



## Review article

## Intangible assets and organizational citizenship behavior: A conceptual model

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## ARTICLE INFO

## Keywords:

Intangible assets  
 Intellectual capital  
 Psychological capital  
 Organizational citizenship behavior  
 Work engagement  
 Perceived organizational support  
 Entrepreneurial psychology  
 Human resource management  
 Business management  
 Strategic management  
 Research and development  
 Business

## ABSTRACT

Through reviewing extant literature, this conceptual paper is aimed to improve the understanding of the intervening mechanisms that influence the relationship between intangible assets (IAs) and organizational citizenship behavior (OCB) to improve the performance of contemporary knowledge-dependent organizations. The authors believe this to be the first attempt to bring four major components of IAs together and look at their relationship with OCB. This helps to create awareness of the necessity of matching key resources with appropriate behavior to improve organizations' competitive advantages. The proposed model and propositions showed relationships between IAs and OCB mediated and moderated by work engagement and perceived organizational support, respectively. Moreover, this paper suggests the need for integrated multi-level studies to strengthen the links between critical resources and behaviors to put the learning organization on the right growth track. Future research is suggested on new conceptualizations of IAs, such as spiritual capital, as well as the relationship of IAs with other typologies of OCB.

## 1. Introduction

The nature of employee resources and behaviors affects organizational effectiveness. The resource-based view (Barney, 1991) and later the dynamic capability view (Teece et al., 1997) clearly indicated the roles of organizations' resources in competitive advantage. Today, we are witnessing that the global economy is becoming more knowledge dependent, which has extended the resource-based view into the knowledge-based view of competitive advantage (Bontis, 2001; De Carolis, 2002). The knowledge-based view considers knowledge an organization's most strategic resource, and intangible assets are critical and highly related with knowledge creation (Grant, 2002; Bontis et al., 2000), which is important for creating and sustaining competitive advantage (Curado and Bontis, 2006; Teece, 2018; Teece et al., 1997). Nonaka and Toyama (2003) considered knowledge organizations' true source of competitive advantage, related to the fact that intangible assets result in socially complex dimensions of knowledge that is tacit and difficult to imitate. In support of such claims, Hitt et al. (2001) stated that intangible resources as rare, socially complex, and, again, difficult to imitate. Furthermore, human resource management and organizational behavior scholars (e.g., Bolino et al., 2018; Klotz et al., 2018; Organ,

1988, 2018; Podsakoff et al., 2009, 2018; Vandyne et al., 1995) relates the effectiveness of the organization with the nature of human behavior in the performance. They argue that not only in-role but extra-role behaviors (including organizational citizenship behavior; OCB) of employees affects organizational effectiveness.

Both the nature of resources and types of behaviors can indicate whether there are relationships between them that affect organizational performance. Based on the above literature, we might think that employees can create valuable knowledge both within and beyond their roles. Thus, organizational leaders are primarily concerned with relating their key resources with employees' behaviors to improve overall performance. However, there is little data on how the two concepts relate to each other to improve organizational performance. Therefore, with this paper we are specifically interested in looking at the relationship between organizations' intangible assets (IAs) and OCB. By looking at this relationship, we can understand how they influence each other in affecting organizational performance.

Most studies in the management field (e.g., human resource management, organizational behavior, strategic management, organizational theory) are conducted using single level analysis at either the micro or macro level (Aguinis et al., 2011; Hitt et al., 2007). For instance, while

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existing studies on IAs (e.g., Dost et al., 2016; Inkinen, 2015; Martín-de Castro et al., 2019; Subramaniam and Youndt, 2005) were conducted at organizational level, studies on OCB (e.g., Organ, 1988; Podsakoff et al., 2000; Williams and Anderson, 1991; Van Dyne and LePine, 1998) were conducted at individual level. Even though these distinction-based studies benefited their respective specific areas, the studies also generated fragmented knowledge that affected the practical impact of the findings (Durand et al., 2017). Thus, scholars (e.g., Aguinis et al., 2011; Hitt et al., 2007; Molina-Azorín et al., 2019) are increasingly calling for the use of a multi-level structure to better comprehend modern complex issues in management. According to Molina-Azorín et al. (2019), a multi-level study refers to jointly using more than one level of assessment, such as individual and organizational variables (i.e., micro-macro levels). Given this context, looking at the effects between IAs and OCB and organizational performance requires the use of a multi-level study. This is because IAs, which represent an organizational level variable of cumulative intangible resources, are difficult to measure objectively (Bontis, 2001), but can be understood by aggregating the perceived responses from individual levels of the organization. In contrast, OCB is an individual level variable that represents the specific behaviors of individuals within the organization. Therefore, in bringing these two concepts together, we argue that a multi-level study is an appropriate approach to be applied in this paper's context.

IAs and OCB concepts are relatively new concepts that began to be emphasized in management studies at the end of the 20th century. In the last two decades, researchers have conducted conceptual and empirical studies on IAs and OCB (e.g., Allameh, 2018; Bontis et al., 2000; Mackenzie et al., 2018; Marinova et al., 2019; Organ, 1988; Podsakoff et al., 2000; Reed et al., 2006; Sveiby, 1997). In addition, some authors studied the specific relationships of intangible assets with OCB (e.g., Bolino et al., 2002; Chow, 2009; Kang and Snell, 2009; Norman et al., 2010; Wei, 2014). Nevertheless, to our knowledge, no study review paper has shown comprehensive relationships between all the major components of IAs and OCB, and even the available limited literature on the relationships of individual IA components with OCB shows inconsistent results (for more explanation, see Bolino et al., 2002; Chow, 2009; Kagaari and Munene, 2007). Unless we consider such important variables not only separately but also in relation to each other, we move away from the reality facing organizations. The above facts are clear indications of a research gap in the literature related to any consistent overall relationship between IAs and OCB, which we believe warrants this current review study. Without such studies, we can reach wrong conclusions in our understanding of how to improve the effectiveness of organizations in competitive business environments. Thus, the value of this paper in addressing the specified research gap should be seen within the context that we are increasingly moving toward an intangible economic system (Haskel and Westlake, 2017) in which both IAs and OCB are claimed to play significant roles in the competitive performance of organizations. Moreover, with this paper, we attempt to open an avenue for further discussion and research by suggesting conceptual propositions.

In writing this paper, we followed the approach of Yin et al. (2019), a method that reviews the core literature supporting a new, integrated model, such as our proposed effects of IAs on OCB, followed by arguments to support the propositions depicted within the proposed model. We focused on core, theoretical research papers that conceptualized our main constructs, and as a means of substantiating our arguments and propositions, we also relied on recent conceptual and empirical works from leading research journals that represent the constructs within our proposed model. This paper begins with a literature review of the proposed variables to establish the conceptual foundation for our proposed model. We, then, introduce our proposed model and relational propositions, based on the extant literature to argue our propositions. The paper

concludes with a discussion of the theoretical, practical, and future implications of our proposed model.

## 2. Literature review

Before we approach the main theme of the paper, it might be important to look at the theoretical backgrounds of IAs and OCB in the field of management studies. The importance of both IAs and OCB as they relate to organizational effectiveness was previously overlooked. However, since the end of the 20th century, these concepts have received attention, and researchers have underscored their importance to organizational performance. Here we review the theoretical backgrounds of both concepts.

### 2.1. Intangible assets

IAs consistently receive attention because knowledge plays a central role in organizational performance. Valuable knowledge resides in intangible resources (Edvinsson and Sullivan, 1996), which is why IAs are considered so valuable for competitive advantage: They create heterogeneity among firms (Teece et al., 1997). Advances have made important technologies easy to diffuse, making them accessible to different organizations; therefore, organizations are focusing on resources such as IAs that are difficult to transfer and trade (Teece, 2014).

In the literature on intangible assets, researchers use a variety of terms interchangeably with "IAs," including intellectual capital (Fincham and Roslender, 2003), intangible capital (Tomer, 2008), knowledge assets (Bontis, 2001), and knowledge resources (Grover and Davenport, 2001). In the current paper, we use "intangible assets" following Teece et al. (1997) and Lev (2000) among others. Teece (2014) defined IAs as "stock of strategic information and intangible resources that the organization can employ as needed in pursuit of its goals." "Intangible assets" means intellectual capital, and the three main components of that are human, social, and organizational capitals (Bontis et al., 2000; Roos et al., 1997). However, recent authors have explored additional components as intangible assets; for instance, Luthans (2002) introduced psychological capital as a new IA that can greatly affect an organization's performance. Based on this, we focus the current paper on the four main components of intangible assets: human, social, organizational, and psychological capital.

Since the 1990s, many researchers have indicated the importance of IAs (e.g., Edvinsson and Sullivan, 1996; Roos et al., 1997; Sveiby, 1997; Teece et al., 1997). In the modern global economy, characterized by a constantly changing environment that is highly knowledge dependent and competitive, IAs are crucial (Teece et al., 1997). Some researchers (e.g., Eisenhardt and Martin, 2000; Helfat et al., 2007; Teece et al., 1997) showed that IAs give organizations competitive advantage by improving their dynamic capabilities, whereas others directly linked IAs with performance in terms of return on assets, return on equity, employee productivity, and revenue growth (Phusavat et al., 2011). Nimtrakoon (2015) related IAs with financial performance, and Wang et al. (2014) found that IAs improved not only financial performance but also operations.

In addition, IAs improve organizations' innovation activities (Buenachea-Elberdin, 2017; Delgado-Verde et al., 2016; Dost et al., 2016; Kianto et al., 2017; Subramaniam and Youndt, 2005; Wu et al., 2008; Zerenler et al., 2008) and also enhance organizations' ambidextrous learning (Kang and Snell, 2009); the importance of IAs even stretches to international organizations in improving their export performance (Pucar, 2012). Furthermore, the impacts of IAs are reflected in both service and manufacturing organizations (Kianto et al., 2010), in nonprofit organizational performance (Sillanpää et al., 2010), and in strategic orientations and approaches (Roos et al., 2001; Walsh et al.,

2008). Therefore, the importance of IAs extends to organizations of every type and size.

## 2.2. Organizational citizenship behavior

OCB is an extra-role behavior that affects organizational effectiveness in different ways (Vandyne et al., 1995), although its effects are generally considered positive. Originally, Organ (1988) defined OCB as “discretionary behavior which is not formally recognized in the organization’s reward system but overall enhances the effectiveness of the organization.” From this definition, we identified the following as important pillar concepts to explain OCB: discretionary, not rewarded, and promotes organizational effectiveness. However, some scholars (e.g., Organ, 1997; Podsakoff et al., 2000) have proposed revising the original definition to state that OCB needs to be rewarded to be encouraged.

Different scholars have studied and understood OCB by considering its dimensions and have proposed various OCB typologies (e.g., Coleman and Borman, 2000; Dekas et al., 2013; Organ, 1988; Podsakoff et al., 2000; Smith et al., 1983; Williams and Anderson, 1991; Van Dyne and LePine, 1998). In the context of these typologies, we consider two OCB types, OCB toward the individual (OCB-I) and OCB toward the organization (OCB-O; Williams and Anderson, 1991) because this typology has been the most practical and influential in OCB studies (Podsakoff et al., 2009). In addition, OCB type based on the target seems more appropriate to the abovementioned components of IAs than Organ’s (1988) five OCB dimensions. For instance, informal collaborations among employees, a type of internal social capital, are necessary for creating OCB-I (Organ, 1977). Moreover, some of the five dimensions, such as conscientiousness, are not particularly relevant in knowledge-dependent organizations (Harvey et al., 2018).

When we look at the main causes for engaging in OCB activities, we can identify four main reasons. The three indicated by Rioux and Penner (2001) are prosocial values (caring about other people), organizational concern (caring about the organization), and impression management (being seen as dedicated); Harvey et al. (2018) then determined one additional cause for OCB: duty or obligation (i.e., a natural feeling of must do). If we closely look at the prosocial values motive as a main antecedent of OCB, it has similar characteristics with IAs, specifically the social capital component. Positive mood determines OCB aimed at helping others (Lee and Allen, 2002), and positive personal relationships and networks, the main characteristics of social capital (Nahapiet and Ghoshal, 1998; Putnam, 1997), can be building blocks for the positive feelings that are necessary for OCB grounded in prosocial values. In addition, organizational concern as a motive for OCB is related to job satisfaction, commitment, and involvement (Bolino and Turnley, 2003; Diefendorff et al., 2002; Harvey et al., 2018; LePine et al., 2002; Organ, 1990). These attitudinal variables relate to the factors that are listed under components of IAs as their causes (Colquitt et al., 2013; Turnley et al., 2003). For instance, organizational justice, an element of organizational capital, is an important predictor of OCB (Colquitt et al., 2013). Leadership skills and approaches, part of human and social capital, relate to OCB performance (Podsakoff et al., 1990). Moreover, impression management as a motive for OCB can also related to organizational capital. For instance, individuals can use organizational policies and systems related to promotions as a reason to engage in OCB (Bolino, 1999; Hui et al., 2000; Liu et al., 2019; Min, 2018; Qiu et al., 2020). Furthermore, employees also show OCB because they cannot distinguish between in-role and extra-role activities (Kim et al., 2013); this confusion can be linked with the organizational systems and procedures, which are part of organizational capital.

Even though many OCB researchers focused on its antecedents, recent authors are also increasingly looking at OCB outcomes both positive and negative (Harvey et al., 2018; Podsakoff et al., 2009). The positive outcomes of engaging in OCB for individuals can be promotion, recognition, career prospects, positive affection, and enrichment of personal resources (Koopman et al., 2016; Lam et al., 2016; Podsakoff et al., 2009), whereas

adverse outcomes include role overload, job stress, work–family conflict, and job dissatisfaction (Bolino and Turnley, 2005; Koopman et al., 2016). For the organization and group, OCB increases cooperative behavior, efficiency, and productivity (Podsakoff et al., 2000) and enhances organizations’ social capital dimensions and absorptive capacities (Bolino et al., 2002; Hart et al., 2016).

If we think that OCB is important to enhance organizational effectiveness, the next question is how we can create it to maximize its impact. To address this question, we might consider organizations’ intangible resources, or assets, which again are highly emphasized in this era of knowledge-dependent economies. This is related to the fact that knowledge-based organizations require OCB in order to use the required knowledge to increase effectiveness (Harvey et al., 2018). Thus, looking at the relationship between IAs and OCB to understand how they influence each other to affect organizational performance makes sense, especially in the contemporary, highly knowledge-based economic landscape. The above overall review on the antecedents and outcome of OCB shows the existence of hidden or explicit links between OCB and IAs in one way or another, but there is little systematic research on the true nature of the relationship between IAs and OCB, a research gap we aimed to fill with this study.

## 3. Intangible assets and OCB relationship

As we explained above, both IAs and OCB are considered important for organizational performance. Thus, looking at the relationship between these two important concepts and understanding the nature of this relationship can enhance their cumulative effects on performance. Even though the relationship between IAs and OCB is not well researched in the existing literature, there is clear indication of a relationship between the two. Therefore, we begin the formal literature review with an overview of this relationship before we present the model.

The extant literature mainly focused on the relationship between each IA component and OCB (Avey et al., 2011; Bolino et al., 2002; Chow, 2009; Kang and Snell, 2009; Luthans et al., 2007; Ng and Feldman, 2010; Norman et al., 2010; Wei, 2014; Wright and McMahan, 2011). Thus, we highlight below each component of IA and its relationship with OCB, based on which we propose the study model:

- Human capital in general terms is about employee knowledge, skill, abilities, and experiences as internal resources for organizations (Ployhart and Moliterno, 2011). These characteristics of employees are related to extra-role behaviors. First Wei (2014) showed the importance of the relationship between OCB and human capital for organizational performance, and earlier researchers had shown that human capital affects OCB (Wright and McMahan, 2011; Ng and Feldman, 2010). However, it is important to understand whether this relationship is direct or moderated by other factors (Garavan and McGuire, 2001).
- Social capital is about the networks and relationships that can exist among employees of an organization (Nahapiet and Ghoshal, 1998). The relationship of social capital with OCB can be explained by linking the characteristics of social capital with OCB motives and outcomes. For instance, OCB can be affected by informal collaborations among employees and team-member exchange relationships (Organ, 1977; Bolino et al., 2015) and can improve the social working environment (Organ, 1977). These limited findings indicate that the relationship between social capital and OCB requires more detailed investigation; in particular, the direction of the relationship is inconsistent (see, e.g., Bolino et al., 2002; Chow, 2009).
- Organizational (structural) capital is about internal systems, procedures, routines, culture, models, and codified knowledge (Bontis, 1998; Roos and Roos, 1997; Sveiby, 1997). All employee movements including their behaviors are influenced by existing organizational systems (Kang and Snell, 2009). Based on this fact, we need to closely

understand the specific relationship between organizational capital and OCB.

- Psychological capital is about human strengths such as hope, efficacy, resilience, and optimism that link with employees' attitudes, behaviors, and performance (Carter and Youssef-Morgan, 2019; Luthans, 2002; Luthans et al., 2007; Norman et al., 2010). Thus, it is important to look at its specific relationship with the behavioral aspect of OCB. Notably, psychological capital differs from human capital, as clearly indicated by the basic questions the two types of capital aim to address. For instance, Luthans et al. (2004) stated that psychological capital addresses the question of “who you are” while human capital addresses “what you know” questions. Based on the context of the current paper, psychological capital aims to understand the right mind-sets of the organization's employees in terms of hope, efficacy, resilience, and optimism (HERO), whereas human capital aims to understand the organization's employees level of knowledge, skill, and abilities (KSAs).

Based on these initial existing limited findings, we aimed with the current paper to give a comprehensive review and clarify the nature and direction of the relationship between IAs and OCB with the model we propose in the next section.

#### 4. Proposed model and development of propositions

The preliminary information in the above section showed the existence of relationships between IAs and OCB, but there is a lack of knowledge on the clear nature of the relationships. With this paper, we are going to show not only the direct relationships between IAs and OCB but also the intervening factors that can explain the true nature of the relationships. To do so, we propose the research model shown in Figure 1 and explain it in detail to propose future research directions. The model shows the nature of the relationships between IAs and OCB as well as the mechanisms and conditions that determine these relationships.

As the model shows, the main components of intangible assets that recent researchers have discussed are human, social, organizational, and psychological capitals; knowledge that resides in organizations' intangible assets (Steenkamp and Kashyap, 2010). In addition, because knowledge-based organizations require more OCB to make use of the knowledge required for organizational effectiveness, we divided OCB by type based on its target, OCB-I directed toward individuals and OCB-O directed toward the organization (Williams and Anderson, 1991). Based on the model, we review the relationships between IAs and OCB in detail here under some well-known management theories (social exchange, reciprocity, broaden and build) to make propositions.

##### 4.1. Human capital and OCB

First, by understanding the clear meaning of human capital from human resource management and organizational behavior perspectives, we attempt to relate both to OCB. In this process, it is important to look at the individual as well as the organizational outcomes of human capital.

When we look at the meaning of human capital, we find two main perspectives, economic and psychological. The prominent economic perspective scholar, Becker (1964), defined human capital as “the knowledge, skills, ideas, information and health of individuals,” whereas psychologists (e.g., Ployhart and Moliterno, 2011) consider human capital an individual's total set of knowledge, abilities, skills, and other characteristics (KSAOs). Because we were interested in the behavioral aspect of human capital in relation to OCB, the psychologist's perspective was better suited to our paper. The human characteristics that are related to OCB are the focus of this conceptual paper aimed at showing the relationship between the two concepts.

Wei (2014) showed empirically that human capital determines OCB's impact on organizational performance. He determined that OCB's impact on both organizations and individuals is determined by its relationship with human capital, an indicator that there is a relationship between the two. Wright and McMahan (2011) stated that individual human capital has implications for employees' behaviors; that is, individuals' characteristics are the foundation for their behavior. Ng and Feldman (2010) also showed that employee experience is positively related with not only in-role performance but also OCB. As we showed above, human capital is considered employee competence in terms of KSAOs where competent employees usually exhibit discretionary behaviors (Organ, 1988; Moorman, 1991), and competence is an important aspect of empowerment (Garavan and McGuire, 2001) that can affect in-role and extra-role behaviors. Empowerment from competence increases employee effort (Kim, 2004), and therefore, it can be said that competence increases employees' motivation to engage in various behaviors including discretionary behaviors such as OCB. Thus we make the following Proposition:

**Proposition 1a.** Human capital relates positively to organizational citizenship behavior.

When we investigate the relationship between IAs and OCB in depth, we need to consider intervening factors in the process. Based on the extant literature on IAs and OCB, we can consider work engagement (Christian et al., 2011; Gupta et al., 2017), organizational commitment (Lambert et al., 2008; Yi-Ching Chen et al., 2012), and positive emotion (Avey et al., 2008; Greenidge and Coyne, 2014) as potential intervening factors, with work engagement the most important factor; it is highly linked with diverse IAs (such as psychological and social capital) and OCB (Christian et al., 2011; Knight et al., 2017). Work engagement is a concept that involves full self-investment in the workplace emotionally, cognitively, and physically (Bakker, 2017; Bakker and Albrecht, 2018; Kahn, 1990; Rich et al., 2010), which suggests a strong link with IAs, and it shares characteristics with organizational commitment and positive emotion as well (Newman and Harrison, 2008). Thus, for this paper, we consider work engagement a critical mediating factor, which enhances the paper's distinction.

Kahn (1990) and Rich et al. (2010) gave a popular definition of work engagement, “positive emotional, cognitive, and physical attachment in the working place,” and Schaufeli et al. (2002) considered it to be the opposite of burnout. They ascribed three main dimensions of work engagement, vigor (energy and mental resilience), dedication

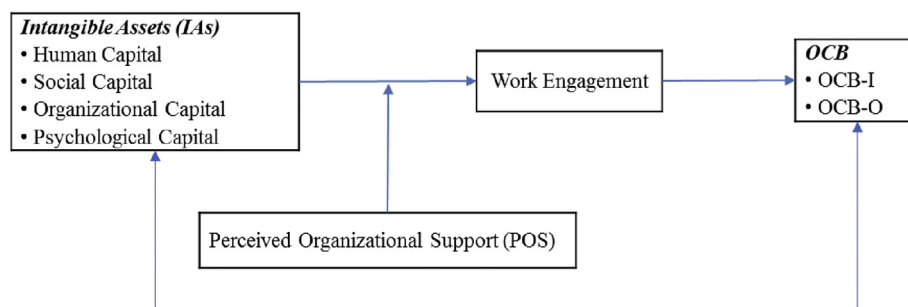


Figure 1. Proposed model of the relationships between IAs and OCB.

(inspiration, significance, involvement, and enthusiasm), and absorption (concentration and engrossment), which suggest unique relationships with distinct IAs. Based on this initial understanding, we treat work engagement in the following sections as a critical intervening factor to better explain the relationship between IAs and OCB.

Work engagement can intervene in the relationship between human capital and OCB that we explained above. Because human capital is about employee competence (Ployhart and Moliterno, 2011), it is difficult to imagine work engagement without empowering employees with the proper competence. This is because proper knowledge and skills enhance employees' energy levels (Febriansyah, 2010). Work engagement requires building personal resources including competence (Bakker, 2017; Knight et al., 2017). Once human capital empowers employees to engage in their work, the work engagement can lead to OCB for the basic reason that engagement enhances employees' discretionary behaviors, motivating them to go the extra mile (Erickson, 2005; Rich et al., 2010). Some empirical researchers (e.g., Christian et al., 2011) showed a positive relationship between work engagement and contextual performance (i.e., OCB). Mental activity is a significant component of human capital, which links with the cognitive attachment nature of work engagement, which links human capital with OCB. Therefore, we can say work engagement intervenes in the relationship between human capital and OCB.

Emerging research findings shed light on the influence of technological advancement on the relationship between human capital and OCB, which includes potentially confounding implications to our proposed relationship. Even though the advancement of technology (e.g. artificial intelligence) is challenging our existing understanding about how human capital is valued in the organization (Popkova and Sergi, 2020), there are also studies (e.g. Hamilton and Sodeman, 2020) that suggest new opportunities to develop effective human capital by way of new technologies (e.g. big data). Amidst this scholastic debate on human capital within the fourth industrial revolution, we believe that human capital will continue to play a central role in organizational competitiveness as a catalyst that not only sparks technological advancement but also integrates such advancement as a means of helping people to become more productive in the organization (Popkova and Sergi, 2020). In this respect, if people in the organization feel good about their productivity, they consider their work meaningful and increase their work engagement (Geldenhuis et al., 2014), which has been shown to positively influence the desirable behaviors of employees, such as OCB (Organ, 2018; Podsakoff et al., 2000). This strengthens our Proposition regarding the relationship between human capital and OCB is mediated by work engagement, even with the advancement of the technological environment.

**Proposition 1b.** The relationship between human capital and OCB is mediated by work engagement.

#### 4.2. Social capital and OCB

Nahapiet and Ghoshal (1998) were the first to consider social capital an important intangible asset; this capital refers to the relationship and networks that exists among employees as well as between the organization and outside stakeholders. Nahapiet and Ghoshal considered social capital the "sum of resources which is embedded in the relationship and accessed through participation in the network of relationships." This capital is reflected in the close interpersonal relationship among individuals (Lin, 2002); because social capital involves voluntary interactions among the actors, its relationship with extra-role behaviors including OCB is worth close examination. Below we delve into the relationship between social capital and OCB.

Current researchers (e.g., Bolino et al., 2002; Chow, 2009) clearly show a relationship between social capital and OCB, but there is no similar understanding of how they relate to each other. Bolino et al. (2002) maintained that OCB leads to social capital, whereas Chow

(2009) and others argue that social capital leads to OCB. We look at the logic of both sides before we draw a conclusion.

Bolino et al. (2002) and others acknowledge the existence of social capital's relationship with OCB and argue that OCB leads to social capital. This argument makes sense when we try to relate it to initial concepts from some of the well-known OCB scholars, such as Podsakoff and MacKenzie (1997), who concluded that OCB facilitates coordination among team members. In addition, OCB brings people together, infuses their connections, strengthens their bonds, and enhances their ability to understand each other (Bolino et al., 2002). OCB "lubricates the social machinery" of an organization (Smith et al., 1983). Bolino et al. (2002) matched Nahapiet and Ghoshal's (1998) three main dimensions of social capital to structural, relational, and cognitive dimensions. This generally indicates that OCB leads to social capital.

From the other side (e.g., Chow, 2009), people are expected to show OCB when they perceive trust and fairness, and trust, interactions, and networks are the main features of social capital (Nahapiet and Ghoshal, 1998; Putnam, 1997). Chow (2009) even considered OCB evidence of the existence of social capital in the forms of strong interpersonal connections because willingness to engage in OCB results from existing trust; trust facilitates collaboration and communication (Becerra and Gupta, 2003), which some researchers believed to be associated with OCB (Konovsky and Pugh, 1994). In addition, Podsakoff et al. (1990) stated that individual trust relates positively to OCB. Moreover, trust, which characterizes social capital, is one of the antecedents of OCB (Konovsky and Pugh, 1994). Furthermore, some recent empirical studies (e.g. Mostafa and Bottomley, 2020) have indicated that while social capital is positively related to OCB, it is also negatively related to counterproductive behaviors. Therefore, based on both sides above in the relationship between social capital and OCB, we propose the following:

**Proposition 2a.** There is a positive and bidirectional relationship between social capital and OCB.

When we look at the bidirectional relationship between social capital and OCB from the OCB-I and OCB-O perspectives, we propose an interesting hypothesis. Both arguments (i.e., social capital leads to OCB and OCB leads to social capital) lend themselves to the OCB-I perspective. Based on the same logic stated above, social capital results in reciprocity and exchange by developing trust within the group (Chow, 2009); it is embedded in the network (Burt, 2000), and it affects individual members' attitudes and behaviors (Chow, 2009). Thus, social capital increases OCB-I because OCB depends on the relationships between individuals. From the other side, the initiative to help other individuals in the form of OCB-I can help to form social capital; when people help others, others want to be around them to receive their OCB; and according to social exchange theory (Blau, 1964), individuals who receive help reciprocate at least by showing respect and affection. Therefore, the OCB-I perspective supports the bidirectional relationship between social capital and OCB.

However, this relationship between social capital and OCB is different in the case of the OCB-O perspective. Chow's (2009) argument seems more practical than that of Bolino et al. (2002). Social capital stimulates individuals to engage in OCB targeted toward their organizations, and Chow (2009) indicated that social capital helps to create cooperative atmospheres that can enhance the effectiveness of employees' contributions. Social capital can directly or indirectly result in OCB-O through job engagement (Ko et al., 2018), but there are no indications in the literature that OCB-O leads to the creation of social capital in organizations. Therefore, the OCB-O perspective does not support a bidirectional relationship between social capital and OCB. These conclusions lead us to the following two specific propositions:

**Proposition 2b.** The positive relationship between social capital and OCB-I is bidirectional.

**Proposition 2c.** The positive relationship between social capital and OCB-O is not bidirectional.

In addition to the above explanations about the relationship between social capital and OCB, we need to look at this relationship from a wider perspective by considering the existence of intervening factors. Social capital's relationship with OCB is assumed to be mediated by work engagement because social capital characteristics such as interactions and networks with coworkers are directly linked first with engagement (Kahn, 1990). Positive social interactions motivate employees to find meaning from their work (Gersick et al., 2000), and Stromgren et al. (2016) showed that increased social capital leads to increased work engagement. The positive interactions make employees engage more with their work, which motivates their OCB (Cropanzano and Mitchell, 2005; Wright and Cropanzano, 2004). If employees are happy because of constructive relationships that enhances their work engagement, Barsade and Gibson (2007) stated that happy employees are likely to engage in OCB. Overall, social capital enhances willingness to invest oneself fully, which creates a favorable situation for voluntary behaviors such as OCB. This shows that positive social capital encourages work engagement and this leads to OCB, which leads us to make the following Proposition:

**Proposition 2d.** The relationship between social capital and OCB is mediated by work engagement.

#### 4.3. Organizational capital and OCB

Organizational capital refers to the total system of the organization, which consists of the internal cultures, routines, models, norms, manuals, and codified knowledge. Organizational capital (Roos and Roos, 1997), structural capital (Bontis, 1998), and internal structure (Sveiby, 1997) all have similar meanings and thus are used interchangeably. This capital is considered firm specific and socially complex in nature (Barney, 1991), and it is also less volatile and difficult to change (Andriessen, 2004). These institutionalized routines and systems guide employees' behaviors (Kang and Snell, 2009) and can both directly and indirectly affect both in-role and extra-role behaviors in the form of organizational capital. This is an indication of the existence of a relationship between organizational capital and OCB.

Because organizations' codified knowledge results from the collective efforts and interactions of their people, systems, structures, and other organization-level resources, organizational capital can be linked with OCB. Organizational capital encourages coordination among employees based on organizations' systems and cultures (Kang and Snell, 2009). Organizational culture, one of the elements of organizational capital, leads organization members to conform to existing rules and norms (Morgan, 1986). This is also because organizational capital creates opportunities to bring people together and encourages them to generate innovative ideas that can improve organizational effectiveness (Kang and Snell, 2009), and this improvement requires not only in-role but also extra-role behaviors, which includes OCB (Vandyne et al., 1995). Individual behaviors are determined by organizational climate, structure, and socialization processes (Tomer, 1987). Therefore, we can here propose organizational capital as a foundation for OCB in an organization.

After recognition of this relationship between organizational capital and OCB, an important next step is to review how organizational capital relates to OCB. Codifying knowledge within an organization requires integration among employees, systems, and structures (Kang and Snell, 2009), making interaction and relatedness the key characteristics of organizational capital (Martín-de-Castro et al., 2006). This can also be better expressed with structural interdependence theory, which states that interdependence based on work characteristics motivates employees to act more cooperatively with each other (Johnson and Johnson, 1986) because of feelings of dependency and obligation to one another (Van de Ven et al., 1976). This cooperation due to structural task interdependence can increase both individual and group or organizational performance (Saavedra et al., 1993; Mesch et al., 1988). Therefore, we can conclude our review here by saying that organizational capital determines the

existence as well as the nature of OCB. This explanation enables us to make the following Proposition:

**Proposition 3a.** There is a positive relationship between organizational capital and OCB.

The relationship between organizational capital and OCB is complicated by potential intervening factors. Tomer (1998) argued that organizational capital leads to OCB if the capital increases employees' psychological attachment to the organization; he showed that not only do psychologically unattached employees not engage in OCB, they latch onto others' goodwill. Organizational capital plays a strong role in creating bonds between employees and organizations, which encourages OCB. Organizational processes should strengthen these bonds to generate voluntary extra-role behaviors that derive because the existence of psychological contracts encourages OCB (Robinson and Morrison, 1995). Schaufeli et al. (2002) stated that fully engaged employees show high levels of energy and mental resilience (i.e., vigor); inspiration, involvement, and enthusiasm (i.e., dedication); and concentration and engrossment (i.e., absorption).

Most antecedents of work engagement that constitute job characteristics (Christian et al., 2011) are related to organizational capital, which can be explained based on the link between job resources and work engagement. Job resources (such as autonomy and feedback) are required for positive engagement, which is expressed by vigor, dedication, and absorption (Bakker, 2017; Bakker and Demerouti, 2008; Schaufeli and Bakker, 2004). Autonomy and feedback are directly linked with centralization, formalization, and specialization (Dalton et al., 1980; Hage and Aiken, 1967), which are part of organizational capital. Furthermore, organizational capital (internal systems, culture, policies, and procedures) affects the extent of employees' work engagement (Anitha, 2014). Thus, we can say that effective organizational capital successfully engages employees in their work and this leads to OCB activities. Therefore, we propose work engagement as a mediating variable as follows:

**Proposition 3b.** The relationship between organizational capital and OCB is mediated by work engagement.

#### 4.4. Psychological capital and OCB

Luthans (2002) explained positive organizational behavior (i.e., psychological capital, PsyCap) as a human resource that can be created, developed, measured, and managed to improve organizational performance. Luthans considered PsyCap to consist of four main constructs (i.e., HERO: hope, efficacy, resilience, and optimism) and attempted to refine PsyCap into the workplace in the form of employees' attitudes, behaviors, and performance. Thus, it is fair to look at how PsyCap relates with OCB as it affects employees' behaviors.

Contemporary competitive business environments require employees to expand their in-role behaviors, and one way for organizations to promote extra-role behavior is through psychological capital (Bogler and Somech, 2019; Luthans et al., 2007; Pradhan et al., 2016; Gupta et al., 2017; Norman et al., 2010; Avey et al., 2008, 2011). Avey et al. (2008) determined that positive psychological capital encouraged extra-role behavior, and Norman et al. (2010) also found that positive psychological capital led to voluntary individual behaviors to help the organization. This relationship can be crystalized with the help of broaden-and-build theory, which posits that positive emotions and orientations broaden people's attention, focus, and behaviors (Fredrickson, 1998). Because of this relationship, the broader behaviors that result from positive emotions connect the relationship between psychological capital and OCB. Specifically, those broader behaviors can be considered extra-role behaviors in the same way as OCB, which results from the positive emotions that stem from psychological capital (Norman et al., 2010). Given that Avey et al. (2011) determined that PsyCap leads to

OCB, it is possible to say that there is a strong relationship between psychological capital and OCB. Furthermore, empirical studies (e.g., Avey et al., 2008; Norman et al., 2010) have indicated that not only is PsyCap positively related with desirable employee behaviors, like OCB, but also negatively related to undesirable, counterproductive employee behaviors.

**Proposition 4a.** There is a positive relationship between psychological capital and OCB.

There are studies that show an indirect relationship between psychological capital and OCB. For instance, Avey et al. (2008) established that PsyCap led to employee behaviors such as OCB through positive emotions, and this relates to Fredrickson's (1998, 2003) broaden-and-build theory, which as noted above argues that positive emotions lead employees to show voluntary helping behaviors toward coworkers and/or helping the organization to improve its effectiveness. In fact, positive emotions from PsyCap not only can increase employees' behavioral and emotional engagement but also can even undo negative emotions (Fredrickson and Levenson, 1998). Thus, we can clearly understand here that PsyCap affects OCB in the form of positive emotions, and these positive emotions from PsyCap, when they occur in the workplace, relate to work engagement.

Work engagement encompasses not only the physical (hand) and the emotional (heart) but also the cognitive (head) dimensions of psychological capital (Kahn, 1990; Rich et al., 2010). In addition, work engagement entails a positive state of mind wherein its characteristics such as high energy, enthusiasm, and mental resilience (Schaufeli et al., 2002) are linked with the impacts of positive psychological constructs (e.g., HERO). This shows that positive psychological capital leads to work engagement, and moreover, positive psychological capital gives employees the strength and resources to engage in their work (Sweetman and Luthans, 2010); in turn, engaged employees engage in OCB (Babcock-Roberson and Strickland, 2010; Gupta et al., 2017). Therefore, it is possible to say that psychological capital increases employees' psychological attachment in the form of work engagement, which leads to OCB. This leads us to make the following Proposition:

**Proposition 4b.** The relationship between psychological capital and OCB is mediated by work engagement.

In addition to looking at work engagement as a mediating variable between IAs and OCB, we look at perceived organizational support as a critical factor in determining the strength of this relationship.

#### 4.5. Perceived organizational support as moderating factor

Understanding the dynamics of the relationship between IAs and OCB requires looking at the most critical conditions that affect this relationship. Results from extant literature on IAs and OCB have shown perceived organizational support (POS; e.g. Eisenberger et al., 1990; Gupta et al., 2017), organizational identity (e.g. Norman et al., 2010), and emotional intelligence (e.g. Pradhan et al., 2016) to be potential moderating factors. However, because social exchange theory can to some extent explain the relationship between IAs and OCB (Blau, 1964), POS was the best fit for this study's purpose as a critical moderating factor (Eisenberger et al., 1986). In addition, POS affects not only IAs and OCB but also work engagement (Eisenberger et al., 1999). Therefore, we looked at POS as a moderating variable in the relationship between IAs and OCB.

POS is employees' perceptions about the support they receive from their organizations regarding their contributions (Eisenberger et al., 1986, 2020). This meaning indicates the critical role of POS in employees' behavior and characteristics. Thus, for this paper we consider the role of POS in this regard to be a boundary condition.

For this paper, we understand the moderating role of POS in the relationship between IAs and OCB to be based on social exchange theory, and this is because POS encourages employees to engage in reciprocity included in extra-role behaviors such as OCB (Gupta et al., 2017; Jain

et al., 2013; Kurtessis et al., 2017); when employees believe their organizations support them, they support their organizations (Cropanzano and Mitchell, 2005; Eisenberger et al., 1986). POS also affects IAs and their impacts on OCB; for instance, organizational support could take the form of providing employees necessary training and development opportunities that enhance their competence (Renee Barnett and Bradley, 2007).

Separate from formal channels, POS can be informal such as through networking opportunities (London, 1993), and this kind of relationship-oriented support can help employees build positive and constructive relationships in the organization; in turn, positive relationships among members of the organization are linked with OCB (Chow, 2009; Cropanzano and Mitchell, 2005). For instance, positive relationships result in both altruism (e.g., OCB-I) and conscientiousness (e.g., OCB-O; Uhl-Bien and Maslyn, 2003). In other words, POS encourages positive relationships among coworkers, which stimulate OCB in the form of being willing to help one another (Anand et al., 2010).

In turn, these positive relationships and OCB can be linked with the strength of organizational capital; organizational capital is not only about internal systems and infrastructures but also about organizational routines and cultures (Bontis, 1998; Leitner, 2011; Reed et al., 2006; Roos and Roos, 1997; Sveiby, 1997). That is, OCB takes place within the organization as long as there is POS, and social exchange theory suggests that as this OCB persists within the organization, it becomes codified as part of the normal routine and culture of the organization.

POS can also be reflected in PsyCap development and impact, given that POS directly affects employees' cognitive and psychological mindsets (Gupta et al., 2017). Kurtessis et al. (2017) also indicated in their empirical research that the impact of psychological capital on OCB is determined by POS. Positive perceptions about organizational support create favorable circumstances for employees to engage with their work and their organizations (Cohen-Charash and Spector, 2001). This shows that POS not only affects IAs and OCB but also work engagement, which is an intervening variable in this study. Generally, all these explanations show that POS significantly affects the relationship between IAs and OCB through work engagement, which we propose as:

**Proposition 5.** Within the proposed model, the relationship between IAs and work engagement is moderated by the level of POS, such that when POS is high the relationship is strong and when POS is low the relationship is weak.

In explaining the relationship between human capital and OCB, our review convinced us to make two more propositions. As we indicated above, individuals can voluntarily engage in helping behaviors toward other individuals (OCB-I) or toward their organizations (OCB-O) using their knowledge, skills, or competence. Wright and Snell (1991) indicated that employees should have the required skill to provide support to both their organizations and individuals, but the relationship depends on circumstances. Wright and McMahan (2011) maintained that the relationship between human capital and behavior is bridged by the concept of motivation, and the source of this motivation determines the types of OCB in relation to human capital.

When we look at the relationship between human capital and OCB-O, this relationship can be explained using organizational support theory (Kurtessis et al., 2017; Eisenberger et al., 1986; Eisenberger and Stinglhamber, 2011), which is based on the logic of social exchange theory (Blau, 1964) and reciprocity theory (Leakey and Lewin, 1979). Individuals' perceptions of how their organizations treat them determine their voluntary behaviors toward their organizations in the form of OCB-O; in this case, the social exchange is between the individual and the organization. Coyle-Shapiro et al. (2004) indicated that employees' perceptions of procedural and interactional justice affect their OCB-O efforts; competent employees require fair procedural climates to engage in OCB-O. In addition, knowledge employees demand autonomy and freedom from controls exercised by the hierarchy of organizations (Guest, 2004). All these factors (i.e., procedural and interactional justice,

autonomy, freedom) are indicators of perceived organizational support (Rhoades and Eisenberger, 2002). Therefore, we can say that the relationship between human capital and OCB-O is determined by the individual's POS, which we proposed as follows:

**Proposition 6.** Individual's POS more strongly moderates the relationship between human capital and OCB-O than the relationship with OCB-I.

## 5. Discussion and conclusions

Both intangible assets and organizational citizenship behavior are relatively new concepts in the management field of study; but nonetheless, they are proven to play a key role in organizational performance in knowledge-dependent competitive business environments. This role could signal how IAs and OCB relate to each other and combine to improve their positive impacts on performance. However, the findings from the extant literature are fragmented and inconsistent and thus cannot provide a clear understanding. Thus, we aimed with the current paper to fill this gap by giving an overview of the relationship between IAs and OCB. In doing so, we considered four main components of IAs (human, social, organizational, and psychological capital) and their relationships with OCB dimensions, specifically, OCB-I versus OCB-O. To better understand this relationship, we considered work engagement and POS as mediator and moderator variables, respectively. Based on this review, we presented a conceptual model with diverse propositions to help future studies. We believe that the proposed relationships between IAs and OCB have theoretical and practical value for both academicians and practitioners.

### 5.1. Implications of the study

#### 5.1.1. Theoretical implications

We can present a number of theoretical implications with this paper. First, in order to deeply understand their relationship, theories on the separate components of IAs and their individual relationships with OCB are not adequate; additional theories can expand on this relationship to help show and explain the interactional effects of the relationships between IAs and OCB. The need for such theories can be linked with the trend of movement in contemporary IA theory from separate treatment of the impacts of individual IA components toward integrative interactional approaches.

Today, the interactions among IA components are considered the true sources of firm-specific, difficult-to-imitate competitive advantage (Dost et al., 2016; Kianto et al., 2014; Cabello-Medina et al., 2011; Reed et al., 2006). This type of theoretical explanation helps us to maximize the collective impact of IAs, and as such, researchers should be considering integrative and interactive approaches in studying the relationships between the components of IAs and OCB. The second contribution of the paper is related to the links among IAs, work engagement, and OCB, which the study model clearly demonstrated, with IAs as one of the antecedents of both work engagement and OCB, and work engagement and OCB as outcomes of IAs. This expands the scope of factors to consider whether studying each area separately or together. Eventually we aim with this paper to contribute to intellectual capital theory in addition to the theories on the relationships between IAs and OCB.

At the moment, an integrative theoretical lens to research constructs is gaining increasing support due to the popularity of configurational approaches in determining the effectiveness of business performance (Snow et al., 2005). In addition, fragmentation and incoherence adversely affects the accumulation of impactful knowledge (Durand et al., 2017). However, when we look at intellectual capital literature, there are limited studies applying an integrative approach (for instance, Cabello-Medina et al., 2011; Reed et al., 2006). Even these limited existing studies have failed to include promising new perspectives on IAs,

such as psychological capital. Thus, this paper addresses this issue and advances an integrative intellectual capital theory to ensure the success of the organization. Moreover, this paper makes several specific contributions to OCB literature. For instance, existing studies on OCB (e.g. Elstad et al., 2011; Konovsky and Pugh, 1994; Organ, 1988) rely on social exchange theory as guidance for their studies. However, this paper has dug deeper into the underlying mechanisms influencing the effects of social exchange on OCB by looking at effects of IAs on OCB relationships. This in turn suggests IAs as potential antecedents of OCB from which future research on OCB can benefit and broaden its understanding.

With this study's model, we also illustrated how the relationships between IAs and OCB can be complicated by mediators and moderators, and further research on such issues can result in an interesting hybrid theory that can better explain the relationship. For instance, a hybrid among intellectual capital theory, positive organizational psychology theory, OCB theory, work engagement theory, and POS theory can result in new perspectives. On top of this, other theories such as social exchange theory, reciprocity theory, and broaden-and-build theory can also benefit from this study's findings. For instance, the relationships between IAs such as human capital and both OCB-I and OCB-O based on social exchange theory show us multiple ways of interpreting the logic of social exchange theory based on the situation.

Finally, this paper advances the use of a multi-level methodology to conduct studies in management. Even though multi-level research is not common in the domain of management studies, given their abstract nature, scholars are increasingly advocating such a methodology to better to understand the management issues and complex realities facing organizations today (Hitt et al., 2007; Molina-Azorín et al., 2019). The conceptual model of this paper indicates the potential for using a multi-level method in a systematic manner. This is achieved by considering IAs as an organizational level variable, and OCB, work engagement and perceived organizational support as individual level variables in modeling the relationship between IAs and OCB. Such a model is forwarded since IAs, which represent the cumulative intangible resources in the organization, can be better understood through the aggregation of lower level perceived individual responses, and OCB is an individual level variable that represents the specific behaviors of individuals within the organization. Molina-Azorín et al. (2019) clearly indicated that a cross-level methodology results in an integrative understanding of the study subject and encourages collaboration among different fields in the management domain. Particularly, this paper shows the significance of such a method in linking an organization's key resources to appropriate behavior in order to enhance its effectiveness. Therefore, this paper has not only conceptual but also methodological implications.

#### 5.1.2. Practical implications

With this paper, we suggest that organizational management design appropriate strategies and policies that can properly link key resources (i.e., IAs) with desirable behaviors (i.e., OCB) to improve organizational performance. Doing this requires management to consider appropriate mechanisms (i.e., work engagement) and conditions (i.e., perceived organizational support), which the study model shows, which requires managers to broaden their perspectives on the interactions among IAs in creating desirable OCB. Furthermore, we also indicate with this paper the need for managers to use key resources to not only improve organizational performance but also enhance employee well-being. Supervisors can accomplish this by connecting organizational IAs with OCB-I in particular. Organizational health requires management effectiveness with regard to both employee performance and well-being (Cox and Howarth, 1990).

In general, this study makes a contribution to organizational practice research by showing the importance of IAs for improving not only in-role but also extra-role performance of members of the organization. This is what the current competitive business environment requires (Harvey et al., 2018; Organ, 1988; Podsakoff et al., 2009; Vandyne et al., 1995).



## 5.2. Future research

With the current study, we focused on the relationships between OCB and major components of IAs, but it should be noted that additional components such as spiritual capital (Roosevelt Malloch, 2010) are being proposed; spiritual capital has its own impact on the values and beliefs of organization members that can affect their behaviors including OCB (Roosevelt Malloch, 2010). Therefore, future researchers can review the relationships between OCB and these emerging IAs to widen perspectives and arguments. In addition, with this study we considered OCB based on its target, specifically, OCB-I or OCB-O; to broaden the understanding of the relationships between IAs and OCB, future researchers can focus on the relationships of IAs with specific dimensions of OCB.

Based on the overall review on the relationship between IAs and OCB, the paper strongly recommends future empirical studies to test the proposed model. In doing so, it is possible to further enhance the theoretical and practical assumptions of IAs and OCB concepts in the contemporary knowledge-dependent competitive business environment. In addition, by understanding the complex natures of the proposed model at glance, future studies can modify and adapt the model to make practical empirical testing. This conceptual paper in general can be taken as an initiating step to direct researchers' attention toward the relationship between IAs and OCB based on an integrative multi-level approach to enhance the performance of learning organizations.

## Declarations

### Author contribution statement

All authors listed have significantly contributed to the development and the writing of this article.

### Funding statement

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

### Competing interest statement

The authors declare no conflict of interest.

### Additional information

No additional information is available for this paper.

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