**0.740**								
Infl_soc	0.324	0.410	0.320	-0.051	**0.961**							
Motiv_Hed	0.284	0.537	0.246	0.040	0.455	**0.950**						
PHC	0.095	0.070	0.055	0.461	-0.071	0.019	0.809					
PHCs	0.135	0.125	0.112	0.135	0.045	0.156	0.412	**0.804**				
Preço	0.117	0.304	0.179	-0.038	0.408	0.556	0.010	0.151	**0.803**			
eHealth	0.251	0.300	0.109	0.109	0.021	0.106	0.165	0.132	0.046	**0.831**		
hábito	0.255	0.114	0.299	-0.111	0.234	0.169	-0.027	0.112	-0.012	0.067	**0.935**	
mAdopt	0.368	0.231	0.717	-0.155	0.376	0.265	-0.014	0.162	0.161	0.003	0.353	0.852

Based on the results, it is possible to affirm that most of the psychometric tests for the different scales of measurement show unidimensionality, consistency, and conceptual robustness.

Evaluation of the structural model

The analysis of the significance of the structural coefficients based on the t-test and R^2 values was performed to assess the proposed hypotheses. For this purpose, we used the bootstrapping procedure with 5000 samples (Table 3).

Discussion and Final Considerations

The main focus of this research was to propose a model that would help to understand the most important background to the adoption of mHealth. For this purpose and to ensure diversity, we chose to include respondents of two nationalities, noticing that there are no statistically significant differences associated with this factor. Likewise, it was considered crucial to distinguish the respondents who had or had not tried (or adopted) a mHealth platform. Therefore, we opted to divide respondents between those who had already tried mHealth (group 1) and those who had not (group 2). The data analysis was performed separately for the two groups. In general, based on the analysis performed, we can conclude that in group 1, four of the 12 hypotheses tested were confirmed, while in group 2, five of the 12 hypotheses were confirmed.

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Table 3. **Result of the Hypothesis Test**

	Experienced mHealth (group 1)			Did not experience mHealth (group 2)		
Paths	**Direct Effects**	**t-Value (*bootstrap*)**	**Supported**	**Direct Effects**	**t-Value (*bootstrap*)**	**Supported**
H1: CSP⇢ e-Literacia	0.36***	5.34	Yes	0.16*	2.10	Yes
H2: CSP ⇢ ad_mHealth	0.10	1.35	No	-0.02	0.40	No
H3a: COMP_S ⇢ ad_mHealth	0.06	0.68	No	0.10	1.16	No
H3b: Inefic_S ⇢ ad_mHealth	0.07	0.85	No	0.10*	1.65	Yes
H4: e-Literacia ⇢ ad_mHealth	0.02	0.23	No	-0.07	1.16	No
H5a: ED⇢ ad_mHealth	0.54***	6.56	Yes	0.61***	11.3	Yes
H5b: EE⇢ ad_mHealth	0.02	0.36	No	-0.05	0.80	No
H5c: IS⇢ ad_mHealth	0.04	0.61	No	0.13*	1.96	Yes
H5d: CF⇢ ad_mHealth	0.05	0.61	No	0.07	1.15	No
H5e: MH⇢ ad_mHealth	0.22***	3.35	Yes	0.07	0.94	No
H5f: VP⇢ ad_mHealth	0.01	0.12	No	-0.05	0.47	No
H5g: Hab⇢ ad_mHealth	0.18*	2.16	Yes	0.09*	1.70	Yes

Based on t (1000); * p <0.05 (1,645); ** p <0.01 (2,327); *** p <0.001 (3,092); unilateral.

Caption: CSP = Perceived Health Condition; e-Literacia = e-Literacy in Health; ad_mHealth = Adoption of mHealth; COMP_S = Competence in Health; Inefic_S = Inefficiency in Health; ED = Performance Expectation; EE = Expected Effort; IS = Social Influence; CF = Facilitating Conditions; MH = Hedonic Motivation; VP = Price Value; Hab = Habit.

Based on the results, it can be concluded that, in general, the adoption of mHealth (AmH) is strongly impacted by selected UTAUT2 variables, although not all. This conclusion applies equally to those respondents who had previously adopted mHealth and those who had not. Among the variables with the greatest impact, performance expectations (ED) stands out. This result is true both for respondents who have already experienced mHealth (group 1) and for those who have never experienced it (group 2). This finding highlights a distinction between ease of use and utility. Although high health literacy is strongly correlated with ease of use, the same does not happen with utility and performance expectations. Although patients can use mHealth tools, they need to consider them relevant or useful for improving health.

The same applies to hedonic motivation (MH) and habit (H). According to our study, these three variables (performance expectations, hedonic motivation, and habit) from UTAUT2 play an important role in the adoption

of mHealth, particularly for respondents who have already experienced this technology (group 1). Accordingly, we can state that hypothesis 5 (which groups the different sub-dimensions of UTAUT2) is only partially supported.

For the group of respondents who have not yet experienced the mHealth platform (group 2), the most relevant variables were expected performance (identical to group 1), social influence, and habit (identical to group 1). As in the previous analysis, we could state that hypothesis 5 is also only partially supported.

In addition to the UTAUT2 variables, this study went a little further and tried to see if there would be any influence from a set of health-related variables such as Perceived Health Condition, Perceived Health Competence (later subdivided into health competence and health inefficiency), and e-Health Literacy on the adoption of the mHealth platform. From this analysis, it was possible to verify that the Perceived Health Condition has a significant impact on e-Health Literacy, thus confirming hypothesis 1. This result is verified for both groups. The remaining hypotheses of group 1 (H2, H3a, H3b, and H4) were not confirmed by the data. Only hypothesis H3b was confirmed for group 2. The results suggest, albeit timidly, that health ICT developers should seek to make these tools more user-friendly and navigable for patients with lower levels of e-Literacy in health since more literate health users also appreciate simplicity, and this influences the perception of performance. Thus, an approach to interventions designed for users with lower health literacy, focusing on design and usability for users with less mHealth experience, is beneficial for everyone.

The final considerations of this research allow us to infer that the new opportunities offered by the new mobile technologies do not seem to have been fully exploited so far. Mapping the evolution of the field allows for a better understanding of its strengths and weaknesses in addition to suggesting the steps for the development of future research. In view of the results, it is possible to state that the mHealth market still has a long way to go to reach a larger portion of society. In the future, health care ICT developers and industry professionals should focus more closely on their target audiences, ensuring that the technologies are designed for their actual use.

Still, the need to understand how eHealth literacy relates to the adoption and use of mHealth applications persists. It is needed to ensure that all users can access the full benefits of technological advances, although the privacy of health information needs to be secured so that users are willing to get involved and trust organizations and providers of mHealth solutions. Despite mobile health is often praised as a useful tool for improving patient involvement, it may not achieve this goal on its own, and tactics aimed at educating the potential user to promote meaningful use of mHealth must be used. This can be achieved by adopting multi-faceted user and patient engagement strategies in order to identify the knowledge and skills needed to use and understand the benefits of managing their health data. These findings can be used by academics, government, policymakers, and industry companies to maximize acceptance and use of mHealth services.

Limitations and Future Studies

The limitations of this study are mainly related to the nature of the sample and sampling technique, which make it difficult to obtain more robust data and, above all, make it impossible to generalize the conclusions of this study, despite the effort to ensure the diversity and comprehensiveness of respondents. These limitations imply that the results should be analyzed with caution and that they should be restricted to the conditions under which the study was conducted.

Furthermore, since the population of the present study was chosen using the convenience criterion, it would be interesting, for example, to include in the questionnairethe area of knowledge and profession of the

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respondents as well as other factors that may have had an impact on the extent to which the participant was exposed to technology. This suggestion for future research becomes necessary because if a group was composed mainly of individuals more likely to use an application, this could influence the results and the conclusions.

In this sense, it is also suggested that future research should consider using not only a larger and probabilistic sample, but also moderators (gender, age, and experience) in the model, since the latter were not used in this research and maybe interesting in future research, given the relevance demonstrated in previous studies (Venkatesh et al., 2003; Venkatesh et al., 2012).

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REFERENCES

Agarwal, N. K., Wang, Z., Xu, Y., & Poo, D. C. C. (2007). Factors affecting 3G adoption: An empirical study. *PACIS 2007 Proceedings, Paper 3*, 256-270. Retrieved from http://aisel.aisnet.org/pacis2007/3

Anantraman, V., Mikkelsen, T., Khilnani, R., Kumar, V. S., Pentland, A., & Ohno-Machado, L. (2002). Open source handheld-based EMR for paramedics working in rural areas. *AMIA - Annual Symposium Proceedings. AMIA Symposium*, 12-16. doi: D020002441[pii]

Bachmann, J. M., Goggins, K. M., Nwosu, S. K., Schildcrout, J. S., Kripalani, S., & Wallston, K. A. (2016). Perceived health competence predicts health behavior and health-related quality of life in patients with cardiovascular disease. *Patient Education and Counseling*, *99*, 2071-2079. doi: 10.1016/j.pec.2016.07.020

Bagozzi, R. P., & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the Academy of Marketing Science*, *16*(1), 74-94. doi: 10.1007/bf02723327

Barrett, J. R., Strayer, S. M., & Schubart, J. R. (2004). Assessing medical residents' usage and perceived needs for personal digital assistants. *International Journal of Medical Informatics*, *73*(1), 25-34. doi: 10.1016/j.ijmedinf.2003.12.005

Basu, A., & Dutta, M. J. (2008). The relationship between health information seeking and community participation: The roles of health information orientation and efficacy. *Health Communication*, *23*(1), 70-79. doi: 10.1080/10410230701807121

Becker, M. H., & Janz, N. K. (1984). The health belief model: A decade later. *Health Education Quarterly*, *11*(1), 1-47. doi: 10.1177/109019818401100101

Bernhardt, J. M., McClain, J., & Parrott, R. L. (2004). Online health communication about human genetics : Perceptions and preferences of internet users. *CyberPsychology and Behavior*, *7*(6), 728-733. doi: 10.1089/cpb.2004.7.728

Biesdorf, S., & Niedermann, F. (2014). *Healthcare's digital future*. *McKinsey & Company*.

Bitner, M. J., Brown, S. W., & Meuter, M. L. (2000). Technology infusion in service encounters. *Journal of the Academy of Marketing Science*, *28*(1), 138-149. doi: 10.1177/0092070300281013

Bodie, G. D., & Dutta, M. J. (2008). Understanding health literacy for strategic health marketing: eHealth literacy, health disparities, and the digital divide. *Health Marketing Quarterly*, *25*(1-2), 175-203. doi: 10.1080/07359680802126301

Brown, S. A., & Venkatesh, V. (2005). Model of adoption and technology in households: A baseline model test and extension incorporating household life cycle. *MIS Quarterly*, *29*(3), 399-426. doi: 10.2307/25148690

Burkhardt, M. E., & Brass, D. J. (1990). Changing patterns or patterns of change: The effects of a change in technology on social network structure and power. *Administrative Science Quarterly*, *35*(1), 104-127. doi: 10.2307/2393552

Cameron, J. D., Ramaprasad, A., & Syn, T. (2017). An ontology of and roadmap for mHealth research. *International Journal of Medical Informatics*, *100*, 16-25. doi: 10.1016/j.ijmedinf.2017.01.007

Carlos, D. A. O., Magalhães, T. O., Vasconcelos, J. E., Filho, Silva, R. M., & Brasil, C. C. P. (2016, setembro). Concepção e avaliação de tecnologia *mHealth* para promoção da saúde vocal. *Risti - Revista Ibérica de Sistemas e Tecnologias de Informação*, (19), 46-60. doi: 10.17013/risti.19.46-60

Childers, T. L., Carr, C. L., Peck, J., & Carson, S. (2001). Hedonic and utilitrian motivations for online retail shopping behavior. *Journal of Retailing*, *77*, 511-535. doi: 10.1016/S0022-4359(01)00056-2

Cho, J., Park, D., & Lee, H. E. (2014). Cognitive factors of using health apps: Systematic analysis of relationships among health consciousness, health information orientation, eHealth literacy, and health app use efficacy. *Journal of Medical Internet Research*, *16*(5), e125. doi: 10.2196/jmir.3283

Chong, A. Y. L. (2013). A two-staged SEM-neural network approach for understanding and predicting the determinants of m-commerce adoption. *Expert Systems with Applications*, *40*(4), 1240-1247. doi: 10.1016/j.eswa.2012.08.067

Cotten, S. R., & Gupta, S. S. (2004). Characteristics of online and offline health information seekers and factors that discriminate between them. *Social Science and Medicine*, *59*(9), 1795-1806. doi: 10.1016/j.socscimed.2004.02.020

Déglise, C., Suggs, L. S., & Odermatt, P. (2012). Short Message Service (SMS) applications for disease prevention in developing countries. *Journal of Medical Internet Research*, *14*(1), e3. doi: 10.2196/jmir.1823

Dodds, W. B., Monroe, K. B., & Grewal, D. (1991). Effects of price, brand, and store information on buyers' product evaluations. *Journal of Marketing Research*, *28*(3), 307-319. doi: 10.2307/3172866

Duarte, P. A. O., & Raposo, M. L. B. (2010). A PLS model to study brand preference: An application to the mobile phone market. In *Handbook of partial least squares*, 449-485. Springer, Berlin, Heidelberg. doi: 10.1007/978-3-540-32827-8_21

Duque, C., Mamede, J., & Morgado, L. (2017). Iniciativas de mHealth em Portugal. In: *CISTI 2017: 12th Iberian Conference on Information Systems and Technologies*. 1-6, IEEE. doi: 10.23919/CISTI.2017.7975803

Dwivedi, Y. K., Shareef, M. A., Simintiras, A. C., Lal, B., & Weerakkody, V. (2016). A generalised adoption model for services: A cross-country comparison of mobile health (m-health). *Government Information Quarterly*, *33*(1), 174-187. doi: 10.1016/j.giq.2015.06.003

Escobar-Rodríguez, T., & Carvajal-Trujillo, E. (2014). Online purchasing tickets for low cost carriers: An application of the unified theory of acceptance and use of technology (Utaut) model. *Tourism Management*, *43*, 70-88. doi: 10.1016/j.tourman.2014.01.017

Finkelstein, M. M. (2000). Hypertension, self-perceived health status and use of primary care services. *Canadian Medical Association Journal*, *162*(1), 45-46. Retrieved from: https://www.cmaj.ca/content/162/1/45/tab-article-info

Fornell, C., & Larcker, D. F. (1981). Structural equation models with unobservable variables and measurement error: Algebra and statistics. *Journal of Marketing Research*, *18*(3), 382. doi: 10.2307/3150980

Fox, S., & Duggan, M. (2012). Mobile Health 2012. *Pew Research Center's Internet & American Life Project*. Retrieved from http://www.pewinternet.org/2012/11/08/mobile-health-2012/

Free, C., Phillips, G., Felix, L., Galli, L., Patel, V., & Edwards, P. (2010). The effectiveness of M-health technologies for improving health and health services: a systematic review protocol. *BMC Research Notes*, *3*, 250. doi: 10.1186/1756-0500-3-250

Gadelha, C. A. G., & Costa, L. S. (2012). Saúde e desenvolvimento no Brasil: Avanços e desafios. *Revista de Saúde Pública*, *46*(1), 13-20. doi: 10.1590/s0034-89102012005000062

Heijden, H. Van der. (2004). User acceptance of hedonic information systems. *MIS Quarterly*, *28*(4), 695-704. doi: 10.2307/25148660

Katz, R., & Tushman, M. (1979). Communication patterns, project performance, and task characteristics: An empirical evaluation and integration in an R&D setting. *Organizational Behavior and Human Performance*, *23*(2), 139-162. doi: 10.1016/0030-5073(79)90053-9

Kim, S. S., & Malhotra, N. K. (2005). A longitudinal model of continued IS use: An integrative view of four mechanisms underlying postadoption phenomena. *Management Science*, *51*(5), 741-755. doi: 10.1287/mnsc.1040.0326

Kim, S. S., Malhotra, N. K., & Narasimhan, S. (2005). Research note – Two competing perspectives on automatic use: A theoretical and empirical comparison. *Information Systems Research*, *16*(4), 418-432. doi: 10.1287/isre.1050.0070

Koop, A., & Mösges, R. (2002). The use of handheld computers in clinical trials. *Controlled Clinical Trials*, *23*(5), 469-480. doi: 10.1016/S0197-2456(02)00224-6

Kotz, D., Avancha, S., & Baxi, A. (2009). A privacy framework for mobile health and home-care systems. *Proceedings of the First ACM Workshop on Security and Privacy in Medical and Home-Care Systems – Spimacs '09*, November 1, 1-12. doi: 10.1145/1655084.1655086

Kratzke, C., & Cox, C. (2012). Smartphone technology and apps: Rapidly changing health promotion. *International Electronic Journal of Health Education*, *15*, 72-82. doi: ISSN-1529-1944

Kuo, Y. F., & Yen, S. N. (2009). Towards an understanding of the behavioral intention to use 3G mobile value-added services. *Computers in Human Behavior*, *25*(1), 103-110. doi: 10.1016/j.chb.2008.07.007

Laxminarayan, S., & Istepanian, R. S. H. (2000). Unwired E-MED: The next generation of wireless and Internet telemedicine systems. *IEEE Transactions on Information Technology in Biomedicine*, *4*(3), 189-193. doi: 10.1109/TITB.2000.5956074

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Leal, S. A. (2009). Estado de saúde auto-percebido: Índice de massa corporal e percepção da imagem corporal em utentes dos cuidados de saúde primários (Dissertação de mestrado, Faculdade de Psicologia e Ciências de Educação , Universidade de Lisboa, Lisboa, Portugal).

Lee, K., Hoti, K., Hughes, J. D., & Emmerton, L. M. (2015). Consumer use of "Dr Google": A survey on health information-seeking behaviors and navigational needs. *Journal of Medical Internet Research*, *17*(12), e288. doi: 10.2196/jmir.4345

Limayem, M., Hirt, S. G., & Cheung, C. M. (2007). How habit limits the predictive power of intention: The case of information systems continuance. *MIS Quarterly*, *31*(4), 705-737. doi: 10.2307/25148817

Luarn, P., & Lin, H.-H. (2005). Toward an understanding of the behavioral intention to use mobile banking. *Computers in Human Behavior*, *21*(6), 873-891. doi: 10.1016/j.chb.2004.03.003

Luo, X., Li, H., Zhang, J., & Shim, J. P. (2010). Examining multi-dimensional trust and multi-faceted risk in initial acceptance of emerging technologies: An empirical study of mobile banking services. *Decision Support Systems*, *49*(2), 222-234. doi: 10.1016/j.dss.2010.02.008

Mackert, M., Mabry-Flynn, A., Champlin, S., Donovan, E. E., & Pounders, K. (2016). Health literacy and health information technology adoption: The potential for a new digital divide. *Journal of Medical Internet Research*, *18*(10), e264. doi: 10.2196/jmir.6349

Miltgen, C. L., Popovič, A., & Oliveira, T. (2013). Determinants of end-user acceptance of biometrics: Integrating the "big 3" of technology acceptance with privacy context. *Decision Support Systems*, *56*, 103-114. doi: 10.1016/j.dss.2013.05.010

Neter, E., & Brainin, E. (2012). eHealth literacy: Extending the digital divide to the realm of health information. *Journal of Medical Internet Research*, *14*(1), e19. doi: 10.2196/jmir.1619

Norman, C. D., & Skinner, H. A. (2006a). eHEALS: The eHealth literacy scale. *Journal of Medical Internet Research*, *8*(4), e27. doi: 10.1525/cmr.2014.57.1.67

Norman, C. D., & Skinner, H. A. (2006b). eHealth literacy: Essential skills for consumer health in a networked world. *Journal of Medical Internet Research*, *8*(2), 1-11. doi: 10.2196/jmir.8.2.e9

Nunnally, J., & Bernstein, I. (1994). *Psychometric theory* (3rd ed.). New York, USA: McGraw-Hill.

Oliveira, T., Faria, M., Thomas, M. A., & Popovič, A. (2014). Extending the understanding of mobile banking adoption: When Utaut meets TTF and ITM. *International Journal of Information Management*, *34*(5), 689-703. doi: 10.1016/j.ijinfomgt.2014.06.004

Ong, J. W., Poong, Y. S., & Ng, T. H. (2008). 3G services adoption among university students: Diffusion of innovation theory. *Communications of the IBIMA*, *3*(16), 114-121.

Rai, A., Chen, L., Pye, J., & Baird, A. (2013). Understanding determinants of consumer mobile health usage intentions, assimilation, and channel preferences. *Journal of Medical Internet Research*, *15*(8), e149. doi: 10.2196/jmir.2635

Research2guidance. (2016). *mHealth App Developer Economics 2016*. Retrieved from https://research2guidance.com/r2g/r2g-mHealth-App-Developer-Economics-2016.pdf

Riffai, M. M. M. A., Grant, K., & Edgar, D. (2012). Big TAM in Oman: Exploring the promise of on-line banking, its adoption by customers and the challenges of banking in Oman. *International Journal of Information Management*, *32*(3), 239-250. doi: 10.1016/j.ijinfomgt.2011.11.007

Riley, W. T., Rivera, D. E., Atienza, A. A., Nilsen, W., Allison, S. M., & Mermelstein, R. (2011). Health behavior models in the age of mobile interventions: Are our theories up to the task? *Translational Behavioral Medicine*, *1*(1), 53-71. doi: 10.1007/s13142-011-0021-7

Ringle, C. M., Wende, S., & Becker, J. M. (2015). SmartPLS 3: SmartPLS GmbH, Boenningstedt. *Journal of Service Science and Management*, *10*(3). Retrivied from: https://www.scirp.org/journal/JSSM/

Shareef, M. A., Kumar, V., & Kumar, U. (2014). Predicting mobile health adoption behaviour: A demand side perspective. *Journal of Customer Behaviour*, *13*(3), 187-205. doi: 10.1362/147539214X14103453768697

Shields, M., & Shooshtari, S. (2001). Determinants of self-perceived health. *Health Reports – Statistics Canada*, *13*(1), 35-52. Retrieved from: https://pubmed.ncbi.nlm.nih.gov/15069807

Smith, M. S., Wallston, K. A., & Smith, C. A. (1995). The development and validation of the perceived health competence scale. *Health Education Research*, *10*(1), 51-64. doi: 10.1093/her/10.1.51

Steinhubl, S. R., Muse, E. D., & Topol, E. J. (2015). The emerging field of mobile health. *Science Translational Medicine*, *7*(283), 283rv3-283rv3. doi: 10.1126/scitranslmed.aaa3487

Sweileh, W. M., Al-Jabi, S. W., AbuTaha, A. S., Zyoud, S. H., Anayah, F. M. A., & Sawalha, A. F. (2017). Bibliometric analysis of worldwide scientific literature in mobile – health: 2006 – 2016. *BMC Medical Informatics and Decision Making*, *17 (1), 72*. doi: 10.1186/s12911-017-0476-7

Tan, P. J. B. (2013). Applying the Utaut to understand factors affecting the use of english e-learning websites in Taiwan. *SAGE Open*, *3*(4), 1-12. doi: 10.1177/2158244013503837

Thong, J. Y., Hong, S. J., & Tam, K. Y. (2006). The effects of post-adoption beliefs on the expectation-confirmation model for information technology continuance. *International Journal of Human Computer Studies*, *64*(9), 799-810. doi: 10.1016/j.ijhcs.2006.05.001

Tomás, C. C., Queirós, P. J. P., & Ferreira, T. J. R. (2014). Análise das propriedades psicométricas da versão portuguesa de um instrumento de avaliação de e-Literacia em saúde. *Revista de Enfermagem Referência*, *série IV*(2), 19-28. Retrieved from http://www.scielo.gpeari.mctes.pt/scielo.php?script=sci_arttext&pid=S0874-02832014000200003&lang=pt. doi: 10.12707/riv14004

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Venkatesh, V., & Morris, G. M. (2000). Why don't men ever stop to ask for direction? Gender, social influence and their role in technology acceptance and usage behaviour. *MIS Quarterly*, *24*(1), 115-139. doi: 10.2307/3250981

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, *27*(3), 425-478. doi: 10.2307/30036540

Venkatesh, V., Thong, J. Y. L., & Xu, X. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. *MIS Quarterly*, *36*(1), 157-178. doi: 10.2307/41410412

Wei, T. T., Marthandan, G., Chong, A. Y. L., Ooi, K. B., & Arumugam, S. (2009). What drives Malaysian m-commerce adoption? An empirical analysis. *Industrial Management & Data Systems*, *109*(3), 370-388. doi: 10.1108/02635570910939399

World Health Organization. (2019). *WHO guideline: Recommendations on digital interventions for health system strengthening*. Geneva, Switzerland. Licence: CC BY-NC-SA 3.0 IGO.

Xin, X. (2004). A model of 3G adoption. *AMCIS 2004 Proceedings*. Paper 329, 2755-2762. Retrieved from http://aisel.aisnet.org/amcis2004/329

AUTHORS' CONTRIBUTIONS

Nayra Martins, Paulo Duarte and José Carlos Pinho worked on the conceptualization and theoretical-methodological approach. The theoretical review was conducted by Nayra Martins, Paulo Duarte and José Carlos Pinho. Data collection was coordinated by Nayra Martins, Paulo Duarte and José Carlos Pinho. Data analysis included Nayra Martins, Paulo Duarte and José Carlos Pinho. All authors worked together in the writing and final revision of the manuscript.

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DESIGNING ARCHITECTURAL MARKETING CAPABILITIES TO INCREASE THE PERFORMANCE OF SMALL AND MEDIUM-SIZED ENTERPRISES

Desenvolvendo os componentes da orientação para o mercado para melhorar o desempenho de pequenas e médias empresas

Diseño de capacidades de marketing arquitectónico para aumentar el rendimiento de pequeñas y medianas empresas

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ABSTRACT

This study aims to examine the relationship between the components of market orientation, i.e., customer orientation, competitor orientation, inter-functional coordination, architectural marketing capabilities and business performance. Researchers have been trying to find a solution for the gap that exists between market orientation and business performance. The respondents of this study were the owners or heads of 358 SMEs located in Central Java, Indonesia. This study used structural equation modeling (SEM) for data analysis. The results showed that customer orientation (CSO), competitor orientation (CO), and inter-functional coordination (IC) have a significant effect on architectural marketing capabilities (AMC) and business performance (BP), and that AMC also has a significant effect on business performance. Furthermore, architectural marketing capabilities can mediate the relationship between customer orientation, competitor orientation, inter-functional coordination and business performance.

KEYWORDS | Customer orientation, competitor orientation, inter-functional coordination, architectural marketing capabilities, business performance

RESUMO

Este estudo tem como objetivo examinar a relação entre os componentes da orientação para o mercado – orientação para o cliente, orientação para a concorrência, coordenação interfuncional e capacidades de arquitetura de marketing – e o desempenho da empresa. Pesquisadores vêm tentando encontrar uma solução para a lacuna existente entre a orientação para o mercado e o desempenho da empresa. Os sujeitos deste estudo foram 358 proprietários ou gestores de pequenas e médias empresas (PMEs) em Java Central, na Indonésia. A pesquisa utilizou Modelagem de Equações Estruturais (SEM) para analisar os dados. Os resultados mostraram que a Orientação para o Cliente (OCL), a Orientação para Concorrência (OC) e a Coordenação Interfuncional (CI) tiveram uma influência significativa nas Capacidades de Arquitetura de Marketing (CAM) e no Desempenho da Empresa (DE), e que as CAM também tiveram uma influência significativa no desempenho da empresa. Além disso, as CAM podem mediar a relação entre a orientação para o cliente, a orientação para a concorrência, a coordenação interfuncional e o desempenho da empresa.

PALAVRAS-CHAVE */ Orientação para o cliente, orientação para a concorrência, coordenação interfuncional, capacidades de arquitetura de marketing, desempenho da empresa.*

RESUMEN

Este estudio tiene como objetivo determinar el efecto de los componentes de orientación del mercado, a saber, la orientación al cliente, la orientación a la competencia, la coordinación entre funciones y recursos de marketing arquitectónico en el rendimiento del negocio. Los investigadores están tratando de encontrar una solución para la brecha que existe entre la orientación al mercado y el desempeño comercial. Los encuestados de este estudio fueron 358 propietarios o líderes de pymes en Java Central, Indonesia. Esta investigación utilizó el modelado de ecuaciones estructurales (SEM) como análisis de datos. Los resultados mostraron que la orientación al cliente (CSO), la orientación a la competencia (CO) y la coordinación interfuncional (IC) tuvieron una influencia significativa en la capacidad de marketing arquitectónico (AMC) y en el desempeño comercial (BP). Asimismo, la AMC tuvo una influencia significativa en el desempeño comercial. Además, las capacidades de marketing arquitectónico pueden mediar la relación entre la orientación al cliente, la orientación a la competencia, la coordinación interfuncional y el rendimiento empresarial.

PALABRAS CLAVE */ Orientación al cliente, orientación a la competencia, coordinación funcional, habilidades de marketing arquitectónico, desempeño comercial.*

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INTRODUCTION

Research has already been conducted into the relationship between market orientation and business performance. Market orientation was initially introduced as a component affecting business performance (Dubihlela & Sandada, 2014; Kaswuri, 2017). The study of the relationship between market orientation components (customer orientation, competitor orientation, and inter-functional coordination) and business performance is expected to provide comprehensive results in the field of management. The results of previous studies show that market orientation is the key to success for delivering business performance (Udriyah, Tham, & Azam, 2019). While some studies explain that market orientation has a contribution to play in improving business performance (Herman, Hady, & Arafah, 2018; Hwang & Chung, 2018; Mamun, Mohiuddin, Fazal, & Ahmad, 2018), other studies show different results ; that there is no relationship between market orientation and business performance (Gholami & Birjandi, 2016; Idrus, Ahmar, & Abdussakir, 2018). Market orientation is also unable to improve financial performance (Ho, Nguyen, Adhikari, Miles, & Bonney, 2018), and companies that are always proactive in market orientation have been unable to deliver superior business performance (Kharabsheh, Jarrar, & Simenonva, 2014).

Customer orientation, competitor orientation, and inter-functional coordination are components of market orientation, which is a set of organizational cultural behaviors (Slater & Narver, 1990). Customer orientation as a behavior of the organizational culture is expected to be able to understand customer needs and demands. Competitor orientation is expected to understand competitors' strengths, weaknesses, and strategies, while inter-functional coordination is expected to build harmonious relationships between functions in order to seize market opportunities. It is expected that the ability to understand market orientation components will facilitate the planning and implementation of marketing.

The development of architectural marketing capabilities is a process that includes planning and implementing marketing strategies (Morgan, 2012). Marketing needs to be planned in order to set market targets and develop effective marketing strategies, while implementation of a marketing process is needed to facilitate the allocation of marketing resources, interpret marketing strategies appropriately and effectively introduce marketing programs (Vorhies & Morgan, 2005). Little research has been conducted into the effect of market orientation on architectural marketing capabilities. Sometimes market orientation and architectural marketing capabilities are treated as independent variables that affect company performance (Morgan, Slotegraaf, & Vorhies, 2009). Likewise, understanding the relationship between business performance and market orientation will be more complete if the objectives are understood, so the role of the mediator will determine the strength of the relationship (Han, Kim, Han, Kim, & Srivastava, 1998).

Differences in the above research findings may be the result of inappropriate measurements, the improper placement of mediators, or because of the various data collection or analysis techniques used. Because of this research gap, there are still opportunities for further research, and this study aims to fill the gap between the components of market orientation and business performance. It will do so by employing architectural marketing capabilities as a mediator variable. A detailed understanding of the relationship between architectural marketing capabilities, market orientation components, and business performance is still needed to increase the wealth of science being developed, especially in the field of marketing management.

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THEORETICAL BACKGROUND

The conceptual development of architectural marketing capabilities

The resource-based view (RBV) states that capabilities are a resource that, if properly managed, will be an advantage in the company (Barney, 1991). Capabilities are a company's ability to exploit the resources it has (Javidan, 1998). Capabilities can be developed if individuals and groups are able to explore their knowledge and skills to support the achievement of company goals (Morgan, 2012).

Architectural capabilities refer to the process of selecting, integrating and managing special abilities and sharing resources between functions in an organization (Galunic & Rodan, 1998; Henderson & Clark, 1990). Architectural marketing includes the process of setting marketing objectives, formulating marketing strategies (Slotegraaf & Dickson, 2004; Vorhies & Morgan, 2003) and implementing marketing strategy decisions supported by company resources (Capron & Hulland, 1999; Vorhies & Morgan, 2005).

Marketing capabilities are the integrative process that is designed to apply knowledge, skills and company resources for meeting the needs of target markets (Day, 1994; Hamdani, Susanto, & Maulani, 2018). In this study, architectural marketing capabilities are the ability to manage resources for planning and implementing marketing plans in order to reach target markets, as measured by the indicators of the skills employed in market planning, developing creative marketing strategies, accuracy in choosing target markets, allocating marketing resources effectively, interpreting marketing strategies and turning them into action, and appropriately running marketing strategies.

Market orientation

According to Slater and Narver (1990), the study of the components of market orientation, which include customers, competitor orientation, and inter-functional coordination, is part of the market-oriented organizational. Customer orientation should be able to understand target buyers sufficiently over time in order to create customer value. Competitor orientation should obtain information on both key and potential competitors and understand the strengths and weaknesses of short-term and long-term competitors. Inter-functional coordination is useful for coordinating resources to create superior value for the target market. Studies of market orientation in the context of marketing recognize the role of corporate culture in influencing market orientation. They also introduce other sides that are useful for theory testing, benchmarking and tracking (Kohli & Jaworski, 1993). Market orientation involves customers and competitors, recognizes the role of organizational culture in supporting market orientation, and recognizes market orientation as the basis for corporate strategy. Market-oriented companies can develop and disseminate specific and distinctive marketing capabilities to differentiate themselves from competing companies. Market research, pricing, product development, distribution channels, promotion, and market management are needed to strengthen corporate marketing capabilities (Vorhies, Harker, & Rao, 1999). Market orientation can increase marketing implementation capabilities, which in turn strengthen business performance that focuses on customers, namely on attracting and retaining them.

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Business performance

According to Rahman et al. (2018), the method used for measuring business performance is multidimensional vis-à-vis the desired subject. Some researchers use growth dimension as a proxy for business performance (Cho & Pucik, 2005; Morgan et al., 2009). According to Stam, Arzlanian, and Elfring (2014), business performance in small businesses can be explained in terms of three dimensions, namely growth performance, profitability, and non-financial performance. Lee, Kim, Seo, and Hight (2015) define business performance as the company's achievements, including its financial and non-financial performance. Financial performance is measured by the respondents' perceptions with regard to achieving their net profit and sales goals, increasing net income and sales and reaching the planed-for number of contracts. Non-financial performance is measured by indicators of the respondents' perceptions for improving their new product and service capabilities, and increasing employee and customer satisfaction. Due to poor governance in SMEs, respondents' perceptions are used as an approach to measure business performance. Business performance is the result of the organization's operational activities, which include internal and external results as measured by the ROA, sales growth, growth in market share and growth in profit (Nuryakin, Didiek, & Budi, 2018). In this study, business performance is the company's ability to achieve its financial and marketing objectives, as measured by indicators of the growth in sales results, the increase in the number of customers, expansion of the sales areas, profit growth, and growth in business capital.

CONCEPTUAL FRAMEWORK AND RESEARCH HYPOTHESES

Customer orientation and architectural marketing capabilities

Customer orientation is the company's ability to observe and evaluate trends in its customers' needs, which encourages the company to innovate in terms of its products and services in order to satisfy these customers (Micheels & Gow, 2008; Sadikoglu & Zehir, 2010). Knowledge of the market is very useful for guiding the planning of marketing that is in harmony with environmental changes (Moorman & Slotegraaf, 1999). A company's resources will be used to develop a marketing strategy (Davcik & Sharma, 2016), which include knowledge, financial capacity, human resources, networking, information and development (Hamdani et al., 2018). Other studies show that marketing resources in the form of knowledge, information and human resources can be used as a basis for developing marketing strategies (Foumani & Chirani, 2012). Companies that understand their customers' needs, create added value, and provide after-sales services, will be better equipped for re-arranging their marketing resources. Therefore, the ability of marketing resources to understand customers thoroughly enables companies to improve their ability to plan and implement their marketing initiatives.

H1: There is a positive and significant relationship between CSO and AMC

Competitor orientation and architectural marketing capabilities

A competitor orientation enables organizations to determine, evaluate and respond to competitors' strengths and weaknesses (Slater & Narver, 1990). Competitor-oriented companies track the actions of their competitors

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and emulate their products by making additional innovations to their own products and services (Lukas & Ferrell, 2000). A market-orientation culture will affect a company's marketing capabilities, especially the planning and implementation of its marketing mix (O'Cass, Ngo, & Siahtiri, 2012). Architectural marketing capabilities can be developed through comprehensive marketing planning based on environmental analysis and competitor information (Hamdani et al., 2018). Companies that understand their competitors' strengths and weaknesses and track their actions and strategies early will be better prepared to design their own marketing activities. Therefore, a company's ability to understand its competitors' strengths and weaknesses and to track their strategies enables it to improve its own ability to plan and implement its marketing initiatives.

H2: There is a positive and significant relationship between CO and AMC

Inter-functional coordination and architectural marketing capabilities

Inter-functional coordination shows the level of involvement of all the internal functions of the organization for sharing information and building harmonious relationships to reach its target market (Dyer, 2000; Mohsen, 2013). Inter-functional coordination is needed for sharing information in order to find ideas that are creative (Wang & Miao, 2015). By utilizing marketing resources that are based on capabilities and knowledge and that focus primarily on decisions and marketing implementation strategies, architectural marketing capabilities form the basis of the model used for developing results-oriented marketing (Hamdani et al., 2018). Marketing capabilities also include collective skills, the accumulation of knowledge, and the ability to coordinate marketing activities and develop them so they become company assets. The ability to plan marketing is related to the ability to develop appropriate marketing strategies, which is achieved by aligning resources to match market conditions, thus making it easier to reach company goals (Mokwa, McKee, Varadarajan, & Conant, 1992). Companies that achieve harmonious inter-functional coordination will facilitate the sharing of information and resources for seizing market opportunities. Harmonious inter-functional coordination, therefore, enables companies to improve their ability to plan and to implement their marketing initiatives.

H3: There is a positive and significant relationship between IC and AMC

Customer orientation and business performance

According to Slater & Narver (1990), customer orientation, competitor orientation and inter-functional coordination as the components of market orientation can be used to create superior value for the company. The purpose of market orientation is to provide customers with added value based on their input and analysis of the competitors (Avlonitis & Giannopoulos, 2012). Customer orientation, in particular, plays a large role in supporting improvements in business performance (Asomaning & Abdulai, 2015; Feng, Wang, Lawton, & Luo, 2019; Neneh, 2018; Ogbonna & Ogwo, 2013; Suliyanto & Rahab, 2012) and financial performance (Taofik, Halim, & Ibrahim, 2018). The ability to understand customers' needs and demands and create the best value for customers will better equip the company for dealing with environmental changes. Therefore, the company's ability to meet customer expectations has the potential for increasing sales and profits, and customer and capital growth.

H4: There is a positive and significant relationship between CSO and BP

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Competitor orientation and business performance

Market information is used by companies as a guide for planning marketing to suit environmental changes (Day, 1994). A company's performance is strongly influenced by its competitor orientation; the company's ability to understand competitors' strengths and weaknesses, and their strategies and tactics (Chin, Lo, & Ramayah, 2013; Suliyanto & Rahab, 2012; Wang, Chen, & Chen, 2012). The speed of responding to competitors' actions and offering new and better products has the potential to increase sales and profits, so that competitor orientation can be a determinant of financial performance. (Taofik et al., 2018). Companies that understand their competitors' strengths and weaknesses and know their strategies and actions will be able to respond quickly. Therefore, speed in understanding and responding to competitors' strategies enables companies to formulate new policies in a better way and potentially improve their business performance.

H5: There is a positive and significant relationship between CO and BP

Inter-functional coordination and business performance

According to Kanovska and Tomaskova (2012), inter-functional coordination is a process by which all internal functions are harmonized. Organizations that want to beat the competition, therefore, must be able to integrate their functions in an optimal way. Inter-functional coordination is a component that can support organizational survival (Ajay & Jaworski, 1990). This coordination component in an organization includes the level of involvement, the quality of information and harmonious relationships across functions (Mohsen, 2013). Namusonge (2017) showed that inter-functional coordination bears a strong relationship with business performance and can produce new product leaders who will improve company performance. Harmonious inter-functional coordination makes it easy for a company to share resources and information in order to seize those market opportunities that the company has targeted. Therefore, inter-functional coordination that is used to reach the target market has the potential to improve business performance.

H6: There is a positive and significant relationship between IC and BP

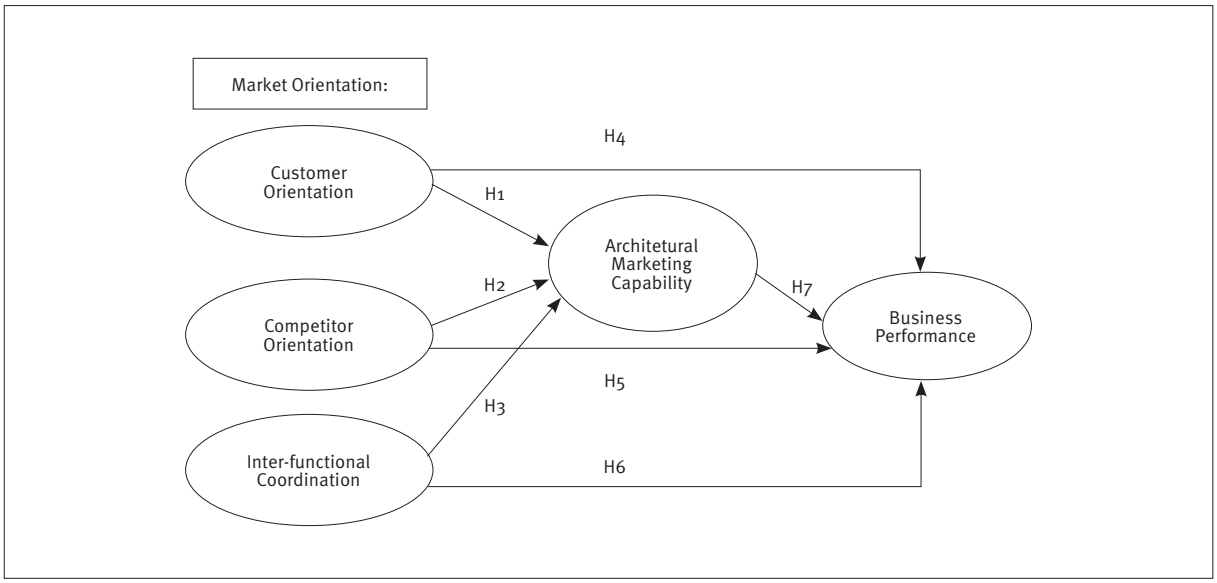
Architectural marketing capabilities and business performance

Empirically and theoretically, marketing capabilities can improve a firm's performance (Morgan, 2012), while the development of architectural marketing capabilities can directly improve a firm's performance (Hamdani et al., 2018; Seifi & Dalvi, 2014). Architectural marketing capabilities are needed for identifying the strength of the available resources so that the company can formulate a strategic plan for implementing appropriate marketing initiatives that will have an impact on improving the firm's performance and lead to sustainable growth (Hamdani et al., 2018). Likewise, architectural organizational capabilities can determine the success of a company (Chikwe, Biriowu, & Harcourt, 2018). Architectural marketing capabilities are also needed to identify the strength of a company's resources so that it can prepare its marketing plans and implement them appropriately. The ability to explore the potential of a company's marketing resources will provide support when it is designing its marketing initiatives. Hence, the set of skills that are arranged to take advantage of a company's marketing capabilities will have the potential to improve business performance.

H7: There is a positive and significant relationship between AMC and BP

The concept of developing a model for testing hypotheses is shown in Figure 1.

Figure 1. **Conceptual framework**



RESEARCH METHOD

Data collection and the sample

This research was conducted with small and medium-sized enterprises located in Central Java, Indonesia. The data were taken from questionnaires and interviews to ensure the accuracy of the respondents' answers. Questionnaires were distributed to 483 respondents in 12 cities/districts in Central Java Province. Central Java was selected as the sample because it makes a significant contribution to economic development in Indonesia. After selection and validation, 358 respondents met the research requirements. The sample comprises 67.3% women and 32.7% men aged between 20 and 65 years old, who have business experience that ranges between 4 and 41 years. Of the business sectors involved, 45.5% are in fashion, 22.4% in shoes, 19.6% in bags, and 12.5% in accessories. To test the potential effects of the common method, Harman's single factor test was carried out using an SPSS program. The test results show that the single factor can explain 33.4% of the total variance and is below the cut-off value of 50% (Podsakoff, MacKenzie, & Podsakoff, 2012). Therefore, this value meets the requirements specified in the common method bias test.

Measurements

This study used primary data that were collected by researchers by way of a survey. The questionnaire was designed to measure the respondents' answers to all constructs using a rating scale of 1 - 10 (Hair, 2010). The score level allows respondents to choose from the lowest score (1) to the highest score (10). All constructs were measured using a score of 1 for "Strongly disagree" and 10 for "Strongly agree". The scale is used to

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measure research variables which include architectural marketing capabilities, customer orientation, competitor orientation, inter-functional coordination, and business performance. Measurement of the constructs in this study was taken from available literature, with some modifications being made to fit the research context. Customer orientation is adapted from Asikhia (2014) and Suleiman and Agti (2011), who measured using the indicators of consumer satisfaction, understanding consumer needs, creating value-added products for consumers, and providing after-sales service. Competitor orientation, which was adapted from Asikhia (2014) and Suleiman and Agti (2011), is measured using indicators of responding quickly to competitors' actions, creating superior products, responding quickly to changes in competitor prices, and monitoring competitors' marketing efforts. Inter-functional coordination is adapted from Asikhia (2014) and Suleiman and Agti (2011), who measured using indicators of teamwork serving customers, sharing information, cooperation for responding to competitors' actions, cooperation for formulating strategy, and cooperation for creating superior products. Architectural marketing capabilities are adapted from Trez and Luce (2012) and Vorhies and Morgan, (2005), who measured using indicators of skills in market planning, developing creative marketing strategies, accuracy in choosing target markets, allocating marketing resources effectively, turning marketing strategies into actions, and pursuing a marketing strategy appropriately. Business performance is adapted from the view of Morgan (2012) and Nuryakin et al. (2018), who measured by way of five indicators; sales growth, customer growth, sales area expansion, increased profits, and growth in business capital.

Data analysis and measurement models

The structural equation modelling (SEM) approach will be used to process the collected data and facilitate the testing of the hypotheses. The purpose of this study is to examine the relationship between customer orientation, competitor orientation, inter-functional coordination, architectural marketing capabilities and business performance. The goodness-of-fit index was used for evaluating the suitability of the recommended SEM model, including: Chi-square statistics; normal fit index (NFI); comparative fit index (CFI); Tucker-Lewis Index (TLI); and root mean square error of approximation (RMSEA).

Table 1. **Confirmatory factor analysis results for the measurement models**

Variable and Indicator	Loading factor
Customers Orientation	
Our business strategy is directed towards achieving customer satisfaction	.696
We strive to gain a competitive advantage based on understanding customer needs	.721
We develop strategies to create value-added products for customers	.722
We attach great importance to after-sales service	.705
Competitors Orientation	
We respond quickly to competitors' actions that threaten the company's development.	.690
We create products that are better than competitors' products	.752
We respond quickly to changes in prices of major competitors in the business	.677
We regularly monitor the marketing efforts of major competitors	.703

Continue

Table 1. **Confirmatory factor analysis results for the measurement models** Concludes

Variable and Indicator	Loading factor
Inter-functional coordination	
We and employees work together in teams to serve customers	.684
We and employees share information about competitors' strengths and weaknesses	.799
We and employees work together to respond to competitors' actions quickly	.724
We and employees work together to formulate a strategy to deal with competitors	.676
All employees work together to create superior products according to customer desires	.680
Architectural Marketing Capability	
Our skills in developing marketing planning continue to improve	.753
Our ability to develop creative marketing strategies continues to increase	.675
Our ability to segment and target markets continues to increase	.657
Our ability to allocate effective marketing resources continues to increase	.796
Our ability to interpret marketing strategies into actions continues to increase	.744
Our ability to execute marketing strategies quickly continues to increase	.736
Business Performance	
The sales of our company have continued to increase over the past three years	.764
The number of our customers has continued to increase over the past three years	.741
Our company's sales territory has continued to increase over the past three years	.716
The profits of our company have continued to increase over the past three years	.675
The capital of our company has continued to increase over the past three years	.741

Table 1 shows that all indicators are valid, which is proved by the loading factor value › 0.5 and p ‹ 0.05. Table 2 shows that all indicators of the latent variables that were measured have internal consistency, meaning that all constructs are reliable (Hair, 2010). Reliability values (CR) › 0.6; Variance Extracted (VE) › 0.5, are in accordance with internal consistency standards for indicators that are being measured. The Customer orientation, Competitor Orientation, Inter-functional Coordination, Architectural Marketing Capabilities, and Business Performance variables have CR values › 0.7 and AVE › 0.5.

Table 2. **Construct reliabilities, correlations, and AVE**

N = 358	1	2	3	4	5
Customer Orientation (CSO)	.808				
Competitor Orientation (CO)	.438	.797			
Inter-functional Coordination (IC)	.546	.532	.871		
Architectural Marketing Capability (AMC)	.519	.499	.500	.871	
Business Performance (BP)	.523	.513	.525	.552	.858
Average Variance Extracted (AVE)	.679	.797	.871	.781	.770

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RESULT AND ANALYSIS

Testing the model using the SEM approach requires several criteria to be met, namely that the Goodness-of-Fit index was in accordance with the criteria recommended by SEM. The Chi Square value = 271.016 and is not significant at α: 0.05, AGFI: 0.928; GFI index: 0.942;TLI: 0.991; CFI: 0.992; NFI: 928. All values meet the recommended SEM requirements, which is ≥ 0.90. RMSEA value: 0.018 less than 0.08 and CMIN / DF 1.115 less than 2.00. Thus, the results from testing the Goodness-of-Fit index are in accordance with the recommended SEM. Therefore, the model fits, or is feasible for testing relationships between the constructs.

Table 3. **Hypothesis testing**

Relationship Specifications	Std. β	Unstd β	SE	C. R.
H1: CSO -› AMC	.202	.245	.094	2.611*
H2: CO -› AMC	.293	.311	.078	4.004*
H3: IC -› AMC	.265	.269	.069	3.893*
H4: CSO -› BP	.181	.226	.095	2.385*
H5: CO -› BP	.203	.223	.081	2.738*
H6: IC -› BP	.202	.212	.073	2.920*
H7: AMC -› BP	.255	.263	.071	3.688*

Note: * p ‹ 0.01

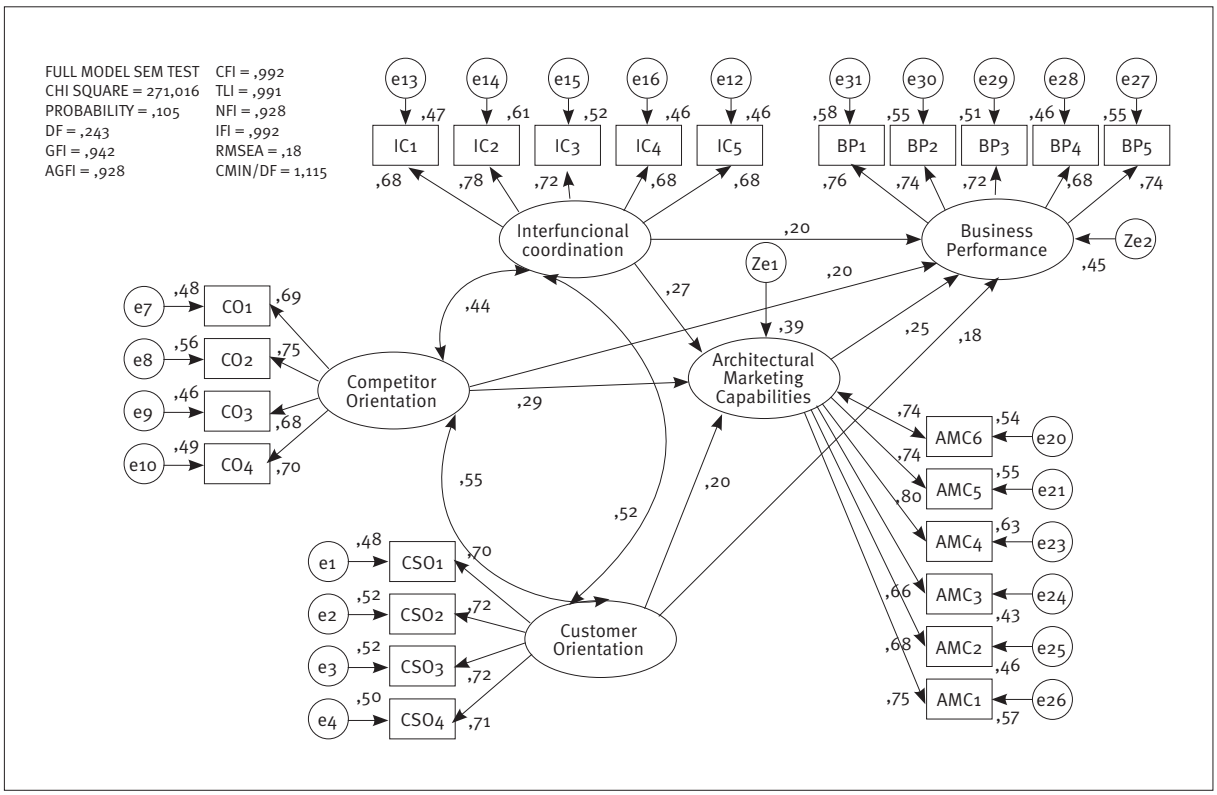
Figure 1 and Table 3 shows that there is a significant relationship between CSO and AMC (Std. β = .202, CR = 2,611, p ‹0.01), thus H1 is accepted. Furthermore, there is a significant relationship between CO and AMC (Std. β = .293, CR = 4,004, p ‹0.01), IC and AMC (Std. β = .265, CR = 3,893, p ‹0.01), hence H2 and H3 are accepted. There is a significant relationship between CSO and BP (Std. β = .181, CR = 2,385, p ‹0.01), CO and BP (Std. β = .203, CR = 2,738, p ‹0.01), IC and BP (Std. β = .202, CR = 2.90, p ‹ 0.01), thus H4, H5, H6 are accepted. There is also a significant relationship between AMC and BP (Std. β = .255, CR = 3.688, p ‹ 0.01), which means that H7 is accepted.

AMC as an intervening variable meets the criteria that IC, OC and CSO have a significant effect on BP, and also IC, OC and CSO have a significant effect on AMC, so then IC, OC and CSO have a significant effect on BP by controlling IC, OC and CSO (Baron & Kenny, 1986). The results of this study show that there is a significant and decreasing influence of IC, OC, and CSO on BP when AMC is included, so there is partial mediation.

In order to test whether AMC becomes a mediating variable, this study used the Sobel test approach. From the test results, this shows that AMC is a mediating variable between CSO and BP; the effect of CSO on AMC has Unstd. β = .245, SE = 0.094 and AMC on BP has Unstd. β = .263, SE = 0.071. The results of the Sobel test statistic = 2.131; p ‹ 0.05, meaning that AMC acts as a mediating variable between CSO and BP. Test results also show that AMC becomes a mediating variable between CO and BP. The effect of CO on AMC has Unstd. β = .311, SE = 0.078 and AMC on BP has Unstd. β = .263, SE = 0.071. The Sobel test result statistic = 2.713; p ‹ 0.05, so AMC acts as a mediating variable between CO and BP. The test results show that AMC becomes a mediating variable between IC and BP. The effect of IC on AMC has Unstd. β = .269, SE = 0.069 and AMC on BP has Unstd. β = .263, SE = 0.071. The results of the Sobel test statistic = 2.685; p ‹ 0.05, meaning that AMC acts as a mediating variable between IC and BP.

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Figure 2. **Full structural model**



DISCUSSION

Customer orientation has a significant relationship with architectural marketing capabilities. The ability to meet and satisfy the needs of customers will facilitate marketing plan and marketing implementation programs. The results of this study are in line with the findings that market information knowledge can guide companies so they make marketing plans that are in harmony with environmental changes (Moorman & Slotegraaf, 1999). The success of marketing products that are in accordance with customer expectations is determined by marketing strategies and the ability to implement them (Day & Wensley, 1988). SMEs that understand their customers' needs and desires will find it easy to make plans and implement marketing programs for customer satisfaction.

Competitor orientation has a significant relationship with architectural marketing capabilities. The ability to understand the strengths and weaknesses of competitors and their strategies will guide marketing planning and marketing implementation strategies. The results of this study are in line with the findings that market orientation can improve marketing capabilities by prioritizing marketing planning and marketing implementation programs (O'Cass et al., 2012). The ability of SMEs to monitor the activities of competitors will make it easier for them to plan and put into effect their marketing programs.

Inter-functional coordination has a significant relationship with architectural marketing capabilities. A harmonious relationship between functions makes it easy to share resources, thus enabling companies to easily plan and implement their marketing strategies. These results are in line with the findings that the involvement

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of all the internal functions of the organization, information sharing, and harmonious relationships between functions, will enable companies to reach their target markets easily (Dyer, 2000; Mohsen, 2013; Song, Parry, & Ferna, 2010). Good coordination between functions will increase the ability of SME leaders to plan and put into effect their marketing programs.

Customer orientation has a significant relationship with business performance. Meeting the needs of customers will spur companies on to innovate products that can provide value-added and the best service, thereby increasing their sales figures. Increasing their sales figures has the potential to increase business performance. This is in line with the results of research that show that customer orientation has a large role to play in supporting improvements in business performance (Asomaning & Abdulai, 2015; Feng et al., 2019; Neneh, 2018). The ability to understand customers will determine the success of SMEs.

Competitor orientation has a significant relationship with business performance. Competitor orientation also facilitates marketing planning and implementation that are aligned with the changing needs of the target market, thus potentially increasing business performance. This is supported by the finding that understanding competitors' strengths and weaknesses, knowing their strategies and actions, and being able to respond quickly to their actions have an effect on business performance (Chin et al., 2013). SMEs that can properly monitor competitors' activities can respond quickly to them and this becomes a determinant of business performance.

Inter-functional coordination has a significant relationship with business performance. The ability to integrate all the internal functions of an organization will make it easier to share resources in order to create value-added for the target market. Companies that want to beat the competition and improve business performance must be able to integrate all the internal functions of the company. This is in line with the finding that inter-functional coordination has a strong relationship with business performance (Namusonge, 2017; Suliyanto & Rahab, 2012). Good collaboration between functions in the organization will determine business performance.

Architectural marketing capabilities have a significant relationship with business performance. A company needs to have an effective marketing planning and implementation strategy to meet its customers' needs. Proper marketing planning and implementation will have an impact on business performance and company growth. This is supported by the finding that organizational capabilities' architecture has an influence on company success (Chikwe et al., 2018) and architectural marketing capabilities have a relationship with business performance (Hamdani et al., 2018; Seifi & Dalvi, 2014). Architectural marketing capabilities have a large role to play as a determinant of SME performance.

Architectural marketing capabilities have an important role to play in mediating the relationship between the market orientation and business performance dimensions. Companies that understand their customers' needs and how to satisfy them can respond quickly by creating products and services that meet their customers' wishes. The company's ability to understand customer needs and how to satisfy them will facilitate marketing planning and implementation strategies, which will ultimately have an impact on business performance. Likewise, companies that know their competitors' strengths and weaknesses will be able to respond quickly to competitors' actions. Competitor orientation will facilitate marketing planning and implementation that suits the needs of the target market and provides the company with the potential to improve its business performance. The company's ability to coordinate all the internal functions of the organization will make it easier to share information and resources, and collaborate in formulating strategies for creating value-added for customers. Harmonious inter-functional coordination will facilitate marketing planning and implementation strategies, thus affecting business performance.

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CONCLUSION AND IMPLICATIONS

Improving the business performance of small and medium-sized enterprises requires the design of architectural marketing capabilities. A market orientation culture in the form of behavior, such as customer orientation, competitor orientation, and inter-functional coordination will be the foundation on which architectural marketing capabilities can be developed that have the potential to improve business performance. Customer orientation is expected to be able to understand the target market over time in order to create customer value. The company's ability to understand customers will make it easier to meet customer needs and create value for customers. The increase in the number of customers will improve business performance. Competitor orientation is expected to obtain information about the main competitors and the potential competitors and to understand their strengths and weaknesses. Competitors can be understood by monitoring their marketing efforts, creating products that are better than theirs, responding to changes in their prices and responding quickly to their activities, which will lead to the realization of an effective and efficient architectural marketing that can have an influence on improving business performance. Inter-functional coordination is needed to integrate all the internal functions of the organization in order to facilitate coordination, and share information and resources to create value-added for the target market. Inter-functional coordination, which involves building teamwork, sharing information, collaborating in the creation of products that are better than those of the competitors, and formulating joint strategies for dealing with competitors, will lead to the realization of good architectural marketing for improving business performance.

In terms of managerial implications, SMEs that are trying to improve business performance should understand customer needs, competitors' strengths and weaknesses and good inter-functional coordination in order to design appropriate marketing strategies. Leaders must understand market changes so as to create architectural marketing designs that are appropriate to their target market. An architectural marketing capability is needed so that companies can re-arrange their marketing resources and information systems. Thus, companies have the opportunity to design, formulate, and implement marketing strategies appropriately. The results of this study are expected to contribute to the development of knowledge, especially in the field of marketing information systems and architectural marketing.

LIMITATIONS AND FUTURE RESEARCH

Study of SMEs, which have limited resources, requires special attention. A market orientation culture must be developed to design effective and efficient architectural marketing. The discussion of architectural marketing in this research still focuses on marketing planning and marketing implementation. Therefore, future research can add market information management as an architectural marketing component to be implemented in large companies. Thus, a more comprehensive approach to architectural marketing will be obtained and this will contribute to the development of the science of marketing management.

REFERENCES

Ajay K. K., & Jaworski, B. J. (1993). Market orientation: Antecendent and consequances. *Journal of Marketing, 57*(3), 53-70. doi:10.2307/1251854

Asikhia, O. (2014). Customer orientation and firm performance among Nigerian small and medium scale businesses. *International Journal of Marketing Studies, 2*(1), 197-212. doi:10.5539/ijms.v2n1p197

Asomaning, R., & Abdulai, A. (2015). An empirical evidence of the market orientation: Market performance relationship in Ghanaian small businesses. *Educational Research International,* 4(2), 69-86.

Avlonitis, G. J., & Giannopoulos, A. A. (2012). Balanced market orientation: Qualitative findings on a fragile equilibrium. *Managing Service Quality, 22*(6), 565-579. doi: 10.1108/09604521211287543

 CC BY

Aziz, N. A., & Yasin, N. M. (2014). How will market orientation and external environmnet influence the performance among SMEs in the agri-food sector in Malaysia? *International Business Research, 3*(3), 154. doi: 10.5539/ibr.v3n3p154

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management, 17*(1), 99-120. doi: 10.1177/014920639101700108

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), 1173-1182. doi: 10.1037/0022-3514.51.6.1173

Capron, L., & Hulland, J. (1999). Redeployment of brands, sales forces, and general marketing management expertise following horizontal acquisitions: A resource-based view. *Journal of Marketing, 63*(2), 41-54. doi: 10.2307/1251944

Chikwe, J. E., Biriowu, S. C., & Harcourt, P. (2018). Organizational capabilities architecture: The drivers areas sustainable hospotolity firms in South Nigeria. *Ceka International Journal of Finance & Management Sciences, 5*(2), 1-11.

Chin, C. H., Lo, M. C., & Ramayah, T. (2013). Market orientation and organizational performance: The moderating role of service quality. SAGE Open, 3(4), 1-14. doi: 10.1177/2158244013512664

Cho, H. J., & Pucik, V. (2005). Relationship between innovativeness, quality, growth, profitability, and market value. *Strategic Management Journal, 26*(6), 555-575. doi: 10.1002/smj.461

Davcik, N. S., & Sharma, P. (2016). Marketing resources, performance, and competitive advantage: A review and future research directions. *Journal of Business Research, 69*(12), 5547-5552. doi: 10.1016/j.jbusres.2016.04.169

Day, G. S. (1994). The capabilities of market-driven organizations. *Journal of Marketing, 58*(4), 37-52. https:// doi: 10.1177/002224299405800404

Day, G. S., & Wensley, R. (1988). Assessing advantage: for framework diagnosing superiority competitive. *Journal of Marketing, 52*(2), 1-20. doi: 10.1177/002224298805200201

Dubihlela, J., & Sandada, M. (2014). Impact of strategic planning on small and medium-sized enterprises' (SMEs) performance: The role of employee participation, implementation incentives and evaluation and control. *Journal of Economics, 5*(1), 45-55. doi: 10.1080/09765239.2014.11884983

Feng, T., Wang, D., Lawton, A., & Luo, B. N. (2019, July). Customer orientation and firm performance: The joint moderating effects of ethical leadership and competitive intensity. *Journal of Business Research*, *100*, 111-121. doi: 10.1016/j.jbusres.2019.03.021

Foumani, S. A., & Chirani, E. (2012). Marketing knowledge management in business organizations. *Arabian Journal of Business and Management Review, 1*(1), 44-49. doi: 10.12816/0003608

Galunic, D. C., & Rodan, S. (1998). Resource recombinations in the firm: Knowledge structures and the potential for schumpeterian innovation. *Strategic Management Journal, 19*(12), 1193-1201. doi: 10.1002/(SICI)1097-0266(1998120)19:12<1193::AID-SMJ5>3.0.CO;2-F

Gholami, S., & Birjandi, M. (2016). The effect of market orientation and entrepreneurial orientation on the performance of SMEs. *Journal of Current Research in Science, 1*(5), 361-369. doi: 10.1016/j.jbusvent.2006.05.003

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). Multivariate data analysis (7th ed.). New York, USA: Prentice Hall.

Hamdani, N. A., Susanto, T., & Maulani, G. A. F. (2018). Framework of architectural marketing capabilities in regional development bank. *International Journal of Engineering & Technology, 7*(3.25), 166-169. doi: 10.14419/ijet.v7i3.25.17539

Han, J. K., Kim, N., Han, J. K., Kim, N., & Srivastava, R. K. (1998, October). Market orientation and organizational performance: Is innovation a missing link? *Journal of Marketing, 62*(4), 30-45. doi: 10.1177/002224299806200403

Henderson, R. M., & Clark, K. B. (1990). Architectural innovation: The reconfiguration of existing product technologies and the failure of established firms. *Administrative Science Quarterly, 35*(1), 1-9. doi: 10.2307/2393549

Herman, H., Hady, H., & Arafah, W. (2018). The influence of market orientation and product innovation on the competitive advantage and its implication toward small and medium enterprises (UKM) performance. *International Journal of Science and Engineering Invention, 4*(8), 8-21. doi: 10.23958/ijsei/vol04-i08/02

Ho, K. L. P., Nguyen, C. N., Adhikari, R., Miles, M. P., & Bonney, L. (2018). Exploring market orientation, innovation, and financial performance in agricultural value chains in emerging economies. *Journal of Innovation & Knowledge, 3*(3), 154-163. doi: 10.1016/j.jik.2017.03.008

Hwang, Y. I., & Chung, S. (2018). Market orientation, social responsibility, and performance in Korea's healthcare industry. *International Journal of Healthcare Management, 11*(4), 325-332. doi: 10.1080/20479700.2017.1404728

Idrus, S. Al, Ahmar, A. S., & Abdussakir, A. (May, 2018). Contribution of organizational learning and market orientation on business unit performance mediated by job satisfaction at dairy cattle milk cooperatives in East Java, Indonesia. *Journal of Reviews on Global Economics, 7*, 207-216. doi: 10.6000/1929-7092.2018.07.19

Javidan, M. (1998). Core competence: What does it mean in practice? *Long Range Planning, 31*(1), 60-71. doi: 10.1016/s0024-6301(97)00091-5

Kanovska, L., & Tomaskova, E. (2012). Interfunctional coordination at hi-tech firms. *Enzinerine Ekonomika-Enginering Economic, 23*(1), 70-76. doi: 10.5755/j01.ee.23.1.1224

Kaswuri, A.H., Ramayah, M. A., & Aldakhil, T. A. M.. (2017). The effect of market orientation as a mediating variable in the relationship between entrepreneurial orientation and SMEs performance. *Nankai Business Review International, 8*(4), 404-423. doi: 10.1108/NBRI-10-2016-0035

Kharabsheh, R., Jarrar, K., & Simenonva, B. (2014). The impact of competitive strategies on responsive market orientation, proactive market orientation, learning orientation and organizational performance. *Journal of Strategic Marketing, 23*(5), 1-13. https://doi 10.1080/0965254X.2014.970217

Jaworski, B. J., & Kohli, A. K. (1993). Market orientation: Antecendents and consequences. *Journal of Marketing, 57*(3), 53-70. doi:10.2307/1251854

Lee, Y. K., Kim, S. H., Seo, M. K., & Hight, S. K. (2015, January). Market orientation and business performance: Evidence from franchising industry. *International Journal of Hospitality Management, 44*, 28-37. doi: 10.1016/j.ijhm.2014.09.008

Lukas, B. A., & Ferrell, O. C. (2000). The effect of market orientation on product innovation. *Journal of the Academy of Marketing Science, 28*(2), 239-247. doi: 10.1177/0092070300282005

Mamun, A. Al, Mohiuddin, M., Fazal, S. A., & Ahmad, G. B. (2018). Effect of entrepreneurial and market orientation on consumer engagement and performance of manufacturing SMEs. *Management Research Review, 41*(1), 133-147. doi: 10.1108/MRR-04-2017-0102

Micheels, E. T., & Gow, H. R. (2008). Market orientation, innovation and entrepreneurship: An empirical examination of the Illinois beef industry. *International Food and Agribusiness Management Review, 11*(3), 1-26. doi: 10.22004/ag.econ.53649

Mohsen, K. (2013, September). Enhancing Inter functional coordination and marketing performance: utilization of the motivation/ability/opportunity framework. EBS Working Papers WP2013-9, University of Essex, Colchester.

Mokwa, M. P., McKee, D. O., Varadarajan, P. P., & Conant, J. S. (1992). Success procedur and failure preventer marketing skill: A social learning theory interpretation. *Journal of the Academy of Marketing Science, 20*(1), 17-26. Retrieved from http://hjb.sagepub.com.proxy.lib.umich.edu/content/9/2/183.full.pdf+html

Moorman, C., & Slotegraaf, R. J. (1999). The contingency value of complementary capabilities in product development. *Journal of Marketing Research, 36*(2), 239-257. doi: 10.2307/3152096

Morgan, N. A. (2012). Marketing and business performance. *Journal of the Academy of Marketing Science, 40*(1), 102-119. https://doi.org/10.1007/s11747-011-0279-9

Morgan, N. A., Slotegraaf, R. J., & Vorhies, D. W. (2009). Linking marketing capabilities with profit growth. *International Journal of Research in Marketing, 26*(4), 284-293. https://doi.org/10.1016/j.ijresmar.2009.06.005

Narver, J. C., & Slater, S. F. (1990). The effect of a market orientation on business profitability. *Journal of Marketing. 54*(4), 20-35. doi: 10.1177/002224299005400403

Neneh, B. N. (2018). Customer orientation and SME performance: The role of networking ties. *African Journal of Economic and Management Studies, 9*(2), 178-196. https://doi.org/10.1108/AJEMS-03-2017-0043

Nduriri, M. W., & Namusonge, D. M. (2017). Market orientation, entrepreneurial orientations and performance SMEs hotel in Nanyuky Town Kenya. Europenan Journal of Business and Strategic Management, 2(1), 1-14. Retrieved from https://www.iprjb.org/journals/index.php/EJBSM/article/view/239

Nuryakin, N., Didiek A. V., & Budi, M. (2018). Mediating effect of value creation in the relationship between relational capabilities on business performance. *Contaduría y Administración, 63*(1), 1-21. doi: 10.22201/fca.24488410e.2018.1178

O'Cass, A., Ngo, L. V., & Siahtiri, V. (2012). Examining the marketing planning-marketing capability interface and customer-centric performance in SMEs. *Journal of Strategic Marketing, 20*(6), 463-481. doi: 10.1080/0965254X.2012.707675

Ogbonna, B., & Ogwo, O. E. (2013). Market orientation and corporate performance of insurance firms in Nigeria. *International Journal of Marketing Studies, 5*(3), 104-116. doi: 10.5539/ijms.v5n3p104

Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2012). Sources of method bias in social science research and recommendations on how to control it. *Annual Review of Psychology, 63*(1), 539-569. doi: 10.1146/annurev-psych-120710-100452

Rahman, N. R. A., Othman, M. Z. F., Yajid, M. S. A., Rahman, S. F. A., Yaakob, A. M., Masri, R., & Ibrahim, Z. (2018). Impact of strategic leadership on organizational performance, strategic orientation and operational strategy. *Management Science Letters, 8*(12), 1387-1398. doi: 10.5267/j.msl.2018.9.006

Sadikoglu, E., & Zehir, C. (2010). Investigating the effects of innovation and employee performance on the relationship between total quality management practices and firm performance: An empirical study of Turkish firms. *International Journal of Production Economics, 127*(1), 13-26. doi: 10.1016/j.ijpe.2010.02.013

Seifi, R., & Dalvi, M. R. (2014). A study of effects of specialized marketing capabilities on performance marketing unit based on Morgan et al. case: Past industry in Tehran. *International Journal of Academic Research in Economics and Management Sciences, 3*(1), 441-451. doi: 10.6007/ijarems/v3-i1/601

Slotegraaf, R. J., & Dickson, P. R. (2004). The paradox of a marketing planning capability. *Journal of the Academy of Marketing Science, 32*(4), 371-385. doi: 10.1177/0092070304265217

Song, M., Parry, M. E., & Ferna, P. (2010, May). Perspective: Cross-functional integration in Spanish firms. *Journal Production Innovation Management, 27,* 606-615. https://doi.org/10.1111/j.1540-5885.2010.00738.x

Song, X. M., Xie, J., & Dyer, B. (2000). Antecedents and consequences of marketing managers' conflict-handling behaviors. *Journal of Marketing, 64*(1), 50-65. doi: 10.1509/jmkg.64.1.50.17989

Stam, W., Arzlanian, S., & Elfring, T. (2014). Social capital of entrepreneurs and small firm performance: A meta-analysis of contextual and methodological moderators. *Journal of Business Venturing, 29*(1), 152-173. doi: 10.1016/j.jbusvent.2013.01.002

 CC BY

Suleiman, A. M., & Agti, D. A. M. (2011). The impact of internal marketing on commercial banks' market orientation. *International Journal of Bank Marketing, 29*(4), 308-332. doi: 10.1108/02652321111145943

Suliyanto, S., & Rahab, R. (2012). The role of market orientation and learning orientation in improving innovativeness and performance of small and medium enterprises. *Asian Social Science, 8*(1), 134-145. doi: 10.5539/ass.v8n1p134

Taofik, B., Halim, F., & Ibrahim, A. (2018). The relationship between market orientation dimensions and performance of micro finance institutions. *Journal of Marketing Management and Consumer Behavior, 12*(3), 1-14. doi:10.24052/jbrmr/v12is03/art-11

Trez, G., & Luce, F. B. (2012). Organizational structure and specialized marketing capabilities in SMEs. *Marketing Intelligence and Planning, 30*(2), 143-164. doi: 10.1108/02634501211211957

Udriyah, U., Tham, J., & Azam, S. (2019). The effects of market orientation and innovation on competitive advantage and business performance of textile SMEs. *Management Science Letters, 9*(9), 1419-1428. doi: 10.5267/j.msl.2019.5.009

Vorhies, D. W., Harker, M., & Rao, C. P. (1999). The capabilities and performance advantages of market-driven firms. *European Journal of Marketing, 33*(11/12), 1171-1202. doi: 10.1108/03090569910292339

Vorhies, D. W., & Morgan, N. A. (2003). A configuration theory assessment of marketing organization fit with business strategy and its relationship with marketing performance. *Journal of Marketing, 67*(1), 100-115. doi: 10.1509/jmkg.67.1.100.18588

Vorhies, D. W., & Morgan, N. A. (2005). Benchmarking marketing capabilities for sustainable competitive advantage. *Journal of Marketing, 69*(1), 80-94. doi: 10.1509/jmkg.69.1.80.55505

Wang, C., Chen, K., & Chen, S. (2012). Total quality management, market orientation and hotel performance: The moderating effects of external environmental factors. *International Journal of Hospitality Management, 31*(1), 119-129. doi: 10.1016/j.ijhm.2011.03.013

Wang, G., & Miao, C. F. (2015). Effects of sales force market orientation on creativity, innovation implementation, and sales performance. *Journal of Business Research, 68*(11), 2374-2382. doi: 10.1016/j.jbusres.2015.03.041

AUTHORS' CONTRIBUTION

Mulyana Mulyana worked on the conceptualization and theoretical-methodological approach. The theoretical review was conducted by Zainuddin Zakaria. Data collection was coordinated by Rosman Mahmood. Data analysis included Mulyana Mulyana, Zainuddin Zakaria, and Rosman Mahmood. All authors worked together in the writing and final revision of the manuscript.

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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.*

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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.

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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

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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).

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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.

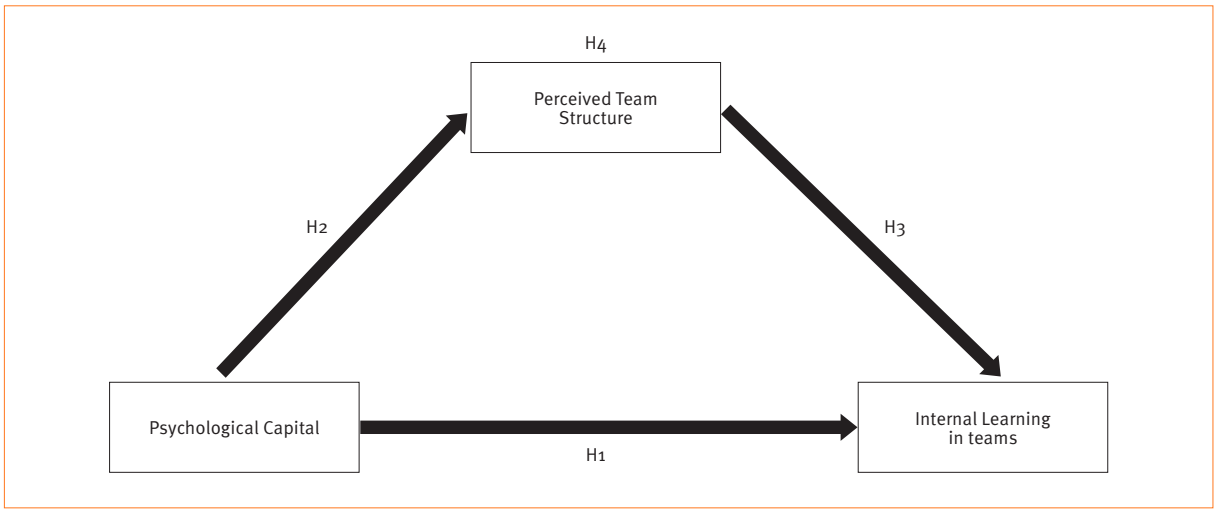
In line with this, we argue that the perceived team structure functions as a mediating mechanism, linking psychological capital to student learning. Although there is little evidence of the effect of psychological capital on internal learning by way of the perceived team structure, there is increasing 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.

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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 αs 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.

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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 (λ ≥0.30) and appropriate individual reliabilities (r2≥0.10). The final model has excellent adjustment indices* (c^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 (λ ≥0.40) and appropriate individual reliabilities (r2≥0.16). The final model has good adjustment indices c^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 (λ ≥0.40) and appropriate individual reliabilities (r2≥0.16). The final model has excellent adjustment indices (c^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 (c^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.

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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 αs (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).

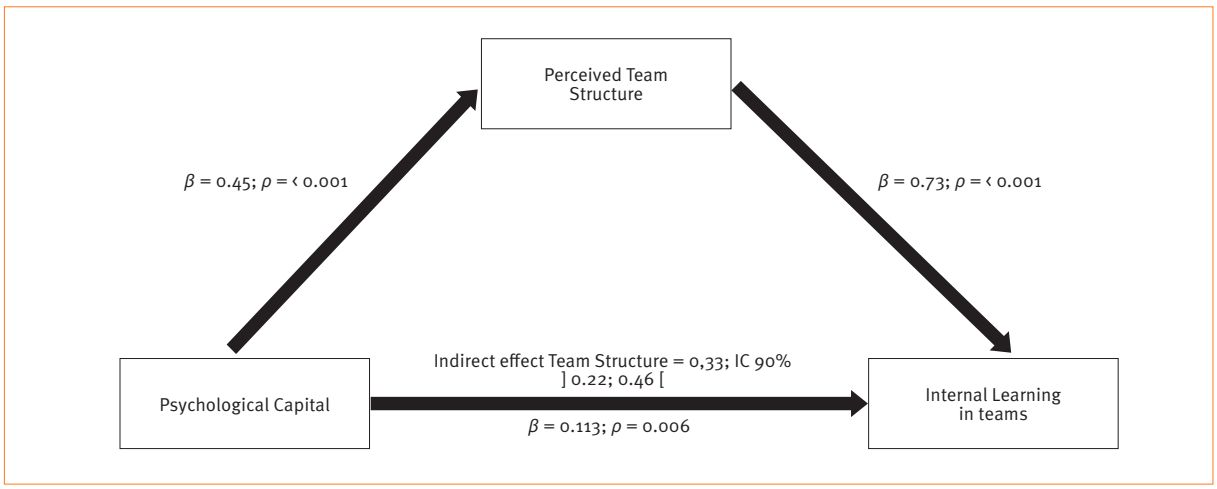
The model fit without the common method factor produced the following adjustment indices: ($c^2(422)$ = 663.455, r ‹0.001; TLI = 0.901; CFI = 0.911; GFI = 0.918; SRMR = 0.049; RMSEA = 0.035). While the inclusion of the common method factor only slightly improved the model fit in certain indices, the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

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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 (Rebelo, 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).

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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 (x2): p-value ≤ 0,05.
- Goodeness 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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REFERENCES

Alessandri, G., Consiglio, C., Luthans, F., & Borgogni, L. (2018). Testing a dynamic model of the impact of psychological capital on work engagement and job performance. *Career Development International, 23*(1), 33-47. doi:10.1108/CDI-11-2016-0210

Argote, L., & Miron-Spektor, E. (2011). Organizational learning: From experience to knowledge. *Organization Science, 22*(5), 1123-1137. doi:10.1287/orsc.1100.0621

Avey, J. B. (2014). The left side of psychological capital: New evidence on the antecedents of PsyCap. *Journal of Leadership and Organizational Studies, 21*(2), 141-149. doi:10.1177/1548051813515516

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

Badran, M. A., & Youssef-Morgan, C. M. (2015). Psychological capital and job satisfaction in Egypt. *Journal of Managerial Psychology, 30*(3), 354-379. doi:10.1108/JMP-06-2013-0176

Bandura, A. (1982). Self-efficacy mechanism in human agency. American Psychologist, 37(2), 122–147. doi:10.1037/0003-066X.37.2.122

Bresman, H. (2010). External learning activities and team performance: A multimethod field study. *Organization Science, 21*(1), 81-96. doi:10.1287/orsc.1080.0413

Bresman, H., & Zellmer-Bruhn, M. (2013). The structural context of team learning: Effects of organizational and team structure on internal and external learning. *Organization Science, 24*(4), 1120-1139. doi:10.1287/orsc.1120.0783

Bunderson, J. S., & Boumgarden, P. (2010). Structure and learning in self-managed teams: Why "bureaucratic" teams can be better learners. *Organization Science, 21*(3), 609-624. doi:10.1287/orsc.1090.0483

Bunderson, J. S., & Reagans, R. E. (2011). Power, status, and learning in organizations. *Organization Science, 22*(5), 1182-1194. doi:10.1287/orsc.1100.0590

Chen, D. J., & Lim, V. K. (2012). Strength in adversity: The influence of psychological capital on job search. *Journal of Organizational Behavior, 33*(6), 811-839. doi:10.1002/job.1814

Choi, Y., & Lee, D. (2014). Psychological capital, Big Five traits, and employee outcomes. *Journal of Managerial Psychology, 29*(2), 122-140. doi:10.1108/JMP-06-2012-0193

Crawford, E. R., & Lepine, J. A. (2013). A configural theory of team processes: Accounting for the structure of taskwork and teamwork. *Academy of Management Review, 38*(1), 32-48. doi:10.5465/amr.2011.0206

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Daspit, J. J., Mims, T. C., & Zavattaro, S. M. (2015). The role of positive psychological states in online learning: Integrating psychological capital into the community of inquiry framework. *Journal of Management Education, 39*(5), 626-649. doi:10.1177/1052562914564980

Datu, J. A., & Valdez, J. P. (2019). Psychological capital is associated with higher levels of life satisfaction and school belongingness. *School Psychology International, 1*(1), 1-16. doi:10.1177/0143034319838011

Dawkins, S., Martin, A., Scott, J., & Sanderson, K. (2013). Building on the positives: A psychometric review and critical analysis of the construct of psychological capital. *Journal of Occupational and Organizational Psychology, 86*(3), 348-370. doi:10.1111/joop.12007

Edmondson, A. (1999). Psychological safety and learning behavior in work teams. *Administrative Science Quarterly, 44*(2), 350-383. doi:10.2307/2666999

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39-50. doi:10.2307/3151312

Goertzen, B. J., & Whitaker, B. L. (2015). Development of psychological capital in an academic-based leadership education program. *Journal of Management Development, 34* (7), 773–786. doi:10.1108/jmd-07-2013-0100

Hair, J., Anderson, R., Tatham, R. L., & Black, W. C. (1995). *Multivariate data analysis*. Englewood Cliffs, NJ: Prentice-Hall.

Han, Y., Brooks, I., Kakabadse, N. K., Peng, Z., & Zhu, Y. (2012). A grounded investigation of Chinese employees' psychological capital. *Journal of Managerial Psychology, 27*(7), 669-695. doi:10.1108/02683941211259511

Harms, P. D., Krasikova, D. V., & Luthans, F. (2018). Not me, but reflects me: Validating a simple implicit measure of psychological capital. *Journal of Personality Assessment, 100* (5), 1-12. doi:10.1080/00223891.2018.1480489

Harms, P. D., & Luthans, F. (2012). Measuring implicit psychological constructs in organizational behavior: An example using psychological capital. *Journal of Organizational Behavior, 33*(4), 589-594. doi:10.1002/job.1785

Heled, E., Somech, A., & Waters, L. (2015). Psychological capital as a team phenomenon: Mediating the relationship between learning climate and outcomes at the individual and team levels. *The Journal of Positive Psychology, 11*(3), 303–314. doi :10.1080/17439760.2015.1058971

Herrmann, K. J. (2013). The impact of cooperative learning on student engagement: Results from an intervention. *Active Learning in Higher Education, 14*(3), 175-187. doi:10.1177/1469787413498035

Huang, L., & Luthans, F. (2014). Toward better understanding of the learning goal orientationn–creativity relationship: The role of positive psychological capital. *Applied Psychology, 64*(2), 444-472. doi:10.1111/apps.12028

Jansen, J. J., Kostopoulos, K. C., Mihalache, O. R., & Papalexandris, A. (2016). A socio-psychological perspective on team ambidexterity: The contingency role of supportive leadership behaviours. *Journal of Management Studies, 53*(6), 939-965. doi:10.1111/joms.12183

Jehn, K. A. (1995). A multimethod examination of the benefits and detriments of intragroup conflict. *Administrative Science Quarterly, 40*(2), 256-282. doi:10.2307/2393638

Jiang, Y., Jackson, S. E., & Colakoglu, S. (2015). An empirical examination of personal learning within the context of teams. *Journal of Organizational Behavior, 37*(5), 654-672. doi:10.1002/job.2058

Kayes, A. B., Kayes, D. C., & Kolb, D. A. (2005). Experiential learning in teams. *Simulation & Gaming, 36*(3), 330-354. doi:10.1177/1046878105279012

King, D. D., Newman, A., & Luthans, F. (2015). Not if, but when we need resilience in the workplace. *Journal of Organizational Behavior, 37*(5), 782-786. doi:10.1002/job.2063

Kostopoulos, K. C., Spanos, Y. E., & Prastacos, G. P. (2013). Structure and function of team learning emergence: A multilevel empirical validation. *Journal of Management, 39*(6), 1430-1461. doi:10.1177/0149206311419366

Krasikova, D. V., Lester, P. B., & Harms, P. D. (2015). Effects of psychological capital on mental health and substance abuse. *Journal of Leadership & Organizational Studies, 22*(3), 280-291. doi:10.1177/1548051815585853

Lee, S., Kwon, S., Shin, S. J., Kim, M., & Park, I.-J. (2018). How team-level and individual-level conflict influences team commitment: A multilevel investigation. *Frontiers in Psychology, 8*(1), 1-13. doi:10.3389/fpsyg.2017.02365

Lohr, S. (1999). Sampling: Design and analysis. Pacific Grove, CA: Duxbury Press.

Luthans, B. C., & Luthans, K. W. (2014). Building the leaders of tomorrow: The development of academic psychological capital. *Journal of Leadership & Organizational Studies, 20*(10), 191-199. doi:10.1177/1548051813517003

Luthans, B. C., Luthans, K. W., & Jensen, S. M. (2012). The impact of business school students' psychological capital on academic performance. *Journal of Education for Business, 87*(5), 253-259. doi:10.1080/08832323.2011.609844

Luthans, F. (2012). The need for and meaning of positive organizational behavior. *Journal of Organizational Behavior, 23*(6), 695-706. doi:10.1108/CDI-11-2016-0210

Luthans, F., Avey, J. B., Avolio, B. J., Norman, S. M., & Combs, G. M. (2006). Psychological capital development: Toward a micro-intervention. *Journal of Organizational Behaviour, 27*(3), 387-393. doi:10.1002/job.373

Luthans, F., Avey, J. B., Avolio, B. J., & Peterson, S. J. (2010). The development and resulting performance impact of positive psychological capital. *Human Resource Development Quarterly, 21*(1), 41-67. doi:10.1002/hrdq.20034

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., & Youssef-Morgan, C. M. (2017). Psychological capital: An evidence-based positive approach. *Annual Review of Organizational Psychology and Organizational Behavior, 4*(1), 339-366. doi:10.1146/annurev-orgpsych-032516-113324

Luthans, K. W., Luthans, B. C., & Chaffin, D. (2018). Refining grit in academic performance: The mediational role of psychological capital. *Journal of Management Education, 43*(1), 1-27. doi:10.1177/1052562918804282

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Luthans, K. W., Luthans, B. C., & Palmer, N. F. (2016). A positive approach to management education: The relationship between academic PsyCap an student engagement. *Journal of Management Development, 35*(9), 1-22. doi:10.1108/JMD-06-2015-0091

Mathieu, J. E., Tannenbaum, S. I., Donsbach, J. S., & Alliger, G. M. (2014). A review and integration of team composition models: Moving toward a dynamic and temporal framework. *Journal of Management, 40*(1), 130-160. doi:10.1177/0149206313503014

Newman, A., Ucbasaran, D., Zhu, F., & Hirst, G. (2014). Psychological capital: A review and synthesis. *Journal of Organizational Behavior, 35*(1), 120-138. doi:10.1002/job.1916

Nielsen, I., Newman, A., Smyth, R., Hirst, G., & Heilemann, B. (2016). The influence of instructor support, family support and psychological capital on the well-being of postgraduate students: A moderated mediation model. *Studies in Higher Education, 42*(11), 2099-2115. doi:10.1080/03075079.2015.1135116

Nigah, N., Davis, A. J., & Hurrell, S. A. (2012). The impact of buddying on psychological capital, work engagement and turnover intentions: An empirical study of socialization in the professional services sector. *Thunderbird International Business Review, 54*(6), 891-905. doi:10.1002/tie.21510

Noe, R. A., Clarke, A. D., & Klein, H. J. (2014). Learninginthe twenty-first century workplace. *Annual Review of Psychology, 9*(1), 245-275. doi:10.1146/annurevannurevorgpsych-031413-091321

Nwanzu, C. L., & Babalola, S. S. (2019). Examining psychological capital of optimism, self-efficacy and self-monitoring as predictors of attitude towards organizational change. *International Journal of Engineering Business Management, 11*(1), 1-12. doi:10.1177/1847979019827149

Ortega-Maldonado, A., & Salanova, M. (2017). Psychological capital and performance among undergraduate students: The role of meaning-focused coping and satisfaction. *Teaching in Higher Education, 23*(3), 390-402. doi:10.1080/13562517.2017.1391199

Ouweneela, E., Blanca, P. M., & Schaufeli, W. B. (2011). Flourishing students: A longitudinal study on positive emotions, personal resources, and study engagement. *Journal of Positive Psychology, 6*(2), 142-153. doi:10.1080/17439760.2011.558847

Peterson, S. J., Luthans, F., Avolio, B. J., Walumbwa, F. O., & Zhang, Z. (2011). Psychological capital and employee performance: A latent growth modeling approach. *Personnel Psychology, 64*(2), 427-450. doi: 10.1111/j.1744-6570.2011.01215.x

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

Rebelo, T., Dimas, I. D., Lourenço, P. R., & Palácio, Â. (2018). Generating team PsyCap through transformational leadership. *Team Performance Management: An International Journal, 24*(7/8), 363-379. doi:10.1108/tpm-09-2017-0056

Richardson, H. A., Simmering, M. J., & Sturman, M. C. (2009). A tale of three perspectives. *Organizational Research Methods, 12*(4), 762-800. doi:10.1177/1094428109332834

Salas, E., Shuffler, M. L., Thayer, A. L., Bedwell, W., & Lazzara, E. H. (2014). Understanding and improving teamwork in organizations: A scientifically based practical guide. *Human Resource Management, 54*(4), 599-622. doi:10.1002/hrm.21628

Schaubroeck, J., Carmeli, A., Bhatia, S., & Paz, E. (2016). Enabling team learning when members are prone to contentious communication: The role of team leader coaching. *Human Relations, 69*(8), 1709-1727. doi:10.1177/0018726715622673

Siu, O. L., Bakker, A. B., & Jiang, X. (2014). Psychological capital among university students: Relationships with study engagement and intrinsic motivation. *Journal of Happiness Studies, 15*(4), 979-994. doi:10.1007/s10902-013-9459-2

Schneider, M., & Preckel, F. (2017). Variables associated with achievement in higher education: A systematic review of meta-analyses. *Psychological Bulletin, 143*(6), 565–600. doi:10.1037/bul0000098

Song, J. H., Lim, D. H., Kang, I. G., & Kim, W. (2014). Team performance in learning organizations: Mediating effect of employee engagement. *Learning Organization, 21*(5), 290-309. doi:10.1108/TLO-07-2012-0049

Stajkovic, A. D., & Luthans, F. (1998). Self-efficacy and work-related performance: A meta-analysis. *Psychological Bulletin, 124*(2), 240-261. doi:10.1037/0033-2909.124.2.240

Walumbwa, F. O., Luthans, F., Avey, J. B., & Oke, A. (2011). Authentically leading groups: The mediating role of collective psychological capital and trust. *Journal of Organizational Behavior, 32*(1), 4-24. doi:10.1002/job.653

Westland, C. J. (2010). Lower bounds on sample size in structural equation modeling. *Electronic Commerce Research and Applications, 9*(6), 476-487. doi:10.1016/j.elerap.2010.07.003

Williams, L. J., Hartman, N., & Cavazotte, F. (2010). Method Variance and Marker Variables: A Review and Comprehensive CFA Marker Technique. *Organizational Research Methods, 13*(3), 477–514. doi:10.1177/1094428110366036

Yoon, J., & Kayes, C. (2016). Employees' self-efficacy and perception of individual learning in teams: The cross-level moderating role of team-learning behavior. *Journal of Organizational Behavior, 37*(7), 1044-1060. doi:10.1002/job.2092

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.

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THE EFFECT OF THE DIVERSITY OF INTERORGANIZATIONAL PARTNERS ON PRODUCT INNOVATION

El efecto de la diversidad de socios de relaciones interorganizacionales en la innovación de productos
Efeito da diversidade de parceiros de relações Interorganizacionais na inovação de produtos

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ABSTRACT

This paper analyzes the impact on product innovation of different types of interorganizational relationship partners. An empirical contrast with data taken from the Spanish Technological Innovation Panel (based on Eurostat's Community Innovation Survey) shows that diversity in the types of partners involved in interorganizational relationships has a positive effect on product innovation. In particular, increased benefits can be achieved in the innovation of goods when there is diversity in the relationships that exist between business partners (customers and suppliers); and in service innovation when there is diversity in the relationships between non-industrial partners (consultants, universities and research entities). Finally, given the results it is not possible to state that a lot of diversity reduces the returns on innovation.

KEYWORDS | Product innovation, diversity, interorganizational relationships, goods innovation, service innovation.

RESUMEN

El objetivo de este estudio es analizar el impacto de la diversidad del tipo de socios en las relaciones interorganizacionales en la innovación de productos. La contrastación empírica con datos del Panel de Innovación Tecnológica de España muestra que la diversidad de tipos de socios en las relaciones interorganizacionales influye positivamente en la innovación de productos. En concreto, se pueden obtener mayores beneficios en la innovación de bienes cuando hay diversidad de relaciones entre socios comerciales (clientes y proveedores); y en la innovación de servicios con diversidad de relaciones entre socios no industriales (consultores, universidades y entidades de investigación). Finalmente, los resultados no permiten afirmar que mucha diversidad produce rendimientos decrecientes en la innovación.

PALABRAS CLAVE */ innovación de producto, diversidad, relaciones interorganizacionales, innovación de bienes, innovación de servicios.*

RESUMO

O objetivo deste estudo é analisar o impacto da diversidade do tipo de parceiros nas relações interorganizacionais em inovação de produtos. A aplicação empírica com dados do Painel de Inovação Tecnológica da Espanha mostra que a diversidade de tipos de parceiros nas relações interorganizacionais influencia positivamente a inovação de produtos. Em particular, pode-se ter maiores benefícios para a inovação em bens quando existem relações diversas entre parceiros comerciais (clientes e fornecedores); e inovação em serviços quando a diversidade de relacionamentos ocorre entre parceiros não industriais (consultores, universidades e entidades de pesquisa). Finalmente, os resultados não permitem afirmar que muita diversidade produz retornos decrescentes de inovação.

PALAVRAS-CHAVE */ inovação de produtos, diversidade, relacionamentos interorganizacionais, inovação de bens, inovação de serviços.*

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INTRODUCTION

To survive and be competitive, companies must innovate (Belderbos, Gilsing, Lokshin, Carree, & Sastre, 2018). As not all of them have the resources, capabilities or knowledge internally to do so (Schoenmakers & Duysters, 2006), they resort to interorganizational relationships (IRs) to acquire them (Beers & Zand, 2014; Belderbos *et al.*, 2018; Das & Teng, 2000). IRs are collaboration agreements that a company maintains with different strategic partners with the purpose of exchanging or sharing resources. The literature shows that these have a positive and significant effect on product innovation (PI), allowing companies to combine and complement their resources and capabilities with those of their partners (Faems, Looy, & Debackere, 2005). Hence, there is a growing interest in studying IRs and their impact on PI (Belderbos, Carree, Lokshin, & Sastre, 2015; Silva & Leitão, 2009).

In order to innovate, companies need to cooperate with different types of partners, such as clients, suppliers, competitors, companies in the same group, and research institutions in order to achieve different objectives through the mutual transfer of various types of knowledge (Arranz & Arroyabe, 2008). However, each type of partner contributes to innovation in different ways (Belderbos, Carree, & Lokshin, 2004; Bogers, Afuah, & Bastian, 2010; Leeuw, Lokshin, & Duysters, 2014; Nieto & Santamaría, 2007; Story, O'Malley, & Hart, 2011). Recent literature highlights the importance of collaborating with different types of partners, and of appropriately managing the company's alliance portfolio (Hagedoorn, Lokshin, & Zobel, 2018). Most of the previous studies have focused on how diverse the partners are and looked at the variety or wide range of partners simply regarding their difference in numbers (Belderbos *et al.*, 2018; Kobarg, Stumpf-Wollersheimb, & Welpe, 2019; Nieto & Santamaría, 2007). The diversity among these partners has hardly ever been analyzed from a perspective that focuses on their heterogeneity.

In this study, IR diversity refers to the degree of heterogeneity between the different types of strategic partners with which companies interact (Hagedoorn *et al.*, 2018). This heterogeneity depends on the differences between the partners, which is derived from whether the relationship is vertical or horizontal, competitive or complementary, or on the objective of the company for having a relationship with each type of partner (Beck & Schenker-Wicki, 2014; Beers & Zand, 2014; Belderbos *et al.*, 2018). A key factor when assessing the effect of IR diversity on innovation, therefore, is knowing the types of partners with which the company cooperates (Lee, Kirkpatrick-Husk, & Madhavan, 2017; Nieto & Santamaría, 2010). The empirical evidence for this, however, in addition to being scarce, is inconclusive (Hagedoorn *et al.*, 2018; Lee *et al.*, 2017). Some studies find that the degree of diversity of the types of partners has a positive influence on innovation, while in others it is seen as negative, or non-linear (Beck & Schenker-Wicki, 2014; Beers & Zand, 2014; Kobarg *et al.*, 2019; Leeuw *et al.*, 2014; Meyskens & Carssrud, 2013).

Given the high-level importance of cooperation with different types of partners in product innovation (Hagedoorn *et al.*, 2018), and the need to provide more specific knowledge and empirical evidence of the effect of the diversity of these partners on innovation, the objective of this study is to analyze the impact of the diversity of types of IR partners on PI. With this in mind, the main novel aspects of this work are, its study of the effect of IR diversity on PI with respect to the heterogeneity between the different types of partners, and the proposal that there are three groups of strategic partners. These are: non-industrial partners (research institutions and consultants); industrial partners (companies in the same group, and competitors); and commercial partners (customers and suppliers) (Ardito, Petruzzelli, & Albino, 2015; Silva & Leitão, 2009). Companies choose their strategic partners depending on the type of knowledge they want to acquire, and each of these partner groups contributes different knowledge to PI (Ardito *et al.*, 2015; Story *et al.*, 2011; Wagner & Hoegl, 2006). With this analysis of the impact of

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the diversity of the different types of strategic partners on PI, this work first provides a foundation and evidence for the literature on IR diversity in the absence of any conclusive results therein (Hagedoorn *et al.*, 2018; Lee *et al.*, 2017). Second, it studies not only the linear relationship in innovation, but also the inverted U-shaped relationship that exists between IR diversity and innovation for each of the strategic partner groups (Beck & Schenker-Wicki, 2014; Kobarg *et al.*, 2019; Leeuw *et al.*, 2014). This means that even though IR diversity is favorable to innovation, as it increases the company may not obtain the expected positive results (Hagedoorn *et al.*, 2018; Lee *et al.*, 2017). Finally, this study also provides additional new empirical evidence using the Spanish Technological Innovation Panel.

To achieve the research objective a literature review is first presented, followed by the methodology and variable measurements. Finally, the results and conclusions, future research lines, and the study's limitations are set out.

THEORETICAL FRAMEWORK AND HYPOTHESES

An important source of competitive edge is a company's ability to create and maintain valuable IRs (Lavie, 2006) in order to access knowledge from its partners, thus improving its innovative activities and developing new products and services (Das & Teng, 2000; Martinez-Noya & Narula, 2018; Miotti & Sachwald, 2003; Schoenmakers & Duysters, 2006).

PI is a knowledge-intensive activity that requires going beyond the company's walls to acquire the necessary insights (Ozer & Zhang, 2015). If a company has relationships with different types of strategic partners (customers, suppliers, competitors, and research institutions), it will be able to obtain the new and complementary knowledge, information, and synergies (Beers & Zand, 2014; Nieto & Santamaría, 2007) that favor learning and the development of new products, as well as their introduction in the market (Kobarg *et al.*, 2019; Lavie, 2009). Having access to more knowledge because of partner diversity and mutual collaboration provides the company with the skills needed to innovate and improve its competitive edge (Beck & Schenker-Wicki, 2014; Burg, Berends, & Raaij, 2014; Kobarg *et al.*, 2019; Lee *et al.*, 2017; Meyskens & Carssrud, 2013). Conversely, when there is little diversity and the interrelationships are always with the same partners, the consequent isomorphism reduces access to new opportunities (Uzzi, 1997). With Hypothesis 1, therefore, we propose that the degree of diversity of the partners with which the company collaborates (Beers & Zand, 2014; Duysters & Lokshin, 2011; Jiang, Qingjiu, & Santoro, 2010) will have a positive effect on innovation.

H1: Partner diversity in IRs favors PI.

The type of partner is of great relevance (Nieto & Santamaría, 2010; Tether, 2002). The company seeks to benefit from diversity by choosing those partners that make it easier for it to innovate (Leeuw *et al.*, 2014), so they choose their strategic partners based on certain factors (Miotti & Sachwald, 2003; Tether, 2002), such as knowledge and skills complementarity (Mowery, Oxley, & Silverman, 1996), previous experience (Wagner & Hoegl, 2006), strategic compatibility – the affinity of their strategic and competitive objectives - and organizational compatibility – similar management styles, company culture, etc. (Emden, Calantone, & Droge, 2006). The literature classifies partner types into three categories: business partners (customers and suppliers), industrial partners (competitors and companies in the same group**),** and non-industrial partners (consultants, universities and other research institutions) (Ardito *et al.*, 2015; Arranz & Arroyabe, 2008; Belderbos *et al.*, 2018; Silva & Leitão,

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2009). Each of them contributes different knowledge to PI (Ardito *et al.*, 2015; Story *et al.*, 2011; Wagner & Hoegl, 2006). Previous literature has only studied the effect of cooperating with each one of them individually, or in the previously mentioned groups in innovation (Nieto & Santamaría, 2007). Our objective is to investigate how the degree of diversity in each group affects PI.

Previous literature recognizes that IRs with business partners (customers and suppliers) (Mowery *et al.*, 1996) make it easy to access the new technologies, experiences, and knowledge that are needed to develop new products. (Bogers *et al.*, 2010; Romijn & Albaladejo, 2002; Tether, 2002). Customers can offer insights into new market trends and potential new product applications (Burg *et al.*, 2014; Ozer & Zhang, 2015). This type of relationship favors PI because the company obtains or gathers more information to better satisfy their specific tastes and needs (Miotti & Sachwald, 2003), especially if these products are new to the market (Ashok, Narula & Martínez-Noya, 2016; Belderbos *et al.*, 2004; Nieto & Santamaría, 2007; Tether, 2002). On the other hand, supplier relationships can be beneficial because of the operational knowledge they offer, as well as access to specialized and complementary assets, which are important aspects that help improve product quality and efficiency, protect innovative technologies or designs, and improve production processes and costs, and reduce risks (Burg *et al.*, 2014; Faems *et al.*, 2005; Ledwith & Coughlan, 2005; Miotti & Sachwald, 2003; Nieto & Santamaría, 2007; Ozer & Zhang, 2015). Likewise, for companies, maintaining relationships with both strategic partners (customers and suppliers) allows their new products to be marketed quicker and more efficiently, thereby increasing sales and leading to further innovations (Rosenzweig, Roth, & Dean, 2003). The following hypothesis analyzes the positive effect of diversity when maintaining IRs with business partners (customers and suppliers) in innovation:

> H1a: The diversity of the IRs with customers and suppliers favors IP.

Regarding those partners with which a corporate or competitive connection is shared (companies in the same group or competitors, respectively), the diversity of the IRs becomes beneficial because it enables uncertainty, research costs and risks to be shared, whilst at the same time allowing for easier access to necessary complementary assets, resources, and knowledge (Belderbos *et al.*, 2004; Burg *et al.*, 2014; Emden *et al.*, 2006; Nieto & Santamaría, 2007) for achieving a better position in the market (Ardito *et al.*, 2015; Belderbos *et al.*, 2018). One can learn about the characteristics, design and marketing of new alternative products from rivals (Ozer & Zhang, 2015). Cooperating with companies in the same group helps with complementary information from the same or related sectors when there is a complementary and horizontal type of relationship (Belderbos *et al.*, 2004; Tether, 2002). With Hypothesis 1b we explore the positive effect of this diversity of relationships:

> H1b: The diversity of the IRs with the same group of companies and competitors favors PI.

Finally, there are those partners that provide the company with knowledge that cannot be acquired in the market from the competition, or even from companies in the same group. These are consultants, universities, public research organizations, and technology centers (non-industrial partners) (Mowery *et al.*, 1996; Wagner & Hoegl, 2006). These partners contribute to innovation by providing scientific knowledge and advice that favors the creation of new ideas and an improvement in R&D activity (Dowling & Helm, 2006; Frenz & Ietto-Gillies, 2009). Thus, IRs with consultants help when it comes to sharing experiences, defining specific innovation needs, and contributing new and complementary ideas (Bessant & Rush, 1995; Bruce, Leverick, Littler, & Wilson, 1995); Relationships with universities and research centers allow access to scientific knowledge, key personnel in technical teams who focus on innovation, such as professors or researchers, or even new technological options,

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which favor new product development (Frenz & Ietto-Gillies, 2009). With Hypothesis 1c we explore the positive effect of the diversity of IRs with non-industrial partners.

H1c: The diversity of the IRs with consultants, universities, public research organizations and technology centers favors IP.

Not all the previous evidence, however, shows there to be a positive relationship between diversity and innovation (Kobarg *et al.*, 2019; Luo, 2002; Nieto & Santamaría, 2010). There is previous evidence of this in this relationship, but with no conclusive results (Beck & Schenker-Wicki, 2014; Meyskens & Carssrud, 2013). Some authors argue that it is an inverted U-shaped relationship (Beck & Schenker-Wicki, 2014; Duysters & Lokshin, 2011; Haans, Pieters, & Zi-Lin, 2016; Kobarg *et al.*, 2019; Laursen & Salter, 2006; Leeuw *et al.*, 2014; Vasudeva & Anand, 2011). This is because companies need internal resources to exploit the knowledge acquired from their different strategic partners (Faems, Janssens, Madhok, & Looy, 2008); without them, it is difficult to implement the acquired knowledge (Leeuw *et al.*, 2014). Their exploitation can also generate problems and coordination costs due to the complexity of managing diverse knowledge (Hagedoorn *et al.*, 2018; Jiang *et al.*, 2010; Wuyts & Dutta, 2014). Companies can also count on these resources as long as they are worth exploiting considering the cost-benefit ratio, and the input of information with new ideas occur at the proper time Companies can also count on these resources but it is not compensated to exploit them because of the cost-benefit ratio or because the entry of information with new ideas does not occur at the right time.

(Chen, Chen, & Vanhaverbeke, 2011; Knudsen & Mortensen, 2011; Nieto & Santamaría, 2007). For PI to be successful, it is necessary to integrate and implement interrelated, external and internal knowledge in the company (Ozer & Zhang, 2015). Another reason for the inverted U-shaped effect of IR diversity in PI is the lack of control over the exchange of information or the trust between partners. This can lead to opportunistic behaviors (Santamaría, Nieto, & Miles, 2012) and critical technical knowledge spillovers (Burg *et al.*, 2014), which affect the effectiveness of IR diversity for acquiring the relevant knowledge needed for developing innovation (Das & Teng, 2000). With Hypothesis 2 we explore whether the effect of the diversity of partners in IRs indicates an inverted U-shaped relationship:

H2: The effect of IR diversity on PI results in an inverted U-shaped relationship.

If we focus on each of the groups of strategic partners, there are few studies that contrast whether the effect of the diversity of IRs on PI results in an inverted U-shaped relationship (Hagedoorn *et al.*, 2018; Martinez-Noya & Narula, 2018) in each of these groups (Ardito *et al.*, 2015).

Most authors conclude that the diversity of the relationships between business partners allows companies to access broader and more diverse experiences and knowledge, all of which are necessary for creating new models, improving existing designs, and developing new products (Bogers *et al.*, 2010; Romijn & Albaladejo, 2002). As the diversity of the relationships between business partners increases, exploiting these resources in the company can be difficult. This is because the more diverse the knowledge acquired, the greater the difficulty in coordinating and integrating it. Therefore, there may be a reduction in the benefits of maintaining a diversity of relationships with business partners (Jiang *et al.*, 2010; Wuyts & Dutta, 2014). Hypothesis 2a explores the effect of relationship diversity with business partners on increasing positive innovation until it reaches the inflexion point where it begins to decrease.

H2a: The effect of IR diversity with customers and suppliers on PI results in an inverted U-shaped relationship.

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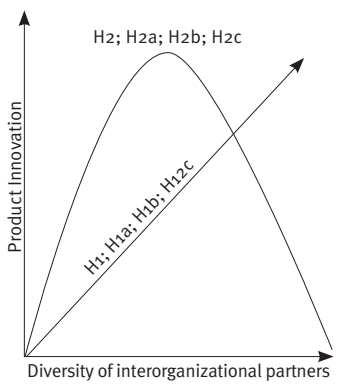
Regarding industrial partners, although the diversity of the relationships with these partners allows companies to have easier access to complementary knowledge for innovating (Belderbos *et al.*, 2004; Emden *et al.*, 2006; Nieto & Santamaría, 2007), increasing relationship diversity can make it riskier. Knowledge between partners may also be redundant, leading to mistrust between partners, opportunistic behaviors, or even the misappropriation of capabilities. Therefore, cooperation may become unstable, or even dissolve and not generate the desired positive effect on product development (Dussauge, Garrette, & Mitchell, 2000; Gimeno, 2004; Monteiro, Mol, & Birkinshaw, 2017). With Hypothesis 2b we explore the effect of relationship diversity with industrial partners on increasing positive innovation until it reaches an inflexion point where it begins to decrease.

> H2b: The effect on PI of IR diversity with companies in the same group and competitors results in an inverted U-shaped relationship.

Finally, the literature recognizes that diversity in relationships with non-industrial partners, such as consultants, universities, and research entities, contributes to PI by providing knowledge that favors continuous improvement in R&D activities (Frenz & Ietto-Gillies, 2009). The increase in external knowledge because of this type of IR diversity, however, can generate R&D activities that are not in line with the company's research strategies (Numprasertchai & Igel, 2005), and therefore will not have the expected positive impact on PI. The success of the diversity of relationships with non-industrial partners lies in identifying the extent to which this diversity is favorable. Hypothesis 2c explores whether the effect on innovation of the diversity of relationships with non-industrial partners is positive and grows until it reaches a point where it begins to decline.

> H2c: The effect of IR diversity with consultants, universities and research entities on PI results in an inverted U-shaped relationship.

Figure 1. **Research hypothesis**



METHODOLOGY

Population and sample

The information source used in this study was the Technological Innovation Panel of Spain (Eurostat Community Innovation Survey) prepared by the National Institute of Statistics. Data from 2011 and 2012 were considered to

use the innovation values for the 2010-2012 period and the cooperation values for the 2009-2011 period (years with free and open access data). The 2011 values were used for the independent variables, while those of 2012 were used for the dependent variable. With regard to the control variables, for internal and external innovation expenses in R&D, the values of 2011 were used, while data from 2012 were used for the size, age, and sector variables.

For sample selection, three criteria were considered: operational companies with more than 10 employees that, having answered the question of cooperation with other companies, had cooperated with at least one type of strategic partner. The final sample consisted of 2,141 companies: 34.89% are less than 20 years old, and 65.11% are more than 20 years old. According to the European Commission's recommendation of May 6, 2003 with regard to the number of employees, 33.49% are small companies (10-49 employees), 38.81% are medium-sized (50-249 employees), and 27.70% are large companies (more than 250 employees). Manufacturing companies represent 62.21% of the sample, while service companies account for 37.78%s. With regard to innovation, 67% of all companies carry out PI (1,433 companies), of which 56% (1,280 companies out of 2,141) innovate in goods and 33% (713 companies) in services.

Variable Measurement

PI is involved in the development of new goods or services. According to the Technological Innovation Panel, PI (in goods or services) results in the commercialization of a new or significantly improved product as far as its capabilities, ease of use, components or subsystems are concerned. Product innovations (new or improved) should be new for the company, but they do not have to be new to the market. PI is often separated between the innovation of goods (GI) (a good is generally a tangible object, such as a smartphone, furniture or packaged software; downloadable software, music and movies are also goods), and services (SI) (a service is usually intangible, such as retail, insurance, educational courses, air travel, consulting, etc.). According to the Panel's information and the innovation measures used in previous studies (Simonen & McCann, 2008), we have used three dichotomous variables that have a value of 1 if the company has innovated; first, a measure that represents PI as a single global measure, and second, two indicators that represent GI and SI.

With regard to the independent variables, to measure the diversity of types of partners in IRs we used the Blau index. This is considered the most reliable and consistent index of heterogeneity for measuring IR diversity (Meyskens & Carsrud, 2013). It is calculated as $B = 1 - \sum_{i=1}^{k} \left(pi \right)^2$, where B is the Blau index and p is the percentage of members in each *i-th* class of the existing k. The higher the value of B, the greater the degree of diversity, with the values of B varying between 0 and (k-1)/k. In this way we calculated total diversity and the diversity for each of the three groups of partners that were considered in the theoretical framework (Arranz & Arroyabe, 2008).

There are eight categories in the total diversity of partner types, and the following IR alternatives were considered: customers, suppliers, competitors, companies in the same group, consultants, universities, public research organizations and technology centers (Beck & Schenker-Wicki, 2014). Since K = 8 for the IR diversity variable, the maximum diversity will be attained when B reaches 0.875.

In the diversity of partner types for IRs between customers and suppliers, and the diversity of IRs between companies in the same group and competitors, since there are two categories in each group, diversity will be at its highest when B reaches the value of 0.5, with K = 2 in this case. Finally, for diversity of partner types in the IRs

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between consultants, universities, public research organizations and technology centers, since K = 4, there will be maximum diversity when *B* reaches the value of 0.75.

To calculate diversity using this index, we took Panel data, which by means of dichotomous variables allowed us to identify whether or not the company has cooperated with each of the eight types of partners considered. Total diversity and the diversity of the three groups were then calculated. Finally, to analyze the inverted U effect of IR diversity on innovation, the IR diversity variables were squared.

We also included five control variables: size (Napierian logarithm of the number of employees), company age (number of years since its foundation), sector (dichotomous variable that has the value of 1 when it is a purely service company), and the amount allocated to internal and external R&D expenses. R&D expenses means the total percentage of internal and external expenses spent on R&D, which is the way in which the database allows access to a reference of the total R&D expenses for both categories, and on a relative scale that allows a more suitable comparison between companies (Galende & Fuente, 2003; Order, Riding, & Manley, 2006; Pérez-Luño, Cabello-Medina, Carmona-Lavado, & Cuevas-Rodríguez, 2011).

RESULTS AND DISCUSSION

The descriptive statistics of the 2,141 companies show that 67% engage in PI (1,433 innovate with regard to products; 708 do not), 56% undertake goods' innovation (1280 companies; 933 do not innovate), and 33% undertake service innovation (713 companies; 1428 do not innovate). For this reason, we thought it appropriate to use two balanced samples (considering the same number of companies that innovate as those that do not) to contrast hypotheses, thus allowing for greater robustness in the regression models, and avoiding errors related to atypical observations. (Chambers, 1986). Thus, the total sample for the PI analysis is 1,416 companies (708 do not innovate; 708 do), the GI sample size is 1,866 companies (933 do not innovate; 933 do), and the SI sample size is made up of 1,426 companies (713 do not innovate; 713 do). Table 1 shows the descriptive statistics, the collinearity and the correlations of each of the balanced subsamples. The PI variables, goods innovation and service innovation, are significantly correlated in all of them with the types of partner diversity variables in the IRs, and with the diversity of other types of partners (IRs with consultants, universities, public research agencies and technology centers), although only innovation of goods is also correlated with partner diversity in relationships with customers and suppliers, and in relationships with same group companies and with competitors.

To contrast the hypotheses, four binomial logistic regression models were calculated (the backward Wald method provides a solution with the variables that have a higher level of significance) for each indicator of the dependent variable (PI, goods innovation, and service innovation). Model 1 enables Hypothesis 1 (effect of total diversity on PI) to be contrasted, and Model 3 enables Hypotheses 1a, 1b and 1c (the effect of the diversity of each of the three groups on PI) to be contrasted. Model 2 enables Hypothesis 2 (inverted U effect of total diversity on PI) to be contrasted, while Model 4 enables Hypotheses 2a, 2b and 2c (inverted U effect of the diversity of each of the three groups on PI) to be contrasted. Although the correlations of the diversity variables of the different groups with total diversity are low in Models 2 and 4, we decided to split the contrast into two regression models. Tables 2, 3 and 4 show the results of the binomial logistic regression models for PI (Table 2), goods (Table 3) and service (Table 4).

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Table 1. **Means, standard deviations, collinearity statistics, and Pearson's correlation coefficients**

	Mean	Standart Deviation	Frequency	VIF	Correlations									
					1	2	3	4	5	6	7	8	9	10
Product Innovation - N = 1416														
1. Interorganizational relationship diversity	0.360	0.302		5.034	1									
2. Customer-Supplier diversity	0.077	0.175		1.673	0.271**	1								
3. Same group company-competitor diversity	0.037	0.123		1.657	0.336**	0.341**	1							
4. Other partner types diversity	0.147	0.230		3.254	0.656**	0.174**	0.314**	1						
5. Company size	4.661	1.477		1.226	0.165**	0.122*	0.020	0.163**	1					
6. Company age	31.923	23.725		1.253	0.023	0.023	-0.037	0.001	0.295**	1				
7. Sector			1=535 /0=881	1.205	0.020	-0.104*	0.026	0.062*	-0.004	-0.197*	1			
8. Internal R&D expenses	60.597	38.541		1.459	0.197**	0.006	-0.013	0.118**	-0.068*	-0.096**	-0.026	1		
9. External R&D expenses	13.682	23.514		1.416	0.015	0.067	0.020	-0.015	0.087**	0.024	-0.064*	-0.327**	1	
10. Innovation			1=708 0=708		0.207**	0.097	0.044	0.161**	0.078**	0.019	-0.05	0.180**	-0.04	1
Goods Innovation - N =1866														
1. Interorganizational relationship diversity	0.370	0.299		4.802	1									
2. Customer-Supplier diversity	0.083	0.179		1.587	0.291**	1								
3. Same group company-competitor diversity	0.034	0.117		1.533	0.322**	0.293**	1							
4. Other partner types diversity	0.153	0.232		3.185	0.654**	0.202**	0.301**	1						
5. Company size	4.713	1.514		1.291	0.184**	0.100*	0.036	0.180**	1					
6. Company age	31.887	23.259		1.313	0.037	0.032	-0.015	0.022	0.326**	1				
7. Sector			1=618 /0=808	1.134	0.018	-0.051	0.004	0.049*	-0.010	-0.205**	1			
8. Internal R&D expenses	62.625	36.804		1.407	0.167**	0.024	0.001	0.086**	-0.100**	-0.113*	-0.013	1		
9. External R&D expenses	13.390	22.348		1.333	0.032	0.032	0.001	0.002	0.068**	0.046*	-0.064**	-0.329**	1	
10. Innovation			1=933 /0=933		0.190**	0.120**	0.061*	0.140**	0.076**	0.034	-0.207**	0.166**	-0.006	1
Service Innovation - N =1426														
1. Interorganizational relationship diversity	0.394	0.296		4.395	1									
2. Customer-Supplier diversity	0.083	0.178		1.590	0.320**	1								
3. Same group company-competitor diversity	0.038	0.123		1.571	0.333**	0.355**	1							
4. Other partner types diversity	0.163	0.238		2.866	0.655**	0.205**	0.291**	1						
5. Company size	4.766	1.578		1.313	0.182**	0.128**	0.048	0.181**	1					
6. Company age	31.256	23.606		1.355	0.037	0.033	-0.035	0.007	0.356**	1				
7. Sector			1=535 /0=881	1.144	0.012	-0.021	-0.006	0.069*	-0.029	-0.195**	1			
8. Internal R&D expenses	64.737	35.302		1.563	0.158**	-0.040	-0.008	0.089**	-0.119**	-0.120**	-0.022	1		
9. External R&D expenses	13.099	21.642		1.464	0.045	0.065	0.019	-0.006	0.059*	0.026	-0.044	-0.357**	1	
10. Innovation			1=713 /0=713		0.180**	0.057	-0.031	0.170**	0.138**	-0.017	0.269**	0.092**	-0.048	1

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Table 2. Product innovation regressions

Product Innovation	Model 1				Model 2				Model 3				Model 4			
	B	Wald	Sig	Exp (B)	B	Wald	Sig	Exp (B)	B	Wald	Sig	Exp (B)	B	Wald	Sig	Exp (B)
Constant	-1.477	33.046	0.000	0.285	-1.477	33.046	0.000	0.285	-0.002	0.00	0.99	0.998	-0.76	2.13	0.14	0.463
Company size	0.088	5.295	0.021	1.092	0.088	5.295	0.021	1.092	0.095	1.12	0.29	1.099	0.138	2.83	0.09	1.148
Company age	0.000	0.008	0.928	1.000	0.000	0.003	0.955	1.000	-0.001	0.01	0.91	0.999	-0.00	0.05	0.81	0.999
Sector	0.223	3.816	0.051	0.800	0.223	3.816	0.051	0.800	0.140	0.27	0.59	1.151	0.189	0.48	0.48	1.208
Internal R&D expenses	0.008	31.368	0.000	1.008	0.008	31.368	0.000	1.008	0.008	5.03	0.02	1.008	0.010	6.54	0.01	1.010
External R&D expenses	.000	.002	.961	1.000	0.000	0.003	0.955	1.000	-0.006	0.79	0.37	0.994	-0.00	0.79	0.37	0.994
Interorganizational relationship diversity	1.169	38.299	0.000	3.219	1.169	38.299	0.000	3.219								
Interorganizational relationship diversity, squared					-0.582	0.355	0.551	0.559								
Customer-Supplier diversity									0.993	1.64	0.20	2.699	-5.68	0.48	0.48	0.003
Same group company-competitor diversity									-0.535	0.50	0.47	0.586	-8.64	2.87	0.09	0.000
Other partner types diversity									0.648	1.39	0.23	1.912	-0.21	0.01	0.91	0.807
Customer-Supplier diversity, squared													13.69	0.64	0.42	88301
Same group company-competitor diversity, squared													19.40	2.91	0.08	3E+08
Other partner types diversity, squared													1.754	0.27	0.60	5.777
-2 Log Verisimilitude	1862.306				1862.306				399.641				393.998			
R^2 Cox-Snell	0.069				0.069				0.016				0.034			
R^2 Nagelkerke	0.092				0.092				0.022				0.047			
X^2	100.687				100.687				5.038				10.681			
Significance	0.000				0.000				0.025				0.030			
N	1416				1416				1416				1416			
% Global Classification Table	61.2				61.2				68.6				67.6			

Table 3. Regressions for goods innovation

Goods Innovation	Model 1				Model 2				Model 3				Model 4			
	B	Wald	Sig	Exp (B)	B	Wald	Sig	Exp (B)	B	Wald	Sig	Exp (B)	B	Wald	Sig	Exp (B)
Constant	-1.946	88.23	0.000	0.143	-1.946	88.23	0.00	0.143	-0.464	1.68	0.19	0.628	-0.468	1.712	0.19	0.626
Company size	0.085	6.524	0.011	1.089	0.085	6.524	0.01	1.089	0.111	2.70	0.10	1.118	0.113	2.792	0.09	1.119
Company age	-0.002	0.726	0.394	0.998	-0.002	0.759	0.38	0.998	0.002	0.12	0.72	1.002	0.002	0.115	0.73	1.002
Sector	0.926	83.71	0.000	2.524	0.926	83.71	0.00	2.524	0.516	6.07	0.01	1.675	0.511	5.948	0.01	1.666
Internal R&D expenses	0.009	38.94	0.000	1.009	0.009	38.94	0.00	1.009	0.002	0.39	0.52	1.002	0.003	0.500	0.47	1.003
External R&D expenses	0.002	0.981	0.322	1.002	0.002	0.963	0.32	1.002	-0.003	0.34	0.55	0.997	-0.003	0.316	0.57	0.997
Interorganizational relationships diversity	1.167	47.28	0.000	3.214	1.167	47.28	0.00	3.214								
Interorganizational relationships diversity, squared					-0.619	0.525	0.46	0.538								
Customer-Supplier diversity									1.308	4.77	0.02	3.700	0.077	0.000	0.99	1.080
Same group company-competitor diversity									-0.278	0.17	0.67	0.757	-4.208	0.865	0.35	0.015
Other partner types diversity									0.554	1.35	0.24	1.740	0.537	0.107	0.74	1.710
Customer-Supplier diversity, squared													2.782	4.800	0.02	16.154
Same group company-competitor diversity, square													8.877	0.763	0.38	7167
Other partner types diversity, squared													0.102	0.001	0.97	1.107
-2 Log Verisimilitude	2388.900				2388.900				533.882				533.825			
R^2 Cox-Snell	0.101				0.101				0.041				0.041			
R^2 Nagelkerke	0.134				0.134				0.056				0.056			
X^2	197.926				197.926				17.550				17.607			
Significance	0.000				0.000				0.001				0.001			
N	1866				1866				1866				1866			
% Global Classification Table	62.5				62.5				60.8				60.300			

Table 4. Regressions for service innovation

Services Innovation	Model 1				Model 2				Model 3				Model 4			
	B	Wald	Sig	Exp (B)	B	Wald	Sig	Exp (B)	B	Wald	Sig	Exp (B)	B	Wald	Sig	Exp (B)
Constant	-1.04	20.214	0.00	0.353	-0,994	18,539	0,00	0,370	-0,650	2,371	0,12	0,522	-0,556	1,783	0,18	0,573
Company size	0.195	25.863	0.00	1.215	0,190	24,457	0,00	1,209	0,266	11,372	0,00	1,305	0,266	11,24	0,00	1,304
Company age	0.000	0.033	0.85	1.000	0,000	0,019	0,88	1,000	0,001	0,027	0,87	1,001	0,001	0,011	0,91	1,001
Sector	-1.20	107.98	0.00	0.299	-1,194	105,39	0,00	0,303	-1,125	21,150	0,00	0,325	-1,116	20,70	0,00	0,327
Internal R&D expenses	0.006	12.847	0.00	1.006	0,006	13,364	0,00	1,006	0,005	1,240	0,26	1,005	0,006	1,465	0,22	1,006
External R&D expenses	-0.00	0.622	0.43	0.998	-0,002	0,639	0,42	0,998	0,000	0,000	0,99	1,000	0,001	0,007	0,93	1,001
Interorganizational relationships diversity	1.050	27.856	.000	2.858	-0,029	0,002	0,96	0,971								
Interorganizational relationships diversity, squared					1,526	30,409	0,00	4,600								
Customer-Supplier diversity									0,206	0,091	0,76	1,228	-4,048	0,461	0,49	0,017
Same group company-competitor diversity									-1,065	2,183	0,14	0,345	-1,184	2,985	0,08	0,306
Other partner types diversity									0,957	3,6690	0,05	2,604	0,145	0,007	0,93	1,156
Customer-Supplier diversity, squared													8,974	0,510	0,47	7894,31
Same group company-competitor diversity, squared													7,584	0,479	0,48	1966,12
Other partner types diversity, squared													1,912	4,804	0,02	6,770
-2 Log Verisimilitude	1788.757				1785.982				437.595				434.949			
R2 Cox-Snell	0.124				0.125				0.107				0.114			
R2 Nagelkerke	0.165				0.167				0.145				0.154			
X2	188.099				190.874				40.431				43.077			
Significance	0.000				0.000				0.000				0.000			
N	1426				1426				1426				1426			
% Global Classification Table	65.4				64.9				65.4				65.7			

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Despite the expected collinearity between the variables and their quadratic values for analyzing the inverted U effect, the adjustment parameters of Models 1 and 2 of Tables 2 and 3 for the case of the IR diversity variable have not changed. Models 3 and 4 of Tables 2, 3 and 4 offer a better fit, and are more consistent in relating the study variables (-2 Log Verisimilitude, R2 Cox-Snell, R2 Nagelkerke, X^2).

With regard to Hypothesis 1 (the positive influence of IR diversity on innovation), the model results for PI, GI and SI (Model 1) allow us to conclude that this hypothesis is confirmed positively, and with a 99% confidence level. These results show that the diversity of the partner types in IRs makes PI 3,219 times more likely, GI 3,214 times more likely, and SI 2,858 times more likely. These results are consistent with the work of Leeuw *et al.* (2014) who found a positive and significant relationship between IR diversity and innovation.

For Hypotheses 1a, 1b and 1c (partner diversity effect of IRs on innovation for each of the three partner type groups with which the company interacts), the results of regression Model 3 in Table 3 allows us to partially confirm Hypothesis 1a (customer and supplier diversity favors GI) positively, and with a 97% confidence level, indicating that GI is 3,700 times more likely. This result is consistent with Ozer and Zhang (2015) who confirm that having a network of relationships with providers and customers boosts PI.

Hypothesis 1c in Table 4 (the diversity of consultants, universities, public research organizations and technology centers favors service innovation) is positively confirmed with a 95% confidence level, making SI 2.604 times more likely. This type of relationship diversity enables companies to access various resources and the knowledge necessary for innovating goods and services (Wassmer, Li, & Madhok, 2017). Unlike the results of previous literature, however, our results do not show any significant effect for Hypothesis 1b, nor do companies obtain a positive effect on PI resulting from IR diversity with companies in the same group and/or with competitors.

The results do not confirm Hypothesis 2 (inverted U-shaped relationship between the type of partner diversity and innovation). They show that the relationship between partner diversity in IRs and innovation is linear, unlike the work by Hagedoorn *et al.* (2018) and Hottenrott y Lopes-Bento (2016), who demonstrated that there is an inverted U-shaped relationship between these variables. One possible explanation for this result is that company network links increase trust and strengthen interpersonal relationships between partners, which helps maintain the positive effect of partner diversity on innovation. In addition, the more deeply-rooted these links are, the greater the trust and reciprocity between the partners. (Burt, 2004; Mariotti & Delbridge, 2012; Ozer & Zhang, 2015; Uzzi, 1997; Uzzi & Lancaster, 2003). This result requires further in-depth analysis in future research on this topic.

Finally, with regard to Hypotheses 2a, 2b and 2c that proposed the inverted U-shaped effect on the relationship between IR diversity and innovation in each of the three strategic partner groups, the results of Model 4 do not allow us to confirm these hypotheses for the innovation of goods or services. With regard to Hypothesis 2a (the effect of IR diversity with customers and suppliers on PI results in an inverted U-shaped relationship), in Model 4 of Table 3 the regression coefficient is positive and significant, indicating that the relationship between customer diversity and supplier relationships and the innovation of goods is linear. For Hypothesis 2c (the effect of IR diversity with consultants, universities and research entities on PI results in an inverted U-shaped relationship), in Model 4 of Table 4 the regression coefficient is positive and significant, indicating that the relationship between the diversity of the relationships with consultants, universities and research entities and service innovation is linear (without an inflection point), making innovation 6,770 times more likely. These results do not confirm that companies may become highly sensitive and mistrust each other when IR diversity increases, as claimed by Kobarg *et al.* (2019).

Regarding the control variables, company size is a factor that significantly affects innovation activities, since it positively influences absorption capacity, which promotes and boosts innovation activities (Beck & Schender-

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Wicki, 2014). In relation to the sector, this aspect has a positive and significant influence on the innovation of goods (Østergaard, Timmermans, & Kristinsson, 2011). The results show that expenditure on internal R&D is important for product innovation, whether of goods or services. The models indicate that the age and external R&D innovation expenditure do not have a significant impact.

CONCLUSIONS

Taking into account the importance of IRs in PI (Mayskens & Carssrud, 2013), this study provides new evidence in the study of the influence of IR diversity on PI, whether of goods or services. We also analyzed whether the effect of the partner-type diversity of IRs on PI varies according to the type of strategic partner with which the company decides to maintain a relationship.

With data from the Spanish Technological Innovation Panel, 12 binomial logistic regression models were developed that allowed us to show the positive and significant effect of partner diversity in IRs on PI, both for goods and services (Beck & Schenker-Wicki, 2014). The more diverse the types of strategic partners with which the company decides to engage, the greater the probability of obtaining relevant heterogeneous and complementary knowledge for promoting (and boosting) product innovation (Amara & Landry, 2005; Leeuw *et al.*, 2014; Meyskens & Carssrud, 2013; Nieto & Santamaría, 2007). This study shows that the diversity of the relationships a company maintains with its commercial partners (customers and suppliers) favors more innovation of goods. This is because the company is able to access knowledge related to the market and its tendencies, which is necessary for developing innovations in goods and successfully introducing them into the market (Arranz & Arroyabe, 2008). IRs with customers and suppliers play a crucial role in R&D activities because they contribute complementary knowledge of customers' needs (Arranz & Arroyabe, 2008). Likewise, the diversity of the relationships that a company maintains with non-industrial partners (consultants, universities and research entities) favors the benefits of diversity in service innovation. This type of relationship allows access to technological knowledge that can be used for developing innovative services in accordance with new technological tendencies. This result coincides with previous studies that argue that relationships with universities open up new market segments favoring PI, by accessing the new knowledge that is necessary for developing high-quality and novel service innovations (Laursen & Salter, 2006; Tether, 2002) favoring their commercialization (Oerlemans, Knoben, & Pretorius, 2013). In short, this study enabled us to demonstrate that IR diversity is beneficial to PI, whether of goods or services (Wassmer *et al.*, 2017). The diversity of the relationships with customers and suppliers enhances the diversity benefits in the innovation of goods, while relationships with consultants, universities and research entities does the same for service innovation. Finally, the results do not allow us to affirm that too much diversity leads to declining returns in innovation. Diversity (global and by partner type) provides the company with moderately related and complementary knowledge. In our sample, greater IR diversity is valuable and has no detrimental effect on PI (Noseleit & Faria, 2013).

The results of this study have practical implications, both at the government and business levels. At the governmental level, it is important that the Spanish government makes use of incentives to promote PI that derives from taking advantage of the external knowledge acquired from IRs. This is especially important, since many companies do not have the internal knowledge or sufficient resources to innovate and remain competitive (Beers & Zand, 2014). Therefore, we can certainly say that they need relationships with other companies in order

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to increase sales, improve competitiveness and, therefore, stay in the market for much longer through product innovation.

The results of this study have practical implications, both at the government and business levels. The results show the importance of developing policies that foster interorganizational relationships, and the need to promote such policies. At the business level, it is important for the company to define those knowledge-management policies that facilitate the appropriation of external knowledge from these interorganizational relationships, and that, at the same time, reduce the risk of leaking key important knowledge in order to maintain a competitive edge.

In any case, the results are limited by the source of information that is used. Future research, therefore, should use other empirical contexts, and study the influence of government policies, cultural aspects, other forms of innovation (incremental and radical), or analyze whether there are any differences that depend on company characteristics, and deepen the inverted U relationship, which this study was unable to confirm.

REFERENCES

Amara, N., & Landry, R. (2005). Sources of information as determinants of novelty of innovation in manufacturing firms: Evidence from the 1999 Statistics Canada Innovation Survey. *Technovation, 25*(3), 145-259. doi:10.1016/S0166- 4972(03)00113-5

Ardito, L., Petruzzelli, A. M., & Albino, V. (2015). From technological inventions to new products: A systematic review and research agenda of the main enabling factors. *European Management Review*, *12*(3), 113-147. doi: 10.1111/emre.12047

Arranz, N., & Arroyabe, J. C. F. (2008). The choice of partners in R&D cooperation: An empirical analysis of Spanish firms. *Technovation*, *28*(1), 88-100. doi: 10.1016/j.technovation.2007.07.006

Ashok, M., Narula, R., & Martínez-Noya, A. (2016). How do collaboration and investments in knowledge management affect process innovation in services? *Journal of Knowledge Management*, *20*(5), 1004-1024. doi: 10.1108/JKM-11-2015-0429

Beck, M., & Schenker-Wicki, A. (2014). Cooperating with external partners: The importance of diversity for innovation performance. *European Journal of International Management*, *8*(5), 548-569. doi:10.1504/EJIM.2014.064604

Beers, C. V., & Zand, F. (2014). R&D cooperation, partner diversity, and innovation performance: An empirical analysis. *Journal Production Innovation Management*, *31*(2), 292-312. doi:10.1111/jpim.12096

Belderbos, R., Carree, M., & Lokshin, B. (2004). Co-operative R&D and firm performance. *Research Policy*, *33*(10), 1477-1492. doi: 10.1016/j.respol.2004.07.003

Belderbos, R., Carree, M., Lokshin, B., & Sastre, J. F. (2015). Inter-temporal patterns of R&D collaboration and innovative performance. *The Journal of Technology Transfer*, *40*(1), 123-137. doi: 10.1007/s10961-014-9332-4

Belderbos, R., Gilsing, V., Lokshin, B., Carree, M., & Sastre, J. F. (2018). The antecedents of new R&D collaborations with different partner types: On the dynamics of past R&D collaboration and innovative performance. *Long Range Planning*, *51*(2), 285-302. doi: 10.1016/j.lrp.2017.10.002

Bessant, J., & Rush, H. (1995). Building bridges for innovation: The role of consultants in technology transfer. *Research Policy*, *24*(1), 97-114. doi: 10.1016/0048-7333(93)00751-E

Bogers, M., Afuah, A., & Bastian, B. (2010). Users as innovators: A review, critique, and future research directions. *Journal of Management*, *36*(4), 857-875. doi: 10.1177/0149206309353944v

Bruce, M., Leverick, F., Littler, D., & Wilson, D. (1995). Success factors for collaborative product development: A study of suppliers of information and communication technology. *R&D Management*, *25*(1), 33-44. doi: 10.1111/j.1467-9310.1995.tb00898.x

Burg, E., Berends, H., & Raaij, E. M. Van. (2014). Framing and interorganizational knowledge transfer: A process study of collaborative innovation in the aircraft industry. *Journal of Management Studies*, *51*(3), 349-378. doi: 10.1111/joms.12055

Burt, R. S. (2004). Structural holes and good ideas. *American Journal of Sociology*, *110*(2), 349-399. doi: 10.1086/421787

Chambers, R. L. (1986). Outlier robust finite population estimation. *Journal of the American Statistical Association*, *81*(396), 1063-1069. doi: 10.1080/01621459.1986.10478374

Chen, J., Chen, Y. F., & Vanhaverbeke, W. (2011). The influence of scope, depth, and orientation of external technology sources on the innovative performance of Chinese firms. *Technovation*, *31*(8), 362-373. doi: 10.1016/j.technovation.2011.03.002

Das, T., & Teng, B. (2000). A resource-based theory of strategic alliances. *Journal of Management*, *26*(1), 31-36. doi: 10.1016/S0149-2063(99)00037-9

Dowling, M., & Helm, R. (2006). Product development success through cooperation: A study of entrepreneurial firms. *Technovation, 26*(4), 483-488. doi: 10.1016/j.technovation.2005.06.015

 CC BY

Dussauge, P., Garrette, B., & Mitchell, W. (2000). Learning from competing partners: Outcomes and durations of scale and link alliances in Europe, North America and Asia. *Strategic Management Journal, 21*(2), 99-126. doi: 10.1002/(SICI)1097-0266(200002)21:2<99::AID-SMJ80>3.0.CO;2-G

Duysters, G., & Lokshin, B. (2011). Determinants of alliance portfolio complexity and its effect on innovative performance of companies. *Journal of Product Innovation Management*, *28*(4), 570-585. doi: 10.1111/j.1540-5885.2011.00824.x

Emden, Z., Calantone, R. J., & Droge, C. (2006). Collaborating for new product development: Selecting the partner with maximum potential to create value. *Journal of Product Innovation Management*, *23*(4), 330-341. doi: 10.1111/j.1540-5885.2006.00205.x

Faems, D., Janssens, M., Madhok, A., & Looy, B. Van. (2008). Towards an integrative perspective on alliance governance: Connecting contract design, contract application and trust dynamics. *Academy of Management Journal*, *51*(6), 1053-1078. doi: 10.5465/amj.2008.35732527

Faems, D., Looy, B. Van, & Debackere, K. (2005). Interorganizational collaboration and innovation: Toward a portfolio approach. *Journal of Product Innovation Management, 22*(3), 238-250. doi: 10.1111/j.0737-6782.2005.00120.x

Frenz, M., & Ietto-Gillies, G. (2009). The impact on innovation performance of different sources of knowledge: Evidence from the UK Community Innovation Survey. *Research Policy*, *38*(7), 1125-1135. doi: 10.1016/j.respol.2009.05.002

Galende, J., & Fuente, J. De la. (2003). Internal factors determining a firm's innovative behaviour. *Research Policy*, *32*(5), 715-736. doi:10.1016/S0048-7333(02)00082-3

Gimeno, J. (2004). Competition within and between networks: The contingent effect of competitive embeddedness on alliance formation. *Academy of Management Journal*, *47*(6), 820-842. doi: 10.5465/20159625

Haans, R. F., Pieters, C., & Zi-Lin, H. (2016). Thinking about U: Theorizing and testing U- and inverted U-shaped relationships in strategy research. *Strategic Management Journal, 37*(7), 1177-1195. doi: 10.1002/smj.2399

Hagedoorn, J., Lokshin, B., & Zobel, A. K. (2018). Partner type diversity in alliance portfolios: Multiple dimensions, boundary conditions and firm innovation performance. *Journal of Management Studies*, *55*(5), 809-836. doi: 10.1111/joms.12326

Hottenrott, H., & Lopes-Bento, C. (2016). R&D partnerships and innovation performance: Can there be too much of a good thing?. *Journal of Product Innovation Management*, *33*, 773-794. doi: 10.1111/jpim.12311

Jiang, R. J., Qingjiu, T. T., & Santoro, M. D. (2010). Alliance portfolio diversity and firm performance. *Strategic Management Journal*, *31*(10), 1136-1144. doi: 10.1002/smj.869

Knudsen, M. P., & Mortensen, T. B. (2011). Some immediate – but negative – effects of openness on product development performance. *Technovation*, *31*(1), 54-64. doi: 10.1016/j.technovation.2010.07.002

Kobarg, S., Stumpf-Wollersheim, J., & Welpe, I. M. (2019). More is not always better: Effects of collaboration breadth and depth on radical and incremental innovation performance at the project level. *Research Policy*, *48*(1), 1-10. doi: 10.1016/j.respol.2018.07.014

Laursen, K., & Salter, A. (2006). Open for innovation: The role of openness in explaining innovation performance among UK manufacturing firms. *Strategic Management Journal*, *27*(2), 131-150. doi: 10.1002/smj.507

Lavie, D. (2006). The competitive advantage of interconnected firms: An extension of the resource-based view. *Academy of Management Review*, *31*(3), 638-658. doi: 10.5465/amr.2006.21318922v

Lavie, D. (2009). Capturing value from alliance portfolios. *Organizational Dynamics*, *38*(1), 26-36. doi: 10.1016/j.orgdyn.2008.04.008

Ledwith, A., & Coughlan, P. (2005). Splendid isolation: Does networking really increase new product success? *Creativity and Innovation Management*, *14*(4), 366-373. doi: 10.1111/j.1467-8691.2005.00356.x

Lee, D., Kirkpatrick-Husk, K., & Madhavan, R. (2017). Diversity in alliance portfolios and performance outcomes: A meta-analysis. *Journal of Management*, *43*(5), 1472-1497. doi: 10.1177/0149206314556316

Leeuw, T. De, Lokshin, B., & Duysters, G. (2014). Returns to alliance portfolio diversity: The relative effects of partner diversity on firm's innovative performance and productivity. *Journal of Business Research*, *67*(9), 1839-1849. doi: 10.1016/j.jbusres.2013.12.005

Luo, Y. (2002). Contract, cooperation and performance in international joint ventures. *Strategic Management Journal*, *23*(10), 903-919. doi: 10.1002/smj.261v

Mariotti, F., & Delbridge, R. (2012). Overcoming network overload and redundancy in interorganizational networks: The roles of potential and latent ties. *Organization Science*, *23*(2), 511-528. doi: 10.1287/orsc.1100.0634

Martinez-Noya, A., & Narula, R. (2018). What more can we learn from R&D alliances? A review and research agenda. *BRQ Business Research Quarterly*, *21*(3), 195-212. doi: 10.1016/j.brq.2018.04.001

Meyskens, M., & Carsrud, A. L. (2013). Nascent green-technology ventures: A study assessing the role of partnership diversity in firm success. *Small Business Economics*, *40*(3), 739-759. doi: 10.1007/s11187-011-9400-1

Miotti, L., & Sachwald, F. (2003). Co-operative R&D: why, and with whom? An integrated framework of analysis. *Research Policy*, *32*(8), 1481-1499. doi: 10.1016/S0048-7333(02)00159-2

Monteiro, F., Mol, M., & Birkinshaw, J. (2017). Ready to be open? Explaining the firm level barriers to benefiting from openness to external knowledge. *Long Range Plan*, *50*(2), 282-295. doi: 10.1016/j.lrp.2015.12.008

Mowery, D. C., Oxley, J. E., & Silverman, B. S. (1996). Strategic alliances and interfirm knowledge transfer. *Strategic Management Journal*, *17*(S2), 77-91. doi: 10.1002/smj.4250171108

 CC BY

Nieto, M., & Santamaría, L. (2010). Colaboración tecnológica e innovación en las empresas de base tecnológica: Implicaciones de las relaciones con universidades y otros socios tecnológicos. *Revista Galega de Economía*, *19*, 1132-2799. https://www.redalyc.org/pdf/391/39115737009.pdf

Nieto, M. J., & Santamaría, L. (2007). The importance of diverse collaborative networks for the novelty of product innovation. *Technovation*, *27*(3), 367-377. doi: 10.1016/j.technovation.2006.10.001

Noseleit, F., & Faria, P. de. (2013). Complementarities of internal R&D and alliances with different partner types. *Journal of Business Research*, *66*(10), 2000-2006. doi: 10.1016/j.jbusres.2013.02.025v

Numprasertchai, S., & Igel, B. (2005). Managing knowledge through collaboration: Multiple case studies of managing research in university laboratories in Thailand. *Technovation*, *25*(10), 1173-1182. doi: 10.1016/j.technovation.2004.03.001

Oerlemans, L. A. G., Knoben, J., & Pretorius, M. W. (2013). Alliance portfolio diversity, radical and incremental innovation: The moderating role of technology management. *Technovation*, *33*(6), 234-246. doi: 10.1016/j.technovation.2013.02.004

Order, B., Riding, A., & Manley, K. (2006). Women entrepreneurs and financial capital. Entrepreneurship *Theory and Practice*, *30*(5), 643-665. doi: 10.1111/j.1540-6520.2006.00140.x

Østergaard, C. R., Timmermans, B., & Kristinsson, K. (2011). Does a different view create something new? The effect of employee diversity on innovation. *Research Policy*, *40*(3), 500-509. doi: 10.1016/j.respol.2010.11.004

Ozer, M., & Zhang, W. (2015). The effects of geographic and network ties on exploitative and exploratory product innovation. *Strategic Management Journal*, *36*(7), 1105-1114. doi: 10.1002/smj.2263

Pérez-Luño, A., Cabello-Medina, C., Carmona-Lavado, A., & Cuevas-Rodríguez, G. (2011). How social capital and knowledge affect innovation. *Journal of Business Research*, *64*(2), 1369-1376. doi: 10.1016/j.jbusres.2011.01.014

Romijn, H., & Albadalejo, M. (2002). Determinants of innovation capability in small electronics and software firms in southeast England. *Research Policy*, *31*(7), 1053-1067. doi: 10.1016/S0048-7333(01)00176-7

Rosenzweig, E. D., Roth, A. V., & Dean, J. W. (2003). The influence of an integration strategy on competitive capabilities and business performance: An exploratory study of consumer products manufacturers. *Journal of Operations Management*, *21*(4), 437-456. doi: 10.1016/S0272-6963(03)00037-8

Santamaría, L., Nieto, M. J., & Miles, I. (2012). Service innovation in manufacturing firms: Evidence from Spain. *Technovation*, *32*(2), 144-155. doi: 10.1016/j.technovation.2011.08.006

Schoenmakers, W., & Duysters, G. (2006). Learning in strategic technology alliances. *Technology Analysis & Strategic Management*, *18*(2), 245-264. doi: 10.1080/09537320600624162

Silva, M. J., & Leitão, J. (2009). Cooperation in innovation practices among firms in Portugal: Do external partners stimulate innovative advances? *International Journal of Entrepreneurship and Small Business*, *7*(4), 391-403. doi: 10.1504/IJESB.2009.023357

Simonen, J., & McCann, P. (2008). Innovation, R&D cooperation and labor recruitment: evidence from Finland. *Small Business Economics*, *31*(2), 181-194. doi: 10.1007/s11187-007-9089-3

Story, V., O'Malley, & L., Hart, S. (2011). Roles, role performance, and radical innovation competences. *Industrial Marketing Management*, *40*(6), 952-966. doi: 10.1016/j.indmarman.2011.06.025

Tether, B. (2002). Who cooperate for innovation, and why: And empirical analysis. *Research Policy*, *31*(6), 947-967. doi: 10.1016/S0048-7333(01)00172-X

Uzzi, B. (1997). Social structure and competition in interfirm networks: The paradox of embeddedness. *Administrative Science Quarterly*, *42*(1), 35-67. doi: 10.2307/2393808

Uzzi, B., & Lancaster, R. (2003). Relational embeddedness and learning: The case of bank loan managers and their clients. *Management Science*, *49*(4), 383-399. doi: 10.1287/mnsc.49.4.383.14427

Vasudeva, G., & Anand, J. (2011). Unpacking absorptive capacity: A study of knowledge utilization from alliance portfolios. *Academy of Management Journal*, *54*(3), 611-623. doi: 10.5465/amj.2011.61968108v

Wagner, S. M., & Hoegl, M. (2006). Involving suppliers in product development: Insights from R&D directors and project managers. *Industrial Marketing Management*, *35*(8), 936-943. doi: 10.1016/j.indmarman.2005.10.009v

Wassmer, U., Li, S., & Madhok, A. (2017). Resource ambidexterity through alliance portfolios and firm performance. *Strategic Management Journal*, *38*(2), 384-394. doi: 10.1002/smj.2488

Wuyts, S., & Dutta, S. (2014). Benefiting from alliance portfolio diversity: The role of past internal knowledge creation strategy. *Journal of Management*, *40*(6), 1653-1674. doi: 10.1177/0149206312442339v

AUTHORS' CONTRIBUTIONS

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GAMIFICATION AND UBERIZED WORK IN APPLICATION COMPANIES

Uberization, the gig economy, on-demand economy, platform economy, and crowdsourcing are examples of terms used in several academic works to refer to the large number of transformations promoted by information and communication technologies (hereinafter abbreviated as "ICT") in the universes of organizations and work, although there is no consensus on their meanings (Filgueiras & Antunes, 2020, p. 30). The term "uberization" (Slee, 2017) refers directly to Uber, but is not restricted to it, since it is used in a broad sense as a global trend that affects occupations with different qualifications and incomes, materializing the processes and subjectivities associated with a new neoliberal way of the world (Dardot & Laval, 2016). Sociologist Ana Claudia Moreira coined the expression "uberism" to refer to a model of work organization and management, akin to Taylorism, Fordism and Toyotism, which emerged from the foundation of ICT and digital platforms (Santos, 2020). Like Uber, Loggi, iFood, Rappi, and Lyft are also examples of "application companies" (Abílio, 2019).

Initially, the transformations promoted by ICTs offered workers countless opportunities for overcoming the rigidity of traditional jobs, for example, and allowing people to accumulate activities and generate extra income. Income generation supposedly happens in a fun way and in the free time of the service provider (Stefano, 2017), or when the provider so wishes (Valenduc, 2019), by way of their performance as a creator or a partner of the application company. Another advantage of the platform model is the reduction in distance between income opportunities and workers, who can carry out their activities regardless of their geographical location (Kittur *et al.*, 2013), as in the case of the Amazon Mechanical Turk micro-work platform (Moreschi, Pereira, & Cozman, 2020). Distance has also become smaller between service providers and consumers thanks to digital platforms and applications that reduce prices and speed up the provision of a huge range of services (Manyika *et al.*, 2016), from transportation, esthetics and cleaning to general services and deliveries. More advantages appear in this list, such as the democratization of the means of production, and the promotion of neo-entrepreneurship (with opportunities for small businesses, as mentioned by Filgueiras & Antunes, 2020).

Despite the initial enthusiasm associated with the autonomy, economic opportunities and equity (Schor & Eddy, 2020) that are promoted by digital platforms, the current context, especially considering the COVID-19 pandemic, points to a dependence on some services, such as deliveries, in addition to showing that, despite some positive results, many who work under such conditions suffer the negative consequences of the platform economy. This new economy is led by startups that define themselves as technology companies and intermediaries between consumers and producers/service providers (Filgueiras & Antunes, 2020), and that structure themselves

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on an extractive capitalist model (Morrell, Espelt, & Cano, 2020). The opportunities mentioned in the previous paragraph contrast with low wages, a lack of self-determination (Schor & Eddy, 2020), long working hours, and the transfer of the costs and risks associated with the activities to workers, who need to be managed, controlled and subordinated (Abílio, 2019) after adhering to the terms and conditions of use of the platforms. In such a context, in which the sources and structures of meanings (such as practices, values, rituals and hierarchies, for example) are influenced, created by or expressed through ICTs (Kozinets, 2019, p. 621), gamification is one of the tools that digital platforms use to control, manage and oversee their "partners".

In the past eight years, "gamification" has taken organizations, the media and academic research by storm (e.g., Dymek & Zackariasson, 2016a). A search on Google Scholar shows about 51,000 results for the topic between 2002 and 2020. In this year (2020), we highlight the work of Doorn and Chen (forthcoming), which deals with gamification in the context of two food delivery platforms, one Chinese and one North American; and that of Abílio, who defines gamification as "transferring risks and stimulating productivity, which are also new forms of control over work" (Abílio, 2020, p. 20). This is a challenge for those who take risks working without any guarantees, since it is up to the application company to define the rules of the game and, possibly, the winner (which suggests that instead of algorithmic randomness, there is a programmed distribution of bonuses, for example). The most immediate objective of gamification is to promote the engagement of workers and consumers by way of challenges and competitions that are based on performance and incentives and, as a result, to obtain better results (Dymek & Zackariasson, 2016b). The seminal definition of Deterding, Khaled, Nacke and Dixon (2011) inspired authors like Woodcock and Johnson (2018) to apprehend gamification as the application of game systems (competition, prizes, the quantification of user behavior) in unrelated domains, such as those of work.

In this reflection, we analyze the relationship between gamification and uberized work in the operations of application companies, digital platforms (Srnicek, 2017) that epitomize a new business model with their infrastructure linked to ICTs and algorithms. We start from a critical position with regard to these themes, since gamification is commonly approached in management literature as a strategy that is capable of promoting engagement and satisfaction, and increasing employee performance in a kind of win-win situation for organizations and their employees. As gamification also has great potential for solving problems by influencing human motivation and behavior (Zichermann & Cunningham, 2011), we wonder what the consequences of combining this strategy with "uberism" might be in a context in which the precariousness of work is associated with surveillance capitalism (Zuboff, 2015) and algorithmic governance (Castro, 2018). Thus, we aim to discuss gamification as a tool for work management, control and subordination, and also associated with algorithmic opacity (Bridle, 2019), a multitude of workers, and the figure of the just-in-time worker (Abílio, 2019). Finally, we will briefly highlight some of the options for the platform economy that can minimize the use of gamification, such as the possibilities afforded by a sustainable platform economy and platform cooperativism (Morrell *et al.*, 2020; Scholz, 2016; Schor & Eddy, 2020).

GAMIFICATION AND PLATFORMS

The term "gamification" emerged in 2002 as the process by which the methods, metaphors, values and attributes of games are able to permeate our society (Fuchs, 2014). Employee-of-the-month signs and loyalty programs are examples of pre-digital gamification (Vesa & Harviainen, 2019). On the one hand, this strategy is extolled as a

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fun solution for engaging and motivating consumers and workers (McGonigal, 2011). Structures, organizations or systems become more intrinsically motivating, and support the general creation of value (Vesa, Hamari, Harviainen, & Warmelinl, 2017). On the other hand, criticisms and doubts about gamification have arisen that question its effectiveness without pre-existing motivation (e.g., Hamari, 2013), and examine its long-term effects (e.g., Koivisto & Hamari, 2014).

The difference proposed by Caillois (2001) between *ludus* (more explicit forms of games guided by rules, without negative connotations) and *paida* (free play, improvisation, spontaneity, and impulsiveness) guided some of these criticisms. For example, Bogost (2011) coined the expression "exploitationware" as a synonym for gamification, while Escribano (2013) states that gamification is nothing more than a "ludictatorship". Woodcock and Johnson (2018) highlight two distinct types of gamification: one coming from above (gamification-from-above), associated with the concept of *ludus*, which emphasizes forms of interaction and feedback drawn from games, but separate from their original playful contexts, and one coming from below (gamification-from-below), which is identified with playful contexts associated with *paida* that aim to make work easier and, at certain times, serving as a resistance practice. The gamification of work seems to imbue it with a behavioral, virtual, and instrumental bias, making it a competitive and (in theory) a fun game, which rewards workers with immaterial prestige rewards (Vesa *et al.*, 2017), such as virtual badges for service excellence or for being fun drivers, as in the case of Uber (Scheiber, 2017).

Our position is that the gamification associated with the uberized work of application companies results in the intensification and exploitation of labor, which is evidence of the new form that management, control and surveillance practices take in the techno-cultural context. In this sense, the Utopian promise of the information society, of emancipated social insertion in and through work, collapses (Braga, 2009, p. 65). Gamification crystallizes through the uberization of work, making it difficult to identify, as it does not materialize in a disciplinary space (such as a factory). Everything happens by way of apps, with minimal human contact, and in an automated way. Overt surveillance becomes a fundamental element for the effectiveness of gamification, and is made possible by digital platforms, which act as intermediaries between the job offer and the service demand, exhibiting monopolistic tendencies that result from network effects (the greater the number of users, the more valuable the platform, and the better its algorithms) (Srnicek, 2017). Thus, when thinking about gamification, we must pay attention to the scope of this strategy vis-à-vis the work process in the application companies.

We know that capitalism is restructured from time to time and that since 2008 its latest version has been associated with a narrative that focuses on the change in, and rise of technology, and that since then, we have lived in an information economy that Srnicek (2017) calls the "platform economy", which is characterized by the extraction and use of a new form of raw material: data. To say that data is the oil of the 21st century may be a cliché, but considering the scale of the digital transformations underway, we cannot underestimate it (Morozov, 2018, p. 8). Like oil, data must be extracted and refined before they can be used. This process involves their capture, registration in some type of material medium and maintenance in mass storage systems (Srnicek, 2017). Platforms are designed to govern the possibilities of interaction, with the rules for the development of their products and services defined by their owner, which indicates that they are not an empty or apolitical space (Srnicek, 2017).

The term "platform" itself establishes a way of being that sanctions a particular state of affairs, discursively placing company services and technologies in the context of financial, cultural and regulatory demands (Gillespie, 2010, p. 349). This framework is strategic, as it enables application companies to search for current and future

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profits at a regulatory point between the legislative protections that are of benefit to them and the obligations that are not, thus presenting a cultural imaginary in which their services make sense to their users and to society as a whole (Gillespie, 2010, p. 348). Thus, the platforms establish "the very criteria by which these technologies will be judged" (Gillespie, 2010, p. 359), taking the form of "a progressive and egalitarian arrangement, promising to support those who stand upon it" (Gillespie, 2010, p. 350).

SURVEILLANCE AND ALGORITHMIC GOVERNANCE OF THE JUST-IN-TIME WORKER

Data collection and analysis must be understood as "a dynamic process where existing surveillance and profiling systems and personal information continuously inform each other with each new interaction between the system and consumers" (Pridmore & Zwick, 2011, p. 272). As a result, application companies customize and structure the world in a non-transparent way (Morozov, 2018, p. 53), through "reality mining" (Zuboff 2015). The mere knowledge of what people do all the time is extrapolated, creating the possibility of intervention and behavior change so that "what is real and what is the outcome of real-time techno-cybernetic manipulation becomes indistinguishable" (Charitsis, Zwick, & Bradshaw, 2018, p. 822). This also applies to the "partners" of the application companies, who are simultaneously both consumers of the ICT they use, and workers who *adhere* (emphasis added) to it (since no contract is signed between the parties).

The operation of digital platforms was made possible, among other factors, by the techno-cultural scenario and operations associated with surveillance capitalism (Zuboff, 2015), thus referring us to the concept of control society and the "progressive and dispersed introduction of a new regime of domination" (Deleuze, 1992, p. 225). Surveillance capitalism establishes a ubiquitous institutional regime, a new type of invisible hand, called "Big Other", which annihilates the freedoms gained through the institution of the rule of law, and is configured as a "regime of independent and independently controlled facts that supplants the need for contracts, governance, and the dynamism of a market democracy" (Zuboff, 2015, p. 81). A future adapted to the normalization of chaos and terror emerges as a substitute for the "community of equals bound by laws in the inevitable and ultimately fruitful human struggle against uncertainty" (Zuboff, 2015, p. 81). Zuboff's forecast also contemplates the establishment of a compliance system based on rewards and punishments that contributes to the accumulation "not only [of] surveillance assets and capital, but also [of] rights" (Zuboff, 2015, p. 83), in as far as individual rights are taken from individuals by Big Other and subsequently redistributed unilaterally.

Despite what Zuboff (2015) says about the lack of governance, Castro (2018) points out "a new form of governance exercised by organizations through algorithms" (Castro, 2018, p. 169, in italics in the original) that involves mining large volumes of data and metadata (hence the term "big data"), which are captured by activities mediated by application companies. It is algorithmic governance that reflects a generalization of management instruments, creating a kind of government without government, and distancing itself from the idea of government as State administration, thus favoring horizontal or networked command styles (Castro, 2018, p. 169). We also emphasize that algorithmic governance finds support from a technocratic point of view, according to which "political decisions are based on neutral facts or rational arguments" (Lemke, 2007, p. 54). This observation leads us to the work of Gillespie (2010) and Srnicek (2017) on how platforms are instituted, including discursively, as technology companies that mediate demand and supply. Associated with this institution is the opacity of ICT and

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its algorithms, understood as a set of instructions for carrying out a task, and increasingly entrusted with decisions, evaluations and analyses that have a direct impact on our lives (Doneda & Almeida, 2018, p. 141).

Algorithmic work is so complex that technological opacity is attributed to it, since the algorithm itself is endowed with automatic learning, and is able to take the decision alone "to reorganize its internal functioning based on the data it is analyzing" (Doneda & Almeida, 2018, p. 142). In this sense, we talk about the "opacity of technological systems" (Bridle, 2019, p. 132), that is, contemporary technology produces effects in the real world that are almost imperceptible *a priori* and, therefore, more difficult to be dimensioned by us (Bridle, 2019, p. 137). In the context of uberism, it is common for workers not to understand the functioning of various activities that are part of their routines, such as dynamic pricing, platform-promoted expulsions, the distribution of races and tasks, etc. (Abílio, 2019, p. 3). The presence of algorithms in application companies is explicitly associated with opaque and unpredictable management and automatic decision-making systems that replace supervisors and shift managers (Mason, 2019). The logic of the algorithm is unknown to the platform's "partners", who can only speculate in virtual forums and on social media about its operation, and who discuss tactics to "deceive" it, such as by interrupting mass work that aims to "force" the algorithm to generate higher tariffs. However, within the context observed here, the traditional technique of interrupting work loses the connotation of fighting exploitation, and becomes a mere attempt at gaming the game (cheating the algorithmic game), which gives workers a feeling of control over the work process while not evidencing a position against capitalist logic, only against obstacles within the game itself (Mason, 2019).

It is interesting to think about this statement in the light of the demands of delivery workers (known as "*motofretistas*" in Brazil) who are responsible for the stoppages carried out in July 2020 in the midst of the COVID-19 pandemic, when delivery services became essential. According to the Instagram profile "*Treta no Trampo*" (@tretanotrampo), on July 21, 2020 "the fight is to earn more, not to become a CLT or a "*placa vermelha*" and end up earning less. Nobody wants fixed hours and to have a boss". The goal of delivery workers is real autonomy, which would make it possible to negotiate the price of their labor; after all, it is impossible to negotiate with the app or with the algorithm. Evidence of this is seen in the punishment that is applied when tasks are refused. Delivery workers and app drivers complain that they stop getting "gigs", that their scores are negatively affected, and that they are eventually blocked. On the one hand, even though the challenge workers face because of algorithmic management is evident, none of them want to see their work regulated by the CLT, and on the other, Labor Reform (Law 13,467/2017) legalized and started encouraging uberism (also understood as informal working conditions), when it recognized intermittent work (Krein, Abílio, Freitas, Borsari, & Cruz, 2018), for example. In this sense, in addition to the elimination of guarantees acquired through the rule of law by the info-technological Big Other (Zuboff, 2015), the State itself now collaborates so that these guarantees (among them, labor guarantees) are removed from the current legislation.

Algorithmic management has become a new facet of the world of work, with gamification as a strategy, thus allowing work to be increasingly dispersed and its management and control increasingly concentrated ("organization through dispersion", Harvey, 1992). Dispersion is represented by the multitude of workers who are available and engaged, and who adhere to the application company, bear the risks and costs of their activity, and have no guarantees, rights or security (Abílio, 2019). They are also called "just-in-time workers" (Abílio, 2019, p. 4), since application companies are on-demand companies. The formation of a multitude of workers represents a new stage in the outsourcing of work, since there are no more subcontractors, just a multitude of "partners"

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who constantly manage and seek to differentiate themselves individually by way of longer working hours and by assimilating higher costs. These are "self-entrepreneurs", neo-subjects modulated by the "company culture" (Dardot & Laval, 2016, p. 328), who manage their own work in a subordinate manner (Abílio, 2019, p. 5).

Governance or algorithmic management allows for greater predictability of the behavior of the multitude of workers, and it is precisely this predictability that makes it possible to govern the mass, which is traditionally associated with disorder (Castro, 2018). From the numerous movements monitored by the apps and their algorithms, "assumptions are made about future patterns, which are projected on the present as their itinerary and guide, causing the preemption of uncertainty by means of measurability, which in turn paves the way for risk management" (Castro, 2018, p. 175). In this sense, "information capitalism aims to predict and modify human behavior as a means to produce revenue and market control" (Zuboff, 2015, p. 75).

UBERISM AND GAMIFIED EXPERIMENTS

Gamification is a tool that hides work under layers of challenges and games, a concept known as *playbor*, which is a neologism that indicates the overlap between work and leisure, between production and consumption, which is capable of making work as addictive as video games (Scholz, 2017). The experimental character of the gamified strategies of application companies is emphasized by authors and commentators: Scheiber (2017) writes about Uber, while Mason (2019) talks about his experience working for Lyft. Scheiber (2017) is explicit in stating that Uber is stealthily involved in behavioral experiments to manipulate its drivers in order to achieve corporate growth. On the one hand the company insists on saying that its drivers are bound by contracts, that they are partners or entrepreneurs who enjoy flexibility, and who connect to consumers who need their services by way of the platform (paying a commission of between 20% and 30%, according to Rosenblat and Stark, 2016). On the other hand, the application company needs to compete with others, which means serving its customers in the shortest time possible and at the lowest possible cost. As they do not have the means of coercion of traditional organizations, gamification is used to encourage profitable behavior in their "collaborators", even though these can also be harmful to workers.

Drivers receive "texts, emails, pop-ups, and carefully designed graphics to keep them behind the wheel, and direct them, ostensibly, to areas of highest demand" (Süsser, Roessler & Nissenbaum, 2019, p.8). In this way, as in video games, platform workers are discreetly driven, resulting in more emotional engagement, and more investment in completing tasks. We also remember that contact with the company is mostly by way of the app, with no human interaction, enabling all activities to be quantified and transformed into data that are collected and analyzed, thus suggesting the possibility of the unlimited implementation of gamified strategies. We list below examples of these strategies, remembering that this is not an exhaustive list. In addition, we draw attention to the obsolescence that surrounds studies on new media and ICT (Crary, 2013), which signals the expansion of the range of gamified techniques over time, making an in-depth investigation fundamental for understanding how the universe of work is being reconfigured through the acceleration promoted by ICT, and the new forms of work management and control that have emerged in this context.

In addition to immaterial rewards, such as fun driver badges (Scheiber, 2017), elaborate graphics, which show drivers those areas where higher rates are likely, are considered a gamification technique (Süsser *et al.*, 2019). Drivers are attracted by the possibility of more profitable trips ("dynamic pricing"), but the chances of getting

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one are slim and extremely unpredictable, because the highlighted areas appear and disappear in a matter of minutes (Mason, 2019). Apparently, the tactic keeps drivers driving to meet the demand (Calo & Rosenblat, 2017, p. 1662 call this technique the "bait and whip mechanism"). This unpredictability is addictive, and is also widely exploited in games of chance to ensure players place just one more bet (Mason, 2019).

The just-in-time, or on-demand worker is a 'kept working' by techniques such as notifications that are received when, for example, they are ready to disconnect from the app: "Are you sure you want to go offline? Demand is very high in your area. Make more money, don't stop now!" (Rosenblat & Stark, 2016, p. 3768). Another common notification warns the worker that they are reaching an arbitrary earning goal: "You are $10 from making $330!", accompanied by commands just below the message (and highlighted), which offer the driver two options - disconnect or continue driving (Scheiber, 2017), as on a video game screen. These are "attempts to exploit a well-known decision-making vulnerability – people's preoccupation with goals" (Süsser *et al.*, 2019, p. 8). Similar effects are achieved by the interactive feature of apps that show drivers "work status (hours, earnings, rides, etc.) in game-like formats that are known for their power to keep players at the game console, and, presumably, drivers at the wheel" (Süsser *et al.*, 2019, p. 8).

One technique adopted by Uber that is considered addictive (Mason, 2019; Scheiber, 2017; Süsser *et al.*, 2019) is the forward dispatch (an automatic and standard feature, which Uber guarantees can be deactivated by the driver, although it is automatically reactivated after each break, according to Scheiber, 2017), that is, before finishing a trip drivers are informed of other requests, which makes them practically irresistible. This technique is comparable to that used by streaming services, such as Netflix and Amazon Prime, which promotes a new way of consuming called "binge watching" (e.g., Pittman & Sheehan, 2015, for "marathon series" in Portuguese). In the context of uberized work, the technique certainly promotes a new (and addictive) way of working, which reduces the waiting time for consumers while overriding the drivers' self-control (Scheiber, 2017).

As a last example, we point to the evaluation system that apps use to classify their drivers, which is associated with surveillance and worker management. In addition to outsourcing the role of manager to consumers (Rosenblat & Stark, 2016), creating an economy of reputation (Slee, 2017), the evaluations highlight the system of constant monitoring of drivers' work in order to identify and create flows of efficient work, as in the Taylorist tradition (Rosenblat & Stark, 2016, p. 3772). At the heart of techno-culture, surveillance is a way of collecting data that are produced by workers and users of apps. These data make it possible for other gamified techniques to be implemented, thus avoiding direct disciplinary measures through the use of weekly performance metrics, for example (Rosenblat & Stark, 2016, p. 3772). Job stability is threatened. Workers simply speculate in communities on social media how these evaluations are made. Some companies distribute tasks in high-demand times according to accumulated assessments. When the score drops, calls become scarce, or workers are disconnected by the application company (Ordaz, 2019).

Trying to maintain high averages, workers resort to what is described as emotional work, the combination of friendly attempts at conversation with eye contact in order to guess the preferences of passengers in exchange for good assessments instead of tips (Rosenblat & Stark, 2016, p. 3775). The commitment to please users becomes an obsession as the assessment reports arrive, showing a drop in the average (Mason, 2019). As ratings are calculated on the basis of the last 100 trips, drivers feel compelled to drive even further in exchange for better ratings (Mason, 2019). Abílio (2019, p. 4) points out that evaluations act as an informal certification that affects the professional identity of the worker, that is, his/her professional recognition is closely linked to the ranking over time; so even the possibility of having access to future work is at stake.

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The experiments conducted by the application companies with their "partners" reveal "human vulnerability to forms of irrational, biased and bounded thinking, as well as tendencies towards compulsive and even addictive ruts" (Süsser *et al.*, 2019, p. 9). Mason (2019) goes further, arguing that these on-demand companies adopt the same elements as betting companies with the intention of keeping their workers connected and available for longer periods, and checking the app frequently. In theory, surveillance helps triangulate the data produced at each interaction with other demographic data, forming profiles that allow drivers to receive personalized communication. However, there are authors (e.g., Schüll, 2014) who argue that the ludic loop, a feeling of unpredictability that is addictive, is responsible for keeping workers at their disposal. After all, they never know when dynamic pricing areas will emerge or when the next task will arrive that will allow them to earn a bonus. Thus, workers are conditioned to do just one more trip, like the player who always needs to play one last round. There seems to be a time dimension involving work management and control that deserves to be investigated, which combines with the surveillance and operation of the platforms. There is a fear, therefore, of a return to an era prior to the New Deal (Scheiber, 2017), when there was a frightening asymmetry of power between organizations and workers, represented by the absence of guarantees and security, enabling them to be exploited. We are facing a possible digital easement, which is very similar to the working conditions of the 19th century (Ordaz, 2019).

In conclusion, we believe that uberism is a global trend in the world of work (Abílio, 2019) that is appearing in other contexts associated with the gig economy, such as domestic work, micro-work and online freelancing (Woodcock & Graham, 2020). In all these scenarios, gamification intervenes, changing the form of worker management and control. Recent studies, however, suggest the possibility of a sustainable platform economy, as well as platform cooperativism (Morrell *et al.*, 2020; Scholz, 2016; Schor & Eddy, 2020), contexts in which the use of gamified techniques is greatly reduced: four of the 20 platforms that were part of the study by Morrell *et al.* (2020) use gamification. Three of these four platforms are unicorns (that is, startups valued at $1 billion before going public), and one is an alternative design platform. Two of the 20 stated that their employees can reject both algorithmic management and gamified techniques when these aspects are present (Morrell *et al.*, 2020). These two platforms are unusual, however (that is, it is impossible to reject both algorithmic management and gamification when working for unicorn digital platforms, according to Morrell *et al.* 2020).

In turn, platform cooperativism, which emerges from the values of the Social and Solidarity Economy, and the principles of cooperativism, is thought to be a truly collaborative alternative (Morrell *et al.*, 2020). Schor and Eddy (2020) investigated non-profit platforms that aim to promote social benefits and that, despite using the same technology as other platforms but in low-cost versions, have either been unsuccessful, or have experienced very slow growth. In any case, the expectation is that gamification in these models is reduced or even optional. The attempt to create delivery cooperatives in Brazil exists and relies on the voluntary work of professionals from different areas (lawyers, programmers, and economists, among others), despite the high initial cost of developing a simplified app (about BRL 500,000, according to the Época Negócios magazine website, 2020).

REFERENCES

Abílio, L. C. (2019). Uberização: Do empreendedorismo para o autogerenciamento subordinado. *Psicoperspectivas*, *18*(3), 1-11. doi: 10.5027/psicoperspectivas-vol18-issue3-fulltext-1674

Abílio, L. C. (2020). Plataformas digitais e uberização: Globalização de um Sul administrado? *Contracampo*, *39*(1), 12-26. doi: 10.22409/contracampo.v39i1.38579

 CC BY

Bogost, I. (2011). *Gamification is bullshit: My position statement at the Wharton Gamification Symposium*. Retrieved from http://bogost.com/writing/blog/gamification_is_bullshit/

Braga, R. (2009). A vingança de Braveman: O infotaylorismo como contratempo. In R. Antunes, & R. Braga (Orgs.), *Infoproletários: Degradação real do trabalho virtual*, 59-88 São Paulo, SP: Boitempo.

Bridle, J. (2019). *A nova idade das trevas: A tecnologia e o fim do futuro*. São Paulo, SP: Todavia.

Caillois, R. (2001). *Man, play and games*. Champaign, Illinois: University of Illinois.

Calo, R., & Rosenblat, A. (2017). Taking economy: Uber, information, and power. *Columbia Law Review*,*117*(6), 1623–1690. Retrieved from https://columbialawreview.org/content/the-taking-economy-uber-information-and-power/

Castro, J. C. L. (2018). Redes sociais como modelo de governança algorítmica. *MATRIZes*, *12*(2), 165-191. doi: 10.11606/issn.1982-8160.v12i2p165-191

Charitsis, V., Zwick, D., & Bradshaw, A. (2018) Creating worlds that create audiences: Theorising personal data markets in the age of communicative capitalism. *Triple C*, *16*(2), 820-834. doi: 10.31269/triplec.v16i2.1041

Crary, J. (2013). *24/7: Late capitalism and the ends of sleep*. London, UK: Verso.

Dardot, P., & Laval, C. (2016). *A nova razão do mundo: Ensaio sobre a sociedade neoliberal*. São Paulo, SP: Boitempo.

Deleuze, G. (1992). *Conversações, 1972-1990*. São Paulo, SP: Editora 34.

Deterding, S., Khaled, R., Nacke, L. E., & Dixon, D. (2011). Gamification: Toward a definition. Retrieved from http://gamication-research.org/wp-content/uploads/2011/04/02-Deterding-Khaled-Nacke-Dixon.pdf

Doneda, D., & Almeida, V. A. F. (2018). O que é a governança de algoritmos? In F. Bruno, B. Cardoso, M. Kanashiro, L. Guilhon, & L. Melgaço (Orgs.), *Tecnopolíticas da vigilância: Perspectivas da margem*. São Paulo, SP: Boitempo.

Doorn, N. Van, & Chen, J. Y. (2020, no prelo). Odds stacked against workers: Labor process gamification on Chinese and American food delivery platforms. *Socio-Economic Review*. Retrieved from https://admin.platformlabor.net/output/labor-process-gamification-china-us-food-delivery-platforms/Odds%20Stacked%20Against%20Workers_pre-pub.pdf

Dymek, M., & Zackariasson, P. (2016a). *The business of gamification: A critical analysis*. New York, USA: Routledge.

Dymek, M., & Zackariasson, P. (2016b). Work hard, play hard. In M. Dymek, & P. Zackariasson (eds), *The business of gamification: A critical analysis*, [ePub], xi-xxi,New York, USA: Routledge.

Época Negócios. (2020). *"Adeus, iFood": Entregadores tentam criar cooperativa para trabalhar sem patrão*. Retrieved from https://epocanegocios.globo.com/Carreira/noticia/2020/07/adeus-ifood-entregadores-tentam-criar-cooperativa-para-trabalhar-sem-patrao.html

Escribano, F. (2013). Gamification versus ludictatorship. *Revista de Comunicación*, *5*, 58-72. Retrieved from http://revistadigitalis.uvic.cat/índex.php/obradigital/article/view/22

Filgueiras, V., & Antunes, R. (2020). Plataformas digitais, uberização do trabalho e regulação no capitalismo contemporâneo. *Contracampo*, *39*(1), 27-43. doi: 10.22409/contracampo.v39i1.38901

Fuchs, M. (2014). Predigital precursors of gamification. In M. Fuchs, S. Fizek, P. Ruffino, & N. Schrape (Eds.), *Rethinking gamification*. Hybrid Publishing Lab, Centre for Digital Cultures, United Kingdom: Lightning Source UK Ltd, 119-140.

Gillespie, T. (2010). The politics of 'platforms'. *New Media and Society*, *12*(3), 347-364. doi 10.1177/1461444809342738

Hamari, J. (2013). Transforming Homo economicus into Homo ludens: A field experiment on gamification in a utilitarian peer-to-peer trading service. *Electronic Commerce Research and Applications*, *12*, 236-245. doi: 10.1016/j.elerap.2013.01.004

Harvey, D. (1992). *A condição pós-moderna: Uma pesquisa sobre as origens da mudança cultural*. São Paulo, SP: Loyola.

Kittur, A., Nickerson, J. V., Bernstein, M., Gerber, E., Shaw, A., Zimmerman, J., Lease, M., & Horton, J. (2013, February 23-27). The future of crowd work. *Proceedings of the ACM Conference on Computer Supported Coooperative Work*, San Antonio, USA. Retrieved from https:// hci.stanford.edu/publications/2013/CrowdWork/futureofcrowdwork-cscw2013.pdf

Koivisto, J., & Hamari, J. (2014). Demographic differences in perceived benefits from gamification. *Computer in Human Behavior*, *35*, 179-188. doi: 10.1016/j.chb.2014.03.007

Kozinets, R. V. (2019). Consuming tecnocultures: An extended JCR curation. *Journal of Consumer Research*, *46*, 620-627. doi: 10.1093/jcr/ucz034

Krein, J. D., Abílio, L., Freitas, P., Borsari, P., & Cruz, R. (2018). Flexibilização das relações de trabalho: Insegurança para os trabalhadores. *Revista do Tribunal Regional do Trabalho da 15ª Região*, (52), 41-66. Retrieved from https://juslaboris.tst.jus.br/handle/20.500.12178/141969

Lemke, T. (2007). An indigestible meal? Foucault, governmentality and state theory. *Distinktion*, *8*(2), 43-64. doi: 10.1080/1600910X.2007.9672946

Manyika, J., Lund, S., Bughin, S., Robinson, K., Mischke, J., & Mahajan, D. (2016, October). Independent work: Choice, necessity, and the gig economy. *Mckinsey Institute*. Retrieved from https://www.mckinsey.com/featured-insights/employment-and-growth/independent-work-choice-necessity-and-the-gig-economy

Mason, S. (2019). Chasing the pink. *Logic*, *6*. Retrieved from https://logicmag.io/play/chasing-the-pink

McGonigal, J. (2011). *Reality is broken: Why games make us better and how they can change the world*. New York, USA: Penguin Books.

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Moreschi, B., Pereira, G., & Cozman, F. G. (2020). The Brazilian workers in Amazon Mechanical Turk: Dreams and realities of ghost workers. *Contracampo*, *39*(1), 46-64. doi: 10.22409/contracampo.v39i1.38252

Morozov, E. (2018). *Big Tech: A ascensão dos dados e a morte da política*. São Paulo, SP: Ubu Editora

Morrell, M. F., Espelt, R., & Cano, M. R. (2020). Sustainable platform economy: Connections with the sustainable development goals. *Sustainability, 12*(18), *7640*. doi: 10.3390/su12187640

Ordaz, P. (2019). *Os entregadores de comida são reféns do seu 'like'.* Retrieved from https://brasil.elpais.com/brasil/2019/01/23/economia/1548260634_440077.html

Pittman, M., & Sheehan, K. (2015). Sprinting a media marathon: Uses and gratifications of binge-watching television through Netflix. *First Monday*, *20*(10). doi:10.5210/fm.v20i10.6138

Pridmore, J., & Zwick, D. (2011). Editorial: Marketing and the rise of commercial consumer surveillance. *Surveillance and Society*, *8*(3), 269-277. Retrieved from https://ojs.library.queensu.ca/index.php/surveillance-and-society/article/view/4163/4165

Rosenblat, A., & Stark, L. (2016). Algorithmic labor and information asymmetries: A case study of Uber's drivers. *International Journal of Communication*, *10*, 3758-3784. Retrieved from https://ijoc.org/index.php/ijoc/article/view/4892/1739

Santos, J. V. (2020). *Uberismo e gaificação: Transformações do mundo do trabalho reveladas na greve dos entregadores.* Instituto Humanitas Unisinos. Retrieved from http://www.ihu.unisinos.br/159-noticias/entrevistas/601125-uberismo-e-gamificacao-transformacoes-do-mundo-do-trabalho-reveladas-na-greve-dos-entregadores-entrevista-especial-com-ana-claudia-moreira-cardoso

Scheiber, N. (2017). *How* Uber uses psychological tricks to push its drivers' buttons. *N.Y. Times.* Retrieved from https://www.nytimes.com/interactive/2017/04/02/technology/uber-drivers-psychological-tricks.html

Scholz, T. (2016). *Cooperativismo de plataforma: Contestando a economia do compartilhamento corporativa*. São Paulo, SP: Autonomia Literária.

Scholz, T. (2017). *Uberworked and underpaid: How workers are disrupting the digital economy*. Cambridge, UK: Polity Press.

Schor, J. B., & Eddy, S. (2020). The just and democratic platform? Possibilities of platform cooperativism. Retrieved from https://www.bc.edu/content/dam/bc1/schools/mcas/sociology/pdf/connected/Platform%20Possibilities%20March%201%202020.pdf

Schüll, N. D. (2014). *Addiction by design: Machine gambling in Las Vegas*. Princeton, USA: Princeton University Press.

Slee, T. (2017). *Uberização: A nova onda do trabalho precarizado*. São Paulo, SP: Editora Elefante.

Srnicek, N. (2017). *Platform capitalism* [ePub]. Cambridge, UK: Polity Press.

Stefano, V. De. (2017). Labour is not a technology: Reasserting the declaration of Philadelphia in times of platform-work and gig-economy. *IUSLabor*, *2, 1-16*. Retrieved from https://core.ac.uk/download/ pdf/155003521.pdf

Süsser, D., Roessler, B., & Nissenbaum, H. (2019). Online manipulation: Hidden influences in a digital world. *Georgetown Law Techonology Review*, *4*(1), 1-45. Retrieved from https://georgetownlawtechreview.org/online-manipulation-hidden-influences-in-a-digital-world/GLTR-01-2020/

Valenduc, G. (2019). New form of work and employment in the digital economy. In A. Serrano-Pascual, & M. Jespen (Eds.), *The deconstruction of employment as a political question*. Brussels, Belgium: Palgrave Macmillan, 63-80.

Vesa, M., Hamari, J., Harviainen, J. T., & Warmelink, H. (2017). Computer Games and Organization Studies. *Organization Studies*, *38*(2), 273–284. doi: 10.1177/0170840616663242

Vesa, M., & Harviainen, J. T. (2019). Gamification: Concepts, consequences, and critiques. *Journal of Management Inquiry*, *28*(2), 128-130. doi: 10.1177/1056492618790911

Woodcock, J. & Graham, M. (2020). *The Gig Economy: A critical introduction* [ePub]. Cambridge, UK: Polity Press.

Woodcock, J., & Johnson, M. R. (2018). Gamification: What it is, and how to fight it. *The Sociological Review*, *66*(3), 542-558. doi: 10.1177/0038026117728620

Zichermann, G., & Cunningham, C. (2011). *Gamification by design: implementing game mechanics in web and mobile apps*. Canada: O'Reilly Media, Inc.

Zuboff, S. (2015). Big Other: Surveillance capitalism and the prospects of an information civilization. *Journal of Information Technology*, *30*(1), 75-89. doi: 10.1057/jit.2015.5

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Renata Couto de Azevedo de Oliveira worked on the research, writing and final revision of this theoretical essay manuscript.

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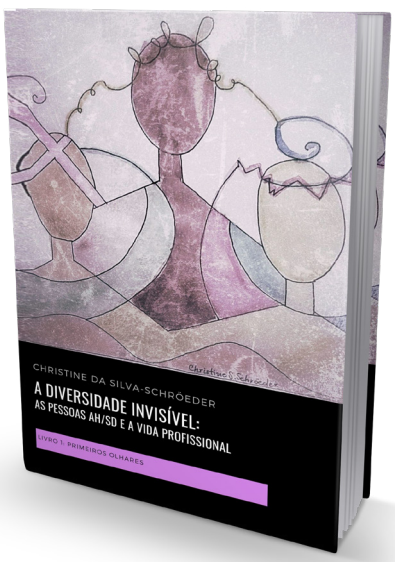
BOOK REVIEW

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INCORPORATING AH/SD INTO ORGANIZATIONAL DIVERSITY

A diversidade invisível: As pessoas AH/SD e a vida profissional. Livro 1: Primeiros olhares

Christine da Silva Schröeder. Sao Paulo, SP: Amazon Publishing, 2020. 120 p.



Researching differences, which refer to the infinity of human existence, as Deleuze (2018) rightly said, does not exempt researchers from being surprised by the very limits of their eyes. This undoubtedly happens with the reading of "The invisible diversity: the AH/SD people and professional life. Book 1: First Glances". This book pays attention to the theme of high habilities and gifted (HA/G), considerably marginal in Administration, which falls within the broad spectrum covered by neurodiversity, thus extending the reach of organizational diversity, which is more than enough reason for this book to be very welcome.

The author fills a considerable knowledge gap by undertaking a systematic work of literature mapping and presentation of concepts, approaches and information about the HA/G population. Throughout five chapters, the book focuses on concepts and contextualization of the theme in Brazil, the presentation of studies on adult HA/G in the country in the last 20 years, the focus of studies on diversity in the country, the need to include this perspective in this spectrum and the management and highlight of HA/G diversity in professional life. The work is concluded with the testimony of a person with these characteristics and some final considerations.

The book presents evident merits, such as focusing on a theme that cannot be overlooked by the clichés erroneously associated with high skills and over-giving, among which that such people would be bearers of innate, very rare and infallible "gifts", and that it is always "positively special" to be identified as HA/G. The broad ignorance of the subject, as well as the commonplace related to it, causes the needs of these people to be ignored by society in general and by organizations in particular, because it is believed that they do not face difficulties. But they do exist, and present a nature and an extension that only those directly affected can perceive, describe and feel, as if there were systematically high expectations in relation to whatever they do because they are "special", which leads to frustrations and generalized tensions in several professional aspects. For this reason, this work, by Christine da Silva Schröeder, professor at the School of Administration at UFRGS, is very relevant. The myths linked to the privileges of the "gifted" are demolished one by one by the author, who takes care of being didactic on the subject, offering a work of great potential for advancing the subject.

By

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Presenting and discussing this issue, associated with the author's personal commitment, however, ends up revealing tensions in the work. On the one hand, the text adopts a sober tone, supposedly neutral and objective, as it advocates a narrow vision of what would be scientifically acceptable knowledge. However, this perspective does not harbor the nuances of suffering, exclusion, and loneliness of HA/G people, and they fortunately "escape" in several passionate passages that appear punctually in the book. Although we understand the author's didactic intention, it is very positive that there is a more humanized look and that the very content of the book gradually embraces this sense from halfway up. When we see the concepts embodied in human existences, we are faced with our own difficulties in perceiving the differences that surround us, and this is a necessary sensitization to transcend the mere conceptual exposition and, besides understanding, to be able to change our positions about it.

Another tension in the book refers to the predominantly managerial focus of the approach. Although the author places the discussion in the light of People Management and, therefore, of benchmarks compatible with diversity management – which explains the moments when recommendations are made to organizations – we think the book is more powerful in another sense: that of recording the high skills and over-endowment in the field of differences, therefore beyond the pragmatically convertible into something manageable (Souza, 2014). It is precisely in the infinity of human existences that differences are inserted as characteristics that are not better or worse than others. And this is how one avoids falling into the "competition of differences", in which each oppressed social group defends how much its condition is overlooked in relation to the others. In the end, besides being unproductive, this seems to exempt normality from being frontally questioned as a political-ideological project to be abandoned in favor of a more equitable society that treats everyone equally in the measure of their differences (Azevedo, 2013).

These tensions, however, are far from diminishing the work, quite the contrary: they reveal the challenges of producing knowledge in an innovative way and sensitive to unusual perspectives. The author deserves to be congratulated for her initiative from both intellectual and political points of view. By choosing to dedicate herself to the subject in order to put her own history on the table, she does an enormous service to the field of differences, by showing that even positive stereotypes remain stereotypes, which contributes to people being perceived and respected not for what they are, but for what they should be, according to an ideal fool of normality that oppresses us all.

REFERENCES

Azevedo, M. L. N. (2013). Igualdade e equidade: Qual é a medida da justiça social? *Avaliação: Revista da Avaliação da Educação Superior*, *18*(1), 129-150. doi: 10.1590/S1414-40772013000100008.

Deleuze, M. (2018). *Diferença e repetição*. Rio de Janeiro, RJ: Paz e Terra.

Souza, E. M. (2014). Poder, diferença e subjetividade: A problematização do normal. *Farol – Revista de Estudos Organizacionais e Sociedade*, *1*(1), 113-160. doi: 10.25113/farol.v1i1.2556

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Luiz Alex Silva Saraiva worked on all steps of the text elaboration, from conception to final revision of the manuscript.

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