TAKE ACTION AND INNOVATE!

Mediated and Moderated Impact of Psychological Capital on the Innovative Work Behavior

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¡ACTÚA E INNOVA!
Impacto Mediado y Moderado del Capital Psicológico en el Comportamiento Innovador en el Trabajo

Memoria presentada por **Carlos Blasco Giner** para optar al grado de doctor en régimen de cotutela por la Universitat Jaume I y por la Universidad de Bordeaux

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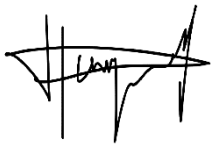

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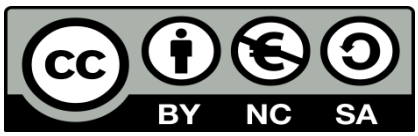

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AGIR ET INNOVER!

Impact Medié et Modéré du Capital Psychologique sur le Comportement Innovant au Travail

Sous la direction de Jacques POUYAUD et Isabella MENEGHEL

Soutenue le 11 décembre 2023

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A mi madre, por su apoyo incondicional en todos mis sueños.

To my mother, for her unconditional support in all my dreams.

" Man conquers the world by conquering himself "

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Title: Take Action and Innovate! Mediated and Moderate Impact of Psychological Capital on Innovative Work Behavior

ABSTRACT

In a business environment with unpredictable changes, where flexibility and adaptation are becoming new standards to be adopted in organizations, today, innovation is one of the keys to success in the business world. Innovation that arises from employees is called innovative work behavior – or IWB – and must produce benefit for the organization through new and/or improved processes, products, or services. Increasing the knowledge of the factors that contribute to the appearance of the IWB will allow stimulating this behavior through concrete actions, in addition to creating a context and adequate working conditions for its appearance. According to scientific literature, the factors that drive IWB at the individual level would be a combination of factors that are internal and external to the employee; this doctoral research tries to increase this knowledge so that innovation in the workplace, rather than an exception, can become the rule. After reviewing literature on innovation at work, we focus our attention on a construct derived from positive psychology, namely psychological capital (PsyCap), and its potential role in favoring the employee's IWB. First, we elaborate a systematic literature review with publications that have investigated the relationship between PsyCap and IWB. Based on the results of said review, it was decided to study the mediating and moderating role in this relationship of: i) internal factors: autonomous motivation, work engagement, and consideration of future consequences; and ii) external factors: participative leadership and job autonomy. Finally, we carried out an online intervention to develop the employees' PsyCap and IWB. Our studies are framed in different theories, exposed in each chapter in a convenient way. The results obtained provide empirical evidence on the factors involved that enhance the employee's IWB. Finally, theoretical and practical implications are discussed, as well as suggestions for future studies and limitations of this doctoral thesis.

Keywords: innovative work behavior, psychological capital, autonomous motivation, work engagement, consideration of future consequences, participative leadership, job autonomy, psychological intervention.

Titre: Agir et Innover! Impact Médié et Moderé du Capital Psychologique sur le Comportement Innovant au Travail.

RÉSUMÉ

Dans un environnement commercial aux changements imprévisibles, où la flexibilité et l'adaptation deviennent de nouveaux standards à adopter dans les organisations, l'innovation est aujourd'hui l'une des clés du succès dans le monde des affaires. L'innovation qui émane des employés est appelée comportement innovant au travail – ou IWB – et doit produire des bénéfices pour l'organisation grâce à des processus, produits ou services nouveaux et/ou améliorés. Accroître la connaissance des facteurs qui contribuent à l'apparition du IWB permettra de stimuler ce comportement par des actions concrètes, en plus de créer un contexte et des conditions de travail adéquates pour son apparition. Selon la littérature scientifique, les facteurs qui animent l'IWB au niveau individuel seraient une combinaison de facteurs internes et externes à l'employé; cette recherche doctorale tente d'accroître ces connaissances afin que l'innovation sur le lieu de travail, plutôt qu'une exception, devienne la règle. Après avoir passé en revue la littérature sur l'innovation au travail, nous concentrons notre attention sur un construit issu de la psychologie positive, à savoir le capital psychologique (PsyCap), et son rôle potentiel pour favoriser l'IWB de l'employé. Tout d'abord, nous avons mené une revue systématique de la littérature avec des publications ayant étudié la relation entre PsyCap et IWB. Sur la base des résultats de cette revue, il a été décidé d'étudier le rôle médiateur et modérateur dans cette relation de: i) facteurs internes: motivation autonome, engagement au travail et considération des conséquences futures; et ii) facteurs externes: leadership participatif et autonomie au travail. Enfin, nous avons mené une intervention en ligne pour développer la PsyCap et l'IWB des employés. Nos études sont encadrées par différentes théories, présentées de manière appropriée dans chaque chapitre. Les résultats obtenus fournissent des preuves empiriques sur les facteurs impliqués qui améliorent l'IWB de l'employé. Enfin, les implications théoriques et pratiques sont discutées, ainsi que des suggestions d'études futures et les limites de cette thèse de doctorat.

Mots clés: comportement innovant au travail, capital psychologique, motivation autonome, engagement au travail, considération des conséquences futures, leadership participatif, autonomie au travail, intervention psychologique.

Título: ¡Actúa e Innova! Impacto Mediado y Moderado del Capital Psicológico en el Comportamiento Innovador en el Trabajo.

RESUMEN

En un entorno empresarial con cambios impredecibles, donde la flexibilidad y la adaptación se están convirtiendo en nuevos estándares a adoptar en las organizaciones, hoy la innovación es una de las claves del éxito en el mundo empresarial. La innovación que surge de los empleados se denomina comportamiento laboral innovador - o IWB, por sus siglas en inglés - y debe producir beneficios para la organización a través de procesos, productos o servicios nuevos y/o mejorados. Incrementar el conocimiento de los factores que contribuyen a la aparición del IWB permitirá estimular este comportamiento a través de acciones concretas, además de crear un contexto y condiciones laborales adecuadas para su aparición. Según la literatura científica, los factores que impulsan el IWB a nivel individual serían una combinación de factores internos y externos al empleado. Esta investigación doctoral intenta aumentar este conocimiento para que la innovación en el lugar de trabajo, en lugar de ser una excepción, se convierta en la regla. Después de revisar la literatura sobre innovación en el trabajo, centramos nuestra atención en un constructo derivado de la psicología positiva, el capital psicológico (PsyCap), y su papel potencial para favorecer el IWB del empleado. En primer lugar, elaboramos una revisión sistemática de la literatura con publicaciones que han investigado la relación entre PsyCap e IWB. A partir de los resultados de dicha revisión, se decidió estudiar el papel mediador y moderador en esta relación de: i) factores internos: motivación autónoma, compromiso en el trabajo y consideración de consecuencias futuras; y ii) factores externos: liderazgo participativo y autonomía en el trabajo. Finalmente, realizamos una intervención online para desarrollar el PsyCap y el IWB de los empleados. Nuestros estudios se enmarcan en diferentes teorías, expuestas en cada capítulo de manera conveniente. Los resultados obtenidos aportan evidencia empírica sobre los factores involucrados que potencian el IWB del empleado. Finalmente, se discuten implicaciones teóricas y prácticas, así como sugerencias para futuros estudios y limitaciones de esta tesis doctoral.

Palabras clave: comportamiento innovador en el trabajo, capital psicológico, motivación autónoma, compromiso en el trabajo, consideración de consecuencias futuras, liderazgo participativo, autonomía en el trabajo, intervención psicológica.

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RESUME LONG FRANÇAIS

Introduction

L'innovation est à la mode. Les médias exhortent les organisations à innover et à inclure ce terme dans leurs objectifs à court et à long terme. Dans une étude réalisée en 2023, le cabinet de conseil en stratégie Boston Consulting Group a constaté que 79 % des organisations participant à l'enquête classaient l'innovation parmi leurs trois premières priorités stratégiques. Ainsi, de nombreux gestionnaires et organisations s'accrochent à l'innovation comme une solution à leurs problèmes, mais l'introduire dans la structure organisationnelle n'est pas une tâche facile et loin d'être immédiate. Qu'est-ce que l'innovation concrètement ? La définition internationalement reconnue de l'innovation est celle donnée dans la quatrième édition du Manuel d'Oslo (OECD/Eurostat, 2018, p.20): « Une innovation désigne un produit ou un processus (ou une combinaison des deux) nouveau ou amélioré qui diffère sensiblement des produits ou processus précédents d'une unité et a été mis à la disposition d'utilisateurs potentiels (produit) ou mis en œuvre par l'unité (processus) ». Cette définition utilise le terme « unité » pour décrire les institutions, les ménages ou les membres individuels. En outre, et en se concentrant sur l'innovation d'entreprise, elle inclut les deux manières de la canaliser: sous la forme d'un produit (par exemple, un nouvel ordinateur ou un nouveau concept d'offre de service), ou sous la forme d'un processus (par exemple, un nouveau machine de production ou nouvelle forme de distribution). L'innovation dans les organisations est cruciale pour s'adapter à l'évolution du marché, qui devient de plus en plus mondial et concurrentiel. En ce sens, les organisations doivent faire face à des changements constants dus aux nouvelles technologies, aux nouveaux modes de gestion des ressources humaines et matérielles disponibles et aux facteurs environnementaux et sociaux dont elles font partie (Battistelli, 2009). L'innovation provient des employés qui décident de manière proactive de l'initier en créant une idée. Cette idée doit être promue parmi les collègues et les superviseurs, et finalement mise en œuvre après approbation de la direction (Janssen, 2004). Ainsi, cette innovation individuelle, appelée comportement innovant au travail (IWB), vise à générer et à mettre en œuvre de nouvelles idées sur les processus, les produits ou les procédures qui apportent un avantage à l'organisation (de Jong et den Hartog, 2008). En ce qui concerne les facteurs qui favorisent l'innovation et le comportement innovant au travail des salariés, la

littérature antérieure suggère d'utiliser trois niveaux d'analyse : le niveau individuel, le niveau de l'équipe et le niveau organisationnel (Anderson et al., 2014 ; Battistelli, 2014 ; Hammond et al., 2011 ; Rattanawichai et al., 2022 ; Salam, & Senin, 2022). Ainsi, au niveau individuel, les facteurs qui facilitent l'IWB des employés seraient une combinaison de facteurs internes et externes : i) les facteurs internes, qui font référence aux ressources personnelles telles que les traits de caractère, les valeurs, les styles cognitifs, les états psychologiques ou la proactivité, entre autres, ii) les facteurs externes, divisés en caractéristiques spécifiques à la tâche (par exemple, l'autonomie, la complexité de la tâche, etc.), et le contexte social (par exemple, le leadership, la culture de l'innovation ou le contrat psychologique). Au niveau de l'équipe, les facteurs facilitant l'innovation seraient i) ceux liés à la structure de l'équipe (par exemple, la taille de l'équipe, la diversité du travail, etc.), ii) le climat d'innovation et les processus sociaux de l'équipe, et iii) le style de leadership. Enfin, au niveau de l'organisation, les facteurs facilitant l'innovation seraient, entre autres, le type de structure organisationnelle et la culture de l'innovation. Les deux niveaux les plus couramment utilisés dans les recherches sur le processus d'innovation dans les organisations sont le niveau individuel et le niveau de l'équipe (Battistelli, 2014).

Au niveau de l'analyse individuelle, le comportement organisationnel positif (POB) présente un grand potentiel pour développer l'innovation chez les employés. À tel point qu'il a suscité l'intérêt de chercheurs du monde entier et que des résultats encourageants ont été obtenus dans le cadre de diverses études. Ainsi, le concept dérivé du POB, le capital psychologique (PsyCap), s'est imposé comme un facteur individuel qui renforce la motivation des employés et permet une plus grande créativité dans la résolution des problèmes (Sweetman et al., 2011). Le capital psychologique se compose de quatre capacités : l'auto-efficacité, l'espoir, l'optimisme et la résilience. Ces quatre capacités combinées donnent aux employés une orientation mentale résiliente et positive qui leur permet de gérer le stress et de rester concentrés sur leurs objectifs axés sur l'innovation (Abbas & Raja, 2015). En ce sens, le développement de l'IWB des employés sera soutenu par les quatre capacités de PsyCap ; i) l'auto-efficacité, ou la confiance en soi en tant que générateur de ses propres idées et en sa capacité à obtenir un soutien pour leur mise en œuvre, ii) l'espoir, ou la volonté de diriger l'énergie vers des objectifs liés à l'innovation et de chercher d'autres voies en cas de revers pour les atteindre, iii) l'optimisme, ou la génération d'attentes positives à l'égard de l'avenir et un

style explicatif positif pour les événements qui se produisent dans le processus d'innovation, et iv) la résilience, ou la capacité à rebondir face à l'adversité pour surmonter les difficultés liées au défi de l'innovation (Chan, 2015). Ainsi, nous considérons que la contribution de la psychologie positive, et en particulier du comportement organisationnel positif (POB), est essentielle pour développer le potentiel d'innovation des employés. Certes, elle n'est pas le seul facteur impliqué dans l'émergence de la POB, mais elle est un activateur de comportements et de conduites visant à son émergence.

En bref, et pour faire face aux changements du marché, l'étude de l'innovation dans le contexte organisationnel est essentielle dans le monde professionnel et académique, en particulier l'étude des facteurs individuels et des interventions psychologiques qui facilitent le comportement innovant. Ce défi est abordé dans la présente recherche doctorale, qui cherche à comprendre comment l'innovation des employés peut contribuer dans les organisations à défier un environnement social et économique volatile, incertain, complexe et ambigu (VUCA) (Millar et al., 2018).

Objectif de la thèse de doctorat

L'objectif général de cette thèse de doctorat est d'étudier comment le PsyCap des employés favorise l'émergence de l'innovation individuelle dans les contextes organisationnels, en particulier l'IWB. Afin de réaliser l'objectif général, une série d'objectifs spécifiques sont proposés et les études sont basées sur différentes théories présentées de manière adéquate dans les chapitres 2, 3, 4 et 5. En plus de l'étude de la relation directe entre le PsyCap et l'IWB, on étudie comment différents facteurs internes et externes médient ou modèrent cette relation, sur la base de différentes hypothèses et de modèles de recherche proposés. Une intervention psychologique en ligne visant à développer le PsyCap des participants est également menée et son impact sur les niveaux d'IWB est testé. Grâce à tous les résultats obtenus, la connaissance des facteurs qui facilitent l'IWB est élargie, et l'efficacité d'une intervention - créée ad hoc - pour augmenter l'IWB par le biais de PsyCap est vérifiée.

Organisation de la thèse de doctorat

Cette thèse est divisée en six chapitres. Le premier chapitre est une introduction au domaine de recherche à traiter et aux objectifs spécifiques à poursuivre. Les objectifs

proposés sont traités sur la base d'une revue systématique et de trois études empiriques dans les chapitres 2, 3, 4 et 5, conformément au tableau 1. Le sixième et dernier chapitre présente une discussion générale des résultats obtenus dans les chapitres précédents. Chaque chapitre présente sa propre discussion et ses références.

Tableau 1. Résumé des objectifs de recherche spécifiques abordés dans les chapitres de la thèse.

		Chapitres			
		2	**3**	**4**	**5**
Objectif spécifique 1	Relation entre PsyCap et IWB	X	X	X	X
Objectif spécifique 2	Instruments de mesure de PsyCap et IWB	X			
Objectif spécifique 3	Médiateurs et modérateurs de la relation entre PsyCap et IWB		X	X	X
Objectif spécifique 4	Impact d'une intervention PCI sur l'IWB				X

Chapitre 2. Capital psychologique positif et comportement innovant au travail : une revue systématique de la littérature

Le chapitre 2 présente une analyse systématique de la littérature actuelle sur le PsyCap des employés et sur sa relation et son influence sur l'IWB. Sur la base d'une recherche dans diverses bases de données, 39 études empiriques explorant la relation entre les variables mentionnées ont été prises en compte. La présente analyse donne un aperçu du rôle du capital psychologique en tant qu'antécédent, médiateur ou modérateur de l'IWB des employés, ainsi que des instruments utilisés pour mesurer la relation entre les deux variables. Enfin, des lacunes dans la littérature et des défis pour la recherche future sont identifiés, qui seront abordés dans les chapitres 3, 4 et 5 de cette thèse.

Chapitre 3. Capital psychologique, motivation autonome et comportement innovant : une étude auprès des employés des réseaux sociaux

Le troisième chapitre présente les résultats d'une recherche empirique transversale dans laquelle le rôle de la motivation autonome au travail en tant que médiateur de la relation entre PsyCap et l'IWB des employés est examiné. L'effet modérateur du leadership participatif sur la relation entre la motivation autonome au

travail et l'IWB est également étudié. Premièrement, dans le cadre de la théorie de la conservation des ressources (COR ; Hobfoll et al., 2018), il est proposé que le PsyCap des employés favorise leur IWB parce que les ressources positives du PsyCap leur permettent de mieux faire face aux défis de l'innovation. Deuxièmement, la médiation de la motivation autonome au travail entre le PsyCap et l'IWB est expliquée par la théorie de l'autodétermination (SDT ; Ryan & Deci, 2017), qui faciliterait l'émergence du processus motivationnel à partir de l'activation du PsyCap de l'employé, et son impact ultérieur sur l'IWB. Troisièmement, et dans le cadre de la théorie de l'échange social (Blau, 2017), la modération du leadership participatif dans la relation entre la motivation autonome au travail et l'IWB est proposée, en raison notamment d'une plus grande implication des employés dans la prise de décision. Pour ce faire, l'étude a été réalisée sur un échantillon de 246 employés de diverses organisations publiques et privées, recrutés via différents réseaux sociaux. Cette seconde étude permet de mieux connaître les variables médiateurs et modérateurs qui facilitent l'IWB des employés en fonction de leur niveau de PsyCap.

Chapitre 4. La relation entre le capital psychologique et le comportement innovant au travail : le rôle de l'autonomie et de l'engagement au travail

Le quatrième chapitre de la thèse présente les résultats de la deuxième étude empirique transversale, qui examine le rôle de l'engagement au travail en tant que médiateur de la relation entre PsyCap et l'IWB des employés. L'effet modérateur de l'autonomie au travail sur la relation entre PsyCap et l'engagement au travail des employés est également étudié. Premièrement, dans le cadre de la théorie COR (Hobfoll et al., 2018), il est proposé que la PsyCap des employés soit positivement et significativement liée à leur IWB en raison de l'impulsion motivationnelle qu'elle fournit à l'employé pour relever des défis innovants. Deuxièmement, la médiation de l'engagement au travail entre la PsyCap des employés et l'IWB est proposée, expliquée à partir du cadre théorique Job Demands - Resources (JD-R ; Bakker et al., 2023) et de l'extension de Kwon et Kim (2020) visant à intégrer l'IWB dans ce cadre, de sorte que l'engagement au travail activerait la PsyCap des employés pour soutenir leur IWB. Troisièmement, et sur la base des deux théories déjà discutées (COR et JD-R), la modération de l'autonomie au travail entre la PsyCap des salariés et l'engagement au travail est proposée, en raison de la responsabilité acquise dans l'atteinte des objectifs de travail qui favoriserait l'émergence de la PsyCap et une relation plus forte avec

l'engagement au travail. L'étude a été menée au moyen d'un questionnaire en ligne auprès d'un échantillon de 273 employés issus de diverses organisations. Avec cette deuxième étude empirique, comme dans le chapitre précédent, nous approfondissons la connaissance des variables médiateurs et modérateurs qui facilitent l'émergence de l'IWB des employés en fonction de leurs niveaux de PsyCap.

Chapitre 5. Le comportement innovant au travail allié au capital psychologique positif : une intervention en trois vagues et le rôle de la prise en compte des conséquences futures

Le chapitre 5 de la thèse utilise la théorie COR (Hobfoll et al., 2018), comme cadre théorique général et énonce les objectifs suivants basés sur deux études. La première étude examine si la prise en compte des conséquences futures (CFC) modère la relation entre PsyCap et l'IWB des employés, car les employés ayant des niveaux élevés de CFC feraient certains sacrifices dans le présent pour remettre en question le "statu quo" que l'innovation exige. Cette première étude a été réalisée au moyen d'un questionnaire en ligne adressé à un échantillon de 152 employés issus de diverses organisations. La seconde étude analyse l'effet d'une intervention de développement de PsyCap (PCI) sur les niveaux de PsyCap et de l'IWB des employés par le biais d'une conception quasi-expérimentale avec trois temps de mesure (Pré, Post et Suivi). Cette deuxième étude a été menée auprès de 31 participants employés dans différentes organisations. Avec cette troisième étude empirique, nous cherchons à améliorer la connaissance des variables modérateurs qui facilitent l'IWB des employés en fonction de leurs niveaux de PsyCap, en particulier l'influence de la variable CFC, et, en outre, on teste l'effet d'une intervention PCI visant à favoriser l'IWB des employés.

Chapitre 6. Discussion générale

Le sixième chapitre présente les aspects, les résultats et les contributions les plus représentatifs de chaque étude en fonction des objectifs fixés, en y répondant sur la base des implications théoriques. En outre, les implications pratiques et les limites de cette thèse de doctorat sont présentées. Enfin, les défis et les suggestions pour les études futures sont présentés.

Conclusion

Au début du 21e siècle, alors que le terme "innovation" est proclamé dans tous les médias comme la clé pour ne pas succomber dans les affaires, de nombreux managers et présidents d'entreprises décident de se tourner vers l'innovation afin d'obtenir un avantage concurrentiel sur un marché de plus en plus féroce et mondialisé. Ainsi, la stimulation de l'innovation des employés apparaît comme l'antidote pour remettre en question le "statu quo" dans les organisations où le défi de l'innovation consiste à briser les murs de l'immobilisme, à savoir "c'est comme ça qu'on a toujours fait ici". Dans ce contexte, cette recherche doctorale vise à contribuer au domaine de la psychologie organisationnelle, à une expansion des connaissances empiriques concernant les facteurs qui facilitent l'innovation des employés, et par conséquent à fournir des ressources et des outils au capital humain qui fait partie des organisations, pour faire face aux défis d'un environnement social et économique VUCA. En résumé, la revue systématique réalisé et les trois études empiriques donnent un aperçu de la relation entre les concepts de psychologie comportementale PsyCap et l'IWB des employés dans les organisations, ainsi que d'autres facteurs qui la favorisent, tout en permettant au lecteur d'approfondir la littérature scientifique sur les deux concepts grâce aux références ajoutées à la fin de chaque chapitre. Par conséquent, à une époque où le changement continu transforme le monde des affaires, une stratégie axée sur l'innovation est la meilleure option pour survivre. Le monde appartient à ceux qui innovent, alors... agissez et innovez !!!

RESUMEN EXTENSO EN ESPAÑOL

Intoducción

La innovación está de moda. Los medios de comunicación proclaman a las organizaciones que innoven e incluyan dicho término en sus objetivos a corto y largo plazo. En un estudio de 2023, la firma de consultoría estratégica Boston Consulting Group encontró que el 79 % de las organizaciones que participaron en la encuesta, clasificaron la innovación entre sus tres principales prioridades estratégicas. Así, muchos directivos y organizaciones se aferran a la innovación como una solución a sus problemas, pero, introducirla en la estructura organizativa, no es una tarea fácil y, ni mucho menos, inmediata. Pero concretamente, ¿qué es la innovación? La definición de innovación internacionalmente reconocida es la que aparece en la cuarta edición del Manual de Oslo (OCDE/Eurostat, 2018, p.20): "Una innovación es un producto o proceso (o una combinación de ellos) nuevo o mejorado que difiere significativamente de los productos o procesos anteriores de la unidad y que se ha puesto a disposición de usuarios potenciales (producto) o se ha puesto en uso por la unidad (proceso)". Esta definición utiliza el término "unidad" para describir instituciones, hogares o miembros individuales. Además, y centrándose en la innovación empresarial, incluye las dos formas de canalizarla: en forma de producto (p. ej., un nuevo ordenador o un concepto novedoso de oferta de un servicio), o en forma de proceso (p. ej., un nueva máquina de producción o nueva forma de distribución). La innovación en las organizaciones es crucial para adaptarse a un mercado cambiante, cada vez más global y competitivo. En este sentido, las organizaciones deben enfrentarse a cambios constantes debido a nuevas tecnologías, nuevas formas de gestionar los recursos humanos y materiales disponibles, y factores ambientales y sociales de los que forman parte (Battistelli, 2009). La innovación se origina en los empleados que, de manera proactiva, deciden iniciarla creando una idea. Esta idea debe de ser promocionada entre compañeros y supervisores, y por último ser implementada tras la conformidad por parte de la dirección (Janssen, 2004). Así, esta innovación individual, denominada comportamiento innovador en el trabajo (IWB), tiene como objetivo generar e implementar ideas nuevas sobre procesos, productos o procedimientos que comporten un beneficio a la organización (de Jong y den Hartog, 2008). En cuanto a los factores que favorecen la innovación y el IWB de los empleados, la literatura previa sugiere utilizar tres niveles de análisis: el nivel

individual, el nivel de equipo y el nivel organizacional (Anderson et al., 2014; Battistelli, 2014; Hammond et al., 2011; Rattanawichai et al., 2022; Salam, & Senin, 2022). Así, en el nivel individual los factores que facilitan el IWB del empleado serían una combinación de factores internos y externos: i) factores internos, referidos a recursos personales como rasgos de carácter, valores, estilos cognitivos, estados psicológicos o proactividad entre otros, ii) factores externos, divididos en características específicas de la tarea (e.g., autonomía, complejidad de la tarea, etc.), y del contexto social (e.g., liderazgo, cultura para la innovación o el contrato psicológico). En el nivel de equipo los factores que facilitan la innovación serían, i) los relacionados con la estructura del equipo (e.g., tamaño del equipo, diversidad de trabajo, etc.), ii) el clima y los procesos sociales de innovación del equipo, y iii) el estilo de liderazgo. Y por último en el nivel organizacional, los factores que facilitan la innovación serian, entre otros, el tipo de estructura organizativa y la cultura de la innovación. Los dos niveles más utilizados en la investigación del proceso de innovación en las organizaciones han sido el nivel individual y de equipo (Battistelli, 2014).

A nivel individual de análisis, el comportamiento organizacional positivo (POB) posee un gran potencial para desarrollar la innovación del empleado. Tanto es así que ha despertado el interés de investigadores de todo el mundo y se han obtenido resultados prometedores en diferentes estudios. Así, el concepto derivado del POB, capital psicológico (PsyCap), aparece como un factor individual que fortalece la motivación del empleado y le dota de una mayor creatividad en la resolución de problemas (Sweetman et al., 2011). El capital psicológico consta de cuatro capacidades: autoeficacia, esperanza, optimismo y resiliencia. Estas cuatro capacidades combinadas otorgan a los empleados un enfoque mental resistente y positivo con el que manejar el estrés y mantener el foco en sus objetivos dirigidos a la innovación (Abbas & Raja, 2015). En este sentido, el desarrollo del IWB de los empleados se verá favorecido por cada una de las cuatro capacidades de PsyCap; i) la autoeficacia, o confianza hacía uno mismo como generador de ideas propias y hacia la capacidad de obtener apoyo para su implementación, ii) la esperanza, o la disposición de energía dirigida a objetivos relacionados con la innovación y la búsqueda de caminos alternativos si surgen contratiempos para alcanzarlos, iii) el optimismo, o la generación de expectativas positivas del futuro y un estilo explicativo positivo de los eventos que se suceden en el proceso innovador, y iv) la resiliencia, o la capacidad de recuperarse de la adversidad

para superar las dificultades que conlleva el desafío de la innovación (Chan, 2015). Así pues, consideramos esencial el aporte de la psicología positiva, y en concreto el comportamiento organizacional positivo (POB), a la hora de desarrollar el potencial innovador de los empleados. Por supuesto, no es el único factor que está involucrado en la aparición del IWB, pero si es un activador de conductas y comportamientos dirigidos a su aparición.

En definitiva, y para afrontar los cambios del mercado, el estudio de la innovación en el contexto organizacional es fundamental en el mundo profesional y académico, en particular el estudio de los factores individuales y las intervenciones psicológicas que facilitan el IWB. Este desafío se aborda en la presente investigación doctoral, que trata de comprender cómo la innovación de los empleados puede contribuir en las organizaciones para desafiar un entorno social y económico volátil, incierto, complejo y ambiguo (VUCA) (Millar et al., 2018).

Objetivo de la tesis doctoral

El objetivo general de esta tesis doctoral es estudiar cómo el PsyCap del empleado promueve la aparición de la innovación individual en contextos organizacionales, concretamente del IWB. Para lograr el objetivo general se proponen una serie de objetivos específicos y los estudios se basan en diferentes teorías adecuadamente presentadas en los capítulos 2, 3, 4 y 5. Además del estudio de la relación directa entre PsyCap y IWB se estudia cómo diferentes factores internos y externos median o moderan esta relación, a partir de diferentes hipótesis y modelos de investigación propuestos. También se lleva a cabo una intervención psicológica online destinada a desarrollar el PsyCap de los participantes y se prueba su impacto en los niveles de IWB. Con todos los resultados obtenidos, se amplía el conocimiento de los factores que facilitan el IWB y se verifica la eficacia de una intervención - creada ad hoc - para incrementar el IWB a través del PsyCap.

Organización de la tesis doctoral

La presente investigación doctoral está dividida en seis capítulos. El primer capítulo es una introducción al área de investigación a abordar y una presentación de los objetivos específicos planteados. Los objetivos propuestos se llevan a cabo a partir de una revisión sistemática y tres estudios empíricos en los capítulos 2, 3, 4 y 5, según la

Tabla 1. El sexto y último capítulo presenta una discusión general de los resultados obtenidos en los capítulos anteriores. Cada capítulo presenta su propia discusión y referencias.

Tabla 1. Resumen de objetivos de investigación específicos abordados en los capítulos de la tesis.

		Capítulos			
		2	**3**	**4**	**5**
Objetivo específico 1	Relación entre PsyCap e IWB	X	X	X	X
Objetivo específico 2	Instrumentos de medida de PsyCap e IWB	X			
Objetivo específico 3	Mediadores y moderadores de la relación entre PsyCap e IWB		X	X	X
Objetivo específico 4	Impacto de una intervención PCI en el IWB				X

Capítulo 2. Capital psicológico positivo y comportamiento innovador en el trabajo: una revisión sistemática de la literatura

El capítulo 2 presenta una revisión sistemática del estado de la literatura actual acerca del PsyCap del empleado y su relación e influencia en el IWB. A partir de una búsqueda en diversas bases de datos, fueron considerados 39 estudios empíricos que exploran la relación entre las variables mencionadas. La presente revisión ofrece una visión general del rol de PsyCap como antecedente, mediador o moderador en el IWB del empleado, y de los instrumentos utilizados para medir la relación entre ambas variables. Finalmente, se identifican lagunas en la literatura y retos para la investigación futura, que serán afrontados en los capítulos 3, 4 y 5, de la presente tesis doctoral.

Capítulo 3. Capital psicológico, motivación autónoma y comportamiento innovador: un estudio dirigido a empleados en redes sociales

El tercer capítulo de la tesis presenta los resultados de una investigación empírica de diseño trasversal en la cual se examina el papel de la motivación autónoma en el trabajo como mediador en la relación entre PsyCap y el IWB de los empleados. También se investiga el efecto moderador del liderazgo participativo sobre la relación entre la motivación autónoma en el trabajo y el IWB. En primer lugar y bajo el marco

de la teoría de conservación de los recursos (COR; Hobfoll et al., 2018), se propone que el PsyCap de los empleados favorece su IWB debido a que los recursos positivos del PsyCap les capacita para enfrentarse mejor a los desafíos de la innovación. En segundo lugar, la mediación de la motivación autónoma en el trabajo entre PsyCap e IWB queda explicada a partir de la teoría de la autodeterminación (SDT; Ryan & Deci, 2017), que facilitaría la aparición del proceso motivacional a partir de la activación del PsyCap del empleado, y su posterior impacto en el IWB. En tercer lugar, y bajo la teoría del intercambio social (Blau, 2017), se propone la moderación del liderazgo participativo en la relación entre la motivación autónoma en el trabajo y el IWB, debido entre otras causas a una mayor implicación en la toma de decisiones por parte de los empleados. Para ello, el estudio se llevó a cabo sobre una muestra de 246 empleados de diversas organizaciones públicas y privadas, reclutados a través de diferentes redes sociales. sociaux. Este segundo estudio nos permite comprender mejor las variables mediadoras y moderadoras que facilitan el IWB de los empleados a partir de sus niveles de PsyCap.

Capítulo 4. La relación entre capital psicológico y comportamiento innovador en el trabajo: el papel de la autonomía y del work engagement.

El cuarto capítulo de la tesis presenta los resultados de otro estudio empírico de diseño trasversal a partir del cual se examina el papel del work engagement como mediador en la relación entre PsyCap y el IWB de los empleados. También se investiga el efecto moderador de la autonomía en el trabajo sobre la relación entre el PsyCap y el work engagement de los empleados. En primer lugar y bajo el marco de la teoría COR (Hobfoll et al., 2018), se propone que el PsyCap de los empleados está relacionado de manera positiva y significativa con su IWB debido al impulso motivacional que aporta al empleado para afrontar retos innovadores. En segundo lugar, se plantea la mediación del work engagement entre el PsyCap y el IWB del empleado, explicada a partir del marco teórico Job Demands - Resources (JD-R; Bakker et al., 2023) y la ampliación de Kwon y Kim (2020) dirigida a la integración del IWB en dicho marco, de manera que el work engagement activaría el PsyCap de los empleados para favorecer su IWB. En tercer lugar, y a partir de las dos teorías ya comentadas (COR y JD-R), se propone la moderación de la autonomía en el trabajo entre el PsyCap de los empleados y su work engagement, debido a la responsabilidad adquirida para la consecución de los objetivos laborales que favorecería la aparición del PsyCap y una relación más fuerte con el work engagement. El estudio se llevó a cabo mediante un cuestionario online a una muestra

de 273 empleados de diversas organizaciones. Con este segundo estudio empírico, al igual que con el capítulo anterior, aumentamos el conocimiento de las variables mediadoras y moderadoras que facilitan la aparición del IWB de los empleados en función de sus niveles de PsyCap.

Capítulo 5. El comportamiento innovador en el trabajo se alía con el capital psicológico positivo: una intervención en tres olas, y el papel de la consideración de las consecuencias futuras

El capítulo 5 de la tesis utiliza la teoría COR (Hobfoll et al., 2018), como marco teórico general y plantea los siguientes objetivos a partir de dos estudios. El primer estudio examina si la consideración de futuras consecuencias (CFC) modera la relación entre el PsyCap y el IWB del empleado, debido a que los empleados con altos niveles de CFC realizarían ciertos sacrificios en el presente para desafiar el "status quo" que requiere la innovación. El segundo estudio analiza el efecto de una intervención de desarrollo de PsyCap (PCI) en los niveles de PsyCap e IWB de los empleados, a través de un diseño cuasi experimental con tres tiempos de medición (Pre, Post y Seguimiento). El primer estudio se llevó a cabo mediante un cuestionario online a una muestra de 152 empleados de diversas organizaciones. El segundo estudio incluyó a 31 participantes empleados en diferentes organizaciones. Con este tercer estudio empírico, se pretende aumentar el conocimiento de las variables moderadoras que facilitan el IWB del empleado en función de sus niveles de PsyCap, en particular la influencia de la variable CFC, y, además, comprobamos el efecto de una intervención PCI dirigida a favorecer la IWB de los empleados.

Capítulo 6. Discusión general

En el sexto capítulo se presentan los aspectos, resultados y aportaciones más representativos de cada estudio en relación con los objetivos planteados, respondiendo a los mismos a partir de implicaciones teóricas. Además, se presentan las implicaciones prácticas y limitaciones de esta tesis doctoral. Por último, se presentan retos y sugerencias para futuros estudios.

Conclusión

En un comienzo de siglo XXI, donde el término innovación es proclamado en todos los medios de comunicación como la clave para no sucumbir en los negocios, muchos directivos y presidentes de corporaciones deciden encaminarse a ella para obtener una ventaja competitiva en un mercado cada vez más feroz y globalizado. En esta situación, impulsar la innovación del empleado surge como el antídoto para desafiar el "status quo" de las organizaciones donde el desafío de innovar, es derribar los muros del inmovilismo, concretamente del "aquí esto siempre se ha hecho así". En este contexto, la presente investigación doctoral pretende aportar al campo de la psicología organizacional, una ampliación del conocimiento empírico respecto de los factores que facilitan la innovación del empleado, y en consecuencia proporcionar recursos y herramientas al capital humano que forma parte de las organizaciones, para enfrentarse a los desafíos de un entorno social y económico, volátil, incierto, complejo y ambiguo (VUCA). En definitiva, la revisión sistemática llevada a cabo y los tres estudios empíricos ofrecen una visión general de la relación entre los constructos de psicología del comportamiento en las organizaciones PsyCap e IWB del empleado, y otros factores que la favorecen, además de posibilitar al lector, profundizar en la literatura científica de ambos constructos a partir de las referencias añadidas al final de cada capítulo. Por lo tanto, en el momento actual donde los continuos cambios transforman el mundo de los negocios, una estrategia dirigida a la innovación es la mejor opción para la supervivencia. El mundo es de las personas que innovan, así que...¡¡¡actúa e innova!!!

CHAPTER 1

GENERAL INTRODUCTION

Innovation is in fashion. The media call for organizations to innovate and include this term in their short- and long-term objectives. Innovate or succumb. In a 2023 study, strategy consulting firm Boston Consulting Group found that 79% of the organizations that participated in the survey ranked innovation among their top-three strategic priorities. Thus, many managers and organizations cling to innovation as the solution to their problems, but introducing it into the organizational structure is not an easy or immediate task. In this sense, and taking into account the difficulty of introducing innovation, it is necessary to assess the effort involved and the expectations generated (Kahn, 2018). But specifically, what is innovation? The internationally recognized definition of innovation is the one that appears in the fourth edition of the Oslo Manual (OECD/Eurostat, 2018, p.20): “An innovation is a new or improved product or process (or combination thereof) that differs significantly from the unit’s previous products or processes and that has been made available to potential users (product) or brought into use by the unit (process)”. This definition uses the term “unit” to describe institutions, households, or individual members. Furthermore, and focusing on business innovation, it includes the two ways of channeling it: in the form of a product (e.g., a new computer or a novel concept of offering a service), or in the form of a process (e.g., new production machinery or new form of distribution).

Thus, the term "innovation" can take on the meaning of both a process and the result of said process. Some organizations tend to focus only on the result, while others focus exclusively on the process. The former can become ineffective due to the misuse of available resources, and the latter can fall into bureaucratic processes that block or undermine the results of innovation (Kahn, 2018). Therefore, a balance between the two is crucial to develop innovation in the organization and cope with change. What do we mean by the word “change”? This concept refers to the need for companies and organizations to adapt to the evolution of the market, which is becoming more global and more competitive every day. In this sense, organizations must face constant changes due to new technologies, new ways of managing available human and material resources, as well as environmental and social factors of which they are part (Battistelli, 2009). To face these changes, the study of innovation in the organizational context is

consolidated as essential in the professional and academic world, especially the study aimed at individual factors and psychological interventions that facilitate innovative behavior. This challenge is addressed in the present doctoral research that seeks to understand how employee innovation can contribute to organizations to challenge a volatile, uncertain, complex, and ambiguous (VUCA) social and economic environment (Millar et al., 2018).

1.1 From innovation in organizations to employee innovation

In a dynamic and unpredictable environment, many organizations are modifying structures and procedures to adapt them to current needs. One of the keys is the promotion of innovation at all levels of the organization, thus improving competitiveness in the market (Etikariena, 2018). Innovation originates from employees who proactively decide to initiate it by creating an idea. This idea must be promoted among colleagues and supervisors, and finally be implemented after approval by management (Janssen, 2004). Thus, this individual innovation aims to generate and implement new ideas about processes, products or procedures that provide a benefit to the organization (de Jong and den Hartog, 2008).

This employee innovation is called innovative work behavior (IWB) and refers to the set of behaviors necessary to initiate ideas and implement them (de Jong and den Hartog, 2007). These behaviors appear in several phases that can range from the two phases, established by Dorenbosch et al. (2005), up to the six by Lukes and Stephan (2017). However, after reviewing the conceptualization of IWB, these phases could be grouped into two main stages: i) the first stage, derived from creativity, and ii) the second stage, derived from the implementation of the idea (Ayoub et al., 2023). Generally, the first stage is associated with creativity since it involves generating and combining ideas to respond to a perceived need (Tastan, 2013). The second stage is associated with the implementation of innovative ideas and solutions in processes, products, or services that provide benefits to the organization. However, and although the distinction of the two stages and the different phases (depending on the authors) is conceptually demonstrated, in practice, all of them are combined in a discontinuous and interrelated manner, which makes it difficult to empirically demonstrate the multidimensionality of the construct (in Jong and den Hartog, 2007; Janssen, 2000).

Due to this, most authors advise conceptualizing IWB as a unidimensional construct (Scott and Bruce, 1994; Janssen, 2000).

Regarding the factors that favor innovation and employees' IWB, previous literature suggests using three levels of analysis: the individual level, the team level, and the organizational level (Anderson et al., 2014; Battistelli, 2014; Hammond et al., 2011; Rattanawichai et al., 2022; Salam, & Senin, 2022). Thus, at the individual level, the factors that facilitate the employee's IWB would be a combination of internal and external factors: i) internal factors, referring to personal resources such as character traits, values, cognitive styles, psychological states, or proactivity, among others, ii) external factors, divided into specific characteristics of the task (e.g., autonomy, complexity of the task, etc.), and of the social context (e.g., leadership, culture for innovation, or the psychological contract). At the team level, the factors that facilitate innovation would be: i) those related to the team structure (e.g., team size, diversity of work, etc.); ii) the climate and social processes of team innovation; and iii) leadership style. And finally, at the organizational level, the factors that facilitate innovation would be, among others, the type of organizational structure and the culture of innovation. The two most used levels in the investigation of the innovation process in organizations have been the individual and team level (Battistelli, 2014). Increasing knowledge of the factors that contribute to the appearance of innovation will help organizations to promote and generate an appropriate structure for its development (Dziendziora et al., 2022).

1.2 Positive psychology, the key to successful innovation.

Traditionally, psychology focused on the pathology and the problems of the human being. This focus on the negative, or pathogenic approach, has overlooked the positive characteristics of human beings (Seligman & Csikszentmihalyi, 2000), ignoring and even despising characteristics such as hope, humor, compassion, and many others (Poseck, 2006). However, at the beginning of this century, a renowned researcher, Martin Seligman, started to develop the discipline called “positive psychology”. Together with other researchers, he proposed redirecting research towards a salugenic approach – promoting mental health – studying human strengths and virtues, thus helping healthy people to be happier and find the path to the good life (Luthans, 2002a). Seligman is not considered as being the origin of the basic ideas of positive psychology,

since already in classical Greece, Aristotle was interested in the virtuous life and well-being in human beings (Hervás, 2009). More recently, these ideas have been rescued from the humanist movement, promoted by Maslow (1991). However, humanistic psychology did not provide a well-founded empirical basis for its claims in the study of human capabilities and potentialities – such as Maslow's (1943) concept of self-actualization, or Rogers' (1979) tendency towards personal growth – and ended up confusing with spiritual currents and self-help (Poseck, 2006). Something similar has not happened with positive psychology, headed by Seligman, since it is based on the scientific method to found and carry out studies and research. The various areas in which positive psychology is applied range from health, education, sports, or work, and focuses mainly on the study of positive emotions and experiences, positive traits and strengths, and positive collectivities in its multiple contexts (Salanova & Llorens, 2016).

From positive psychology is derived the concept of positive organizational behavior (POB), defined as "the study and application of human resource strengths and positively oriented psychological capabilities that can be measured, developed and managed effectively to improve the performance in the workplace" (Luthans, 2002b, p. 59). Therefore, it includes capacities open to learning, so that they become malleable and concretely similar to states. This differentiates them from the character strengths and virtues of positive psychology, since strengths and virtues are trait-like and tend to exhibit considerable stability over time (Peterson & Seligman, 2004). Furthermore, the malleability of the positive psychological capabilities, included in POB, provides them with an openness to development and improvement through training programs, thus creating an opportunity for performance management in organizations (Luthans et al., 2015).

From this conceptual framework emerged the concept of psychological capital (PsyCap), a psychological state of mind of an individual, composed of a series of capabilities that meet the POB criteria, that is: to be based on valid research and measurement, to be open to development, and to have a measurable impact on performance. These capabilities are self-efficacy, hope, optimism, and resilience (Luthans et al., 2015). Therefore, focusing on the concept of PsyCap, Luthans, Youssef, and Avolio (2007) determine that it refers to the state of positive psychological development of an individual and is characterized by: i) self-efficacy, or having confidence to assume and make the necessary effort to succeeding in challenging tasks;

ii) optimism, or making a positive attribution about success now and in the future; iii) hope, or persevering toward goals and, when necessary, redirecting paths toward goals to succeed; and iv) resilience, or when beset by problems and adversities, sustain and bounce back and even beyond to achieve success. Furthermore, it has been empirically demonstrated that the synergy generated by the interaction of the four capabilities gives rise to a higher order construct that integrates the mechanisms that these capabilities have in common (Luthans et al., 2007c). This generates a positive effect, greater than the effect that each capacity would generate individually (Avey et al., 2011). Thus, the higher order construct PsyCap represents "the positive assessment that an individual makes of circumstances and the probability of success based on motivated effort and perseverance" (Luthans et al., 2007a, p.550), which will lead employees to remain positive and persevere when facing the different challenges that may arise in their work activity. Finally, and because PsyCap is characterized by its openness to development, Luthans et al. (2006) designed an intervention – using the abbreviation PCI (Psychological Capital Intervention) – that manages to increase the levels of PsyCap as a positive psychological resource, thus favoring the well-being of employees and organizational results.

In short, the integration of positive psychology in organizational behavior has provided researchers with a range of positive constructs, including employees' PsyCap, whose impact on organizational results can be studied (Avey et al., 2008).

1.3 The impact of psychological capital on employee innovative behavior

Without a doubt, positive organizational behavior (POB) has great potential to develop employee innovation. So much so that it has aroused the interest of researchers around the world and encouraging results have emerged from various studies. In this sense, and according to Bandura (2018), agency is the ability of individuals to make decisions and control behaviors through intentional activity, directed at goals or objectives, as well as a driver of innovation (Anand et al., 2007). Thus, the PsyCap construct, as an intrinsic individual and motivational factor and the agentic nature of its four components, improves employee motivation and provides greater creativity for problem solving (Sweetman et al., 2011), as described in the next paragraph. In addition, the cognitive component of the underlying agency in PsyCap would produce favorable evaluations regarding the probability of success in the proposed objectives

(Luthans et al., 2011). According to the social cognitive theory (SCT, Bandura, 2018), the PsyCap agency is considered essential to face challenging situations based on anticipation, self-reflection, and self-reactivity. These challenging situations for organizations derive from the need to adapt to a changing environment, with their best ally being innovation. Thus, employee innovation from their IWB is related to cognitive effort, perseverance to carry out long-term activities, and the activation of personal resources – such as PsyCap – to generate and implement their ideas (Wojtczuk-Turek, 2012).

The development of employees' IWB will be supported by each of the four PsyCap capabilities; i) self-efficacy, or self-confidence as a generator of one's own ideas and the ability to obtain support for their implementation; ii) hope, or the disposition of energy directed towards objectives related to innovation and the search for alternative paths – if setbacks arise – to achieve them; iii) optimism, or the generation of positive expectations of the future and a positive explanatory style of the events that occur in the innovative process; and iv) resilience, or the ability to recover from adversity to overcome the difficulties that come with the challenge of innovation (Chan, 2015). These four capabilities combined give employees a resilient and positive mental focus that they can use to manage stress and stay focused on their innovation-driven goals (Abbas & Raja, 2015). Thus, the contribution of positive psychology and, specifically, positive organizational behavior (POB) is considered essential when it comes to developing the innovative potential of employees. Of course, it is not the only factor that is involved in the appearance of the IWB, but it is an activator of conducts and behaviors, directed at its appearance.

1.4 Investigation objectives

1.4.1 General objective

The general objective of this doctoral thesis is focused on investigating how the employee's PsyCap favors the emergence of individual innovation in organizational contexts, specifically the IWB. In addition to this direct relationship, it is studied how various internal and external factors mediate or moderate this relationship, based on different hypotheses and proposed research models. To this end, this research is based on different theories conveniently exposed in chapters 2, 3, 4, and 5. In addition, an online psychological intervention is carried out to develop the PsyCap of the

participants and its subsequent impact on the IWB levels is tested. With all the results obtained, the knowledge of the factors that facilitate the IWB is expanded, and the effectiveness of an intervention – created ad hoc – to increase the IWB through the PsyCap is verified.

1.4.2 Specific objectives

This doctoral thesis aims to answer different research questions, based on a series of specific objectives that are later configured into a series of chapters.

1.4.2.1 Objective 1: Investigate how PsyCap favors employees' IWB.

It has become evident that innovation in organizations is one of the keys to adapting to current challenges in the business world. Without a doubt, innovation arises from employees whose behaviors will generate, promote, and implement ideas within a role, group, or organization, in order to improve the performance of said role, group or organization (Janssen, 2000). Research has shown that a high level of PsyCap favors employees' IWB (Jha, 2021) due to the motivational and agentic capacity of PsyCap (Luthans et al., 2015), thus impacting the development of products, processes, or services in organizations. At the individual level of analysis, PsyCap is being widely studied as an antecedent of IWB, which demonstrates its interest and potential in this direction (Lan, 2019). Knowing the current state of literature and confirming the direct relationship between PsyCap and employees' IWB is the first objective of this thesis.

1.4.2.2 Objective 2: Analyze the instruments used to measure employees' PsyCap and IWB.

The psychological constructs PsyCap and IWB have been widely investigated by the scientific community; consequently, many instruments have been developed to measure them (de Jong & Den Hartog, 2010; Luthans et al., 2007). In addition, their psychometric properties have been studied (Dawkins et al., 2013), and some were adapted to different languages (Choisay et al., 2021; León-Pérez et al., 2017). The second objective of this thesis will focus exclusively on analyzing the instruments used in articles where both constructs appear, resulting in many of them being dismissed, despite the fact they include long-used instruments.

1.4.2.3 Objective 3: Increase knowledge of the factors that are internal and external to the individual and mediate or moderate the relationship between PsyCap and employees' IWB.

Researchers and professionals study and analyze the factors that are internal and external to the employee and that can favor the appearance of IWB in organizations, with the aim of achieving a competitive advantage in the market (Dzieńdziora et al., 2022). The increase in knowledge in organizational psychology offers the field of research new challenges to expand and improve existing theoretical frameworks and the psychological processes they develop. Thus, exploring the psychological constructs that can favor the relationship between employees' PsyCap and their IWB, and the role they play in said relationship, is the third objective of this doctoral thesis. The relationships will be proposed based on a series of hypotheses, and supported under different theoretical frameworks.

1.4.2.4 Objective 4: Investigate whether a positive psychological intervention aimed at developing PsyCap or PCI can impact participants' IWB levels.

POB emerges as a new strategic approach to manage human resources in organizations, so that, by increasing employees' psychological resources – PsyCap –, well-being and organizational results increase together. To increase employees' PsyCap levels, Luthans et al. (2006) designed the PCI intervention, directed through a workshop that lasts between 1 and 4 hours and whose effects remain active between 1 month and 6 months after the intervention (Salanova & Ortega-Maldonado, 2019). The results of this type of PCI intervention show that participants' PsyCap levels increase significantly (e.g., Carter & Youssef-Morgan, 2022; Diedrich, 2015). Increasing PsyCap levels usually report benefits in well-being (Williams et al., 2016), performance (Zhang et al., 2014), or goal achievement (Carter & Youssef-Morgan, 2022), among others. However, to date, no study has revealed an increase in employee IWB levels. The fourth and final objective of this dissertation is to design a PCI aimed at improving the IWB of employees so that, after the intervention, the levels of PsyCap and IWB of the participants increase, based on a quasi-experimental design with three measurement points in time. (Pre, Post and Follow-up).

1.5 Organization of the doctoral thesis

This thesis is divided into six chapters. The first – and current – chapter is an introduction regarding the objectives of this research. The specific objectives proposed are carried out through a systematic review and three empirical studies in chapters 2, 3, 4, and 5, according to table 1. The sixth and last chapter presents a general discussion regarding the results obtained in the previous chapters. Each of them presents its own discussion and references.

Table 1. Overview of the specific research objectives addressed in the thesis chapters.

		Chapters			
		2	**3**	**4**	**5**
Specific objective 1	Relationship between PsyCap and IWB	X	X	X	X
Specific objective 2	Instruments to measure PsyCap and IWB	X			
Specific objective 3	Mediators and moderators of the relationship between PsyCap and IWB		X	X	X
Specific objective 4	Impact of a PCI intervention on the IWB				X

1.6 Chapter 2. Positive psychological capital and innovative work behavior: a systematic literature review

The second chapter presents a systematic review of the current state of literature on employee PsyCap and its relationship and influence on IWB. Based on a search in various databases, 39 empirical studies that explored the relationship between the aforementioned variables were considered. The present review offers an overview of the role of PsyCap as an antecedent, mediator, or moderator in employee IWB, and the instruments used to measure the relationship between both variables. Finally, gaps in literature and challenges for future research are identified, which are addressed in chapters 3, 4, and 5 of this doctoral thesis.

1.7 Chapter 3. Psychological capital, autonomous motivation, and innovative behavior: a study aimed at employees in social networks

The third chapter of the thesis presents the results of an empirical cross-sectional study in which the role of autonomous motivation at work as a mediator in the relationship between PsyCap and the IWB of employees is examined. The moderating effect of participative leadership on the relationship between autonomous motivation at work and IWB is also investigated. In the first place, and under the framework of the resource conservation theory (COR; Hobfoll et al., 2018), it is proposed that the PsyCap of the employees favors their IWB because the positive resources of the PsyCap enable them to better cope with the challenges of innovation. Secondly, the mediation of autonomous motivation at work between PsyCap and IWB is explained from the self-determination theory (SDT; Ryan & Deci, 2017), which would facilitate the appearance of the motivational process from the activation of the Employee PsyCap, and its subsequent impact on IWB. Thirdly, and under the theory of social exchange (Blau, 2017), the moderation of participative leadership is proposed in the relationship between autonomous motivation at work and the IWB, due to greater involvement in decision-making by employees, among other causes. For this, the study was carried out on a sample of 246 employees from various public and private organizations, recruited through different social networks. Firstly, descriptive analyses were carried out and the correlations between the variables studied were analyzed. Subsequently, and to avoid the problem of common method bias, Harman's single-factor test was carried out. Third, a confirmatory analysis (CFA) was carried out to validate our research model. Finally, the mediation and moderation relationships of the variables raised in our moderated mediation model were examined. This study is expected to expand the knowledge of the mediating and moderating variables that facilitate the IWB of employees based on their PsyCap levels.

1.8 Chapter 4. The relationship between psychological capital and innovative work behavior: the role of autonomy and work engagement

The fourth chapter presents the results of the second empirical study of cross-sectional design from which the role of work engagement as a mediator in the relationship between PsyCap and employees' IWB is examined. The moderating effect of job autonomy on the relationship between PsyCap and employees' work engagement

is also investigated. Firstly, and under the framework of the COR theory (Hobfoll et al., 2018), it is proposed that employees' PsyCap is positively and significantly related to their IWB due to the motivational drive it provides the employee with to face innovative challenges. Secondly, the mediation of work engagement between PsyCap and the employee's IWB is proposed, explained from the theoretical framework Job Demands - Resources (JD-R; Bakker et al., 2023) and the extension of Kwon and Kim (2020) aimed at the integration of IWB into said framework, so that work engagement would activate employees' PsyCap to promote their IWB. Thirdly, and based on the two previously discussed theories (COR and JD-R), the moderation of job autonomy between employees' PsyCap and their work engagement is proposed, due to the responsibility acquired for the achievement of work objectives, which would favor the emergence of PsyCap and a stronger relationship with work engagement. The study was carried out through an online questionnaire with a sample of 273 employees from various organizations. Descriptive analyses were carried out and correlations between the variables studied analyzed. Harman's single-factor test and a confirmatory analysis (CFA) of our research model were carried out and, finally, the mediation and moderation relationships between the proposed variables were examined. With this second empirical study, we hope to increase the knowledge of the mediating and moderating variables that facilitate employees' IWB based on their PsyCap levels.

1.9 Chapter 5. Innovative work behavior allies with positive psychological capital: a three-wave intervention and the role of consideration of future consequences

The fifth chapter of the thesis uses the COR theory (Hobfoll et al., 2018) as a general theoretical framework and raises the following objectives, based on two studies. The first study examines whether consideration of future consequences (CFC) moderates the relationship between PsyCap and employee IWB, since employees with high levels of CFC would make certain sacrifices in the present to challenge the “status quo”, a strict requirement for achieving innovation. The second study analyzes the effect of a PsyCap development intervention (PCI) on employees' PsyCap and IWB levels, through a quasi-experimental design with three measurement points in time (Pre, Post and Follow-up). The first study was carried out using an online questionnaire with a sample of 152 employees from various organizations. Descriptive analyses were carried out on the variables studied and the correlations between them were analyzed. Subsequently, Harman's single-factor test and a confirmatory analysis (CFA) of our

research model were carried out. Finally, the proposed moderation hypothesis was examined. The second study was conducted using 31 participants employed by different organizations. To evaluate the effects of the intervention, the participants were randomly divided into two groups: the treatment group (15 participants) that received the intervention, and the control group (16 participants) whose activities were limited to completing the questionnaires. For the intervention group, the program lasted 3 weeks: in the first and third week, the online workshops took place, while during the second week, a 20-minute follow-up task was carried out individually to reinforce and practice the assimilated PsyCap contents. Finally, and to verify the effectiveness of the intervention in the development of PsyCap and IWB of the participants, three measurements were carried out. These measurements were taken from questionnaires that were completed by the two groups at three measurement points in time: i) PRE (T1), one week before the intervention; ii) POST (T2), two weeks after the intervention to assess the effects of the intervention; and iii) Follow-up (T3), three months after the end of the intervention, to assess whether the positive effects are sustained over time. In short, with this fifth chapter, we hope to increase the knowledge of the moderating variables that facilitate employees' IWB based on their PsyCap levels, specifically the influence of the CFC variable, and, in addition, the effect of a PCI intervention, aimed at promoting employees' IWB, is tested.

1.10 Chapter 6. General discussion

The sixth and final chapter is based on the findings of the previous chapters and presents a general discussion of the results obtained, pointing out how this responds to the specific objectives, set out in this thesis. Additionally, the theoretical and practical implications, as well as the limitations of this doctoral research, are presented. Finally, challenges and suggestions for future studies are presented.

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CHAPTER 2

POSITIVE PSYCHOLOGICAL CAPITAL AND INNOVATIVE WORK BEHAVIOR: A SYSTEMATIC LITERATURE REVIEW

Abstract

In recent years, the concepts of positive psychological capital (PsyCap) and innovative work behavior (IWB) have attracted the attention of academics and human resources professionals for the benefits they bring to organizations. The aims of this article are: a) to present an overview of PsyCap and its relationship and influence as an antecedent, mediator, and moderator in IWB and; b) to analyze the variety of instruments that have been used to measure both constructs in the articles reviewed. A systematic literature review was conducted to obtain and analyze 39 publications in which both the terms, "psychological capital" and "innovative work behavior", appeared, adopting a series of exclusion-inclusion criteria in our final list. Our findings provide evidence of the relationship between the different roles of PsyCap and IWB, and present the most commonly used tools to explore this relationship, as well as a series of suggestions to facilitate future research.

Keywords: psychological capital, PsyCap, innovative work behaviour, IWB, review.

2.1 Introduction

A series of global economic crises and recessions have marked the first years of the 21st century, transforming the global economy and affecting the business and organizational fabric (Tang et al., 2019). Radical changes in market demands, the constant evolution of science and technology, and even changes in the way we work have pushed organizations to recognize innovation as a primary strategy to maintain organizational effectiveness, and thus gain an essential competitive advantage (Asurakkody & Shin, 2018). This drive for innovation starts with employees (Anderson et al., 2014), and promoting and encouraging innovative behaviors has become part of the strategic development of organizations (Li & Hsu, 2016). Based on West and Farr (1990), such behavior is defined as the intentional creation, introduction and application in a job role, group, or organization of new ideas, processes, products, or procedures in order to benefit the performance of the role, the work team, or the organization. Thus, innovation at work contributes to organizational success due to increased responsiveness to market changes and uncertainties (Dorenbosch et al., 2005; Janssen, 2000; Woodman, 2014). However, the academic knowledge to trigger employee innovation is limited and depends on multiple factors. The interplay between individual, group, and organizational factors will increase or decrease innovativeness (West & Farr, 1990) directed at products, services, and processes, so that exploring the determinants of employee innovativeness is currently receiving a great deal of attention in academia (de Jong & Den Hartog, 2010). According to the literature, the antecedents that facilitate the IWB at the individual level would be a combination of internal and external factors. Internal factors refer to personal resources such as personality traits, abilities, cognitive styles, or psychological states such as positive and negative emotions, etc., while external factors would be distinguished between: (a) task-specific characteristics, such as autonomy or task variety, among others; and (b) specific resources of the social context, such as leadership, feedback or organizational justice (Battistelli, 2014; Rattanawichai et al., 2022). One of the individual factors that are attracting most interest in the scientific community in recent years is psychological capital (PsyCap), a positive psychological state with a positive orientation which can be effectively measured, developed, and managed to improve job performance (Luthans et al., 2007). In their meta-analysis, Avey, Reichard et al. (2011) reported that PsyCap is positively related to desirable attitudes, behaviors, and performance, as well as to employees' psychological

wellbeing. PsyCap facilitates a positive evaluation of reality, modifying the affective, cognitive, and behavioral capacity of individuals (Fidelis et al., 2021) thus, resulting in a construct that favors organizational change (Avey et al., 2008). Several research studies have demonstrated the relationship of PsyCap with innovative and creative behavior (e.g., Abbas & Raja, 2015; Paul & Devi, 2018), however, to date, there are no reviews that have addressed this relationship. In addition, Li and Zheng (2014) identified PsyCap as an antecedent influencing IWB in a literature review and proposed it as an emerging positive psychological resource associated with such behavior. For this reason, the purpose of this review is to contribute to the innovation literature in two ways: (a) the first is to analyze the relationship of PsyCap to innovative work behavior as an antecedent, mediator and moderator; and (b) the second is to reflect on the variety of instruments used to measure both constructs, especially the measurement of employee innovation and the confusion in determining the concept and the phases in which it develops. In the following, we will present the concepts that will be part of the review, followed by the method, results, practical and theoretical implications, limitations, and suggestions for future studies interested in the relationship between the two psychological constructs.

2.2 Theoretical backgrounds

2.2.1 Innovative work behavior

Nowadays, employee innovation in organizations causes some confusion due to the variety of terms related to it, such as employee creativity, creative performance, creative behavior, innovation-related behaviors, innovativeness, individual innovation, innovative behavior, and so on (Asurakkody & Shin, 2018; de Jong & Den Hartog, 2007; Ng & Feldman, 2013). Similarly, the concept has been described in terms of traits, characteristics, individual products, and behaviors (Kleysen & Street, 2001), which leads to some confusion when trying to operationalize it in a practical and effective way. In addition, there has been a general orientation to investigate or examine the inspiration of individual ideas or creativity; and call it innovation. This would exclude one or several phases of employee innovation (as we will see below), generating confusion in professionals and academics by calling innovation what would only be the generation of innovative ideas. Thus, to clarify the issue, the most widely used definition of innovation comes from West and Farr (1990) (described in the

previous paragraph) (Battistelli, 2014). Employee innovation is conceptualized as innovative work behavior (IWB) and has evolved since then, both in its conceptualization and in its operationalization (Salessi, 2021). The IWB defined by Scott and Bruce (1994) has several phases, suggesting that innovation is a discontinuous process that appears through intermittent activities grouped in phases. Thus, they should not be considered as sequential phases established in different behaviors or dimensions, but recommend combining their items under a single additive scale. This was confirmed by Janssen (2000), and later by de Jong and Den Hartog (2010), among others, who found support for convergent validity, but not for discriminant validity, as the different dimensions showed high correlations with each other. Consequently, they advised the use of a single or unidimensional measure (a criterion that we have respected in this review when studying the relationship between the PsyCap and IWB variables). However, despite the suggestion to use the unidimensional measure, most researchers agree that IWB is a multidimensional construct, composed of differentiated behaviors, that appear in several phases that vary according to the different authors. These phases range from: (a) the two phases established by Dorenbosch et al. (2005) (creative-oriented work behavior and implementation-oriented work behavior); (b) the three of most authors such as Janssen (2000) and Scott and Bruce (1994) (idea generation, idea promotion and idea implementation); (c) the four of de Jong and Den Hartog (2010) (problem recognition, idea generation, idea promotion and idea realization); (d) Kleysen and Street's (2001) five (opportunity exploration, generativity, formative investigation, championing and application); and (e) Lukes and Stephan's (2017) six (idea generation, idea search, idea communication, implementation starting activities, involving others and overcoming obstacles) (Asurakkody & Shin, 2018; Pérez-Peñalver et al., 2018). Examining all of them, we can observe that the IWB is basically divided into two main stages: (a) the first stage, which is derived from creativity; and (b) the second stage, which is derived from the implementation of the idea (Patterson, 2002). The first is an individual process in which an employee explores and generates new ideas; the second is a social process that depends on the participation and approval of others, so that the first stage would be associated more with individual factors, while the second stage would be associated with group and organizational factors (Axtell et al., 2000). The phases that are part of each of the two main stages will depend on the research of the various authors and will be integrated into their evaluation tools (Asurakkody & Shin, 2018). Due to its importance in IWB literature, one of these phases stands out, the so-

called "idea promotion" or "championing" phase which is included in the second stage or idea implementation stage (Dorenbosch et al., 2005). This phase would be dedicated to convincing others to support the innovation (Janssen, 2000; Shane, 1994), and is normally carried out by employees or "champions" who emerge in the organization in an informal manner (Howell et al., 2005). However, as mentioned above, empirical verification of such phases is most often not accurate, mainly because the innovative process is "messy, reiterative and often involves two steps forward for one step back, plus several side steps" (Anderson et al., 2014, p. 1299), and therefore fewer complex models or preferably a single construct are advisable (Botha & Steyn, 2020). For example, the cognitive process of idea generation is not exclusive to the first stage but can also appear when promoting ideas and seeking allies or sponsors, or when realizing or implementing ideas, developing prototypes or new products and services (Kwon & Kim, 2020). Regarding the determinants or factors that influence IWB, the latest published meta-analyses and reviews (Anderson et al., 2004; Anderson et al., 2014; Battistelli, 2014; Hammond et al., 2011; Hülsheger et al., 2009; Rosing et al., 2011) present the individual, team and organizational factors that seem to influence IWB behavior. Individual factors include: creative personality traits, values, cognitive styles such as cognitive flexibility, goal orientation, psychological states, creative self-efficacy, intrinsic motivation, task complexity or proactivity. In terms of team factors: team structure, team climate, social processes, and leadership. And finally, at the organizational level: factors related to the management, use and networking of knowledge and the diffusion of innovation, among others. All these factors and their relationship with the different phases, the relationship between the phases, as well as the interaction between the different levels of analysis and their integration represent, today, the key to understanding the innovation process in organizations (Battistelli, 2014; Yuan & Woodman, 2010).

2.2.2 Differences between creativity and innovation

The confusion between the concepts of creativity and innovation and their haphazard use in their operationalization and measurement is a challenge for organizations and the scientific community (Scott & Bruce, 1994). On the one hand, the general opinion suggests that creativity refers to the first stage of IWB, thus linking it to idea generation and being a necessary first step for innovation to occur (Patterson, 2002; Shalley & Gilson, 2004; West & Farr, 1990). However, if we consider creativity as an

individual characteristic, then it would not correspond to this stage but rather play the role of antecedent of IWB (Battistelli, 2014). Considered as organizational creativity, we could associate it with this first stage, implying that ideas should be novel and useful for the organization (Amabile & Pratt, 2016). Consequently, creativity is crucial for IWB, as it involves generating ideas, combining, and reorganizing existing concepts into a new scenario (de Jong & Den Hartog, 2010). On the other hand, innovation would encompass the subsequent stage, the application or implementation of the generated ideas into a product, a service, a procedure, or a process at the individual, group, or organizational level (Shalley & Gilson, 2004). Unlike creativity, innovation is intended for application and to provide benefit of some kind to the organization, depending on the support and approval of influential and decisive people, both inside and outside the organization, who can favor the implementation of the ideas (de Jong & Den Hartog, 2010). Ultimately, both creativity and innovation are necessary to introduce new and better ways of doing things (i.e., having IWB), with the former relating to the production of ideas, and the latter to the successful implementation of creativity (Pérez-Peñalver et al., 2018; Scott & Bruce, 1994).

2.2.3 PsyCap

Psychological capital (PsyCap) is a malleable, state-like construct, more stable than emotional states, but not as fixed as personality traits. Individuals with high PsyCap seek to focus on the positive aspects of the environment and thus find solutions to problems more easily (Luthans et al., 2007). PsyCap comprises four psychological capacities: self-efficacy, or confidence to strive for and succeed in challenges; optimism, or positive attribution about current and future successes; hope, or perseverance and alternative goal orientation; and resilience, or support and recovery from and after problems and adversity (Luthans et al., 2007). Thus, PsyCap becomes a second-order underlying construct with better predictive power than any of the capabilities separately (Luthans et al., 2007). Employees with high levels of PsyCap increase positive emotions, which directly affects their attitudes and behaviors, thus adding extra effort to tasks and resulting in better performance (Avey, Avolio & Luthans, 2011), and more innovative and creative behavior (Luthans et al., 2011). It is also positively related to job satisfaction, organizational commitment, psychological wellbeing, and behaviors such as organizational citizenship (Avey et al., 2010; Luthans et al., 2007; Luthans et al., 2008), and negatively related to turnover intentions,

cynicism, or stress (Avey et al., 2008; Avey et al., 2010). PsyCap's positive evaluation of reality by modifying the individual's affective, cognitive, and behavioral functioning (Youssef & Luthans, 2007), favors flexibility to organizational change and consequently, employees' IWB. In this way, it would increase "the probability of success based on motivated effort and perseverance" (Luthans & Youssef, 2007, p. 335), promoting innovative behavior from its four dimensions that would interact synergistically (Luthans & Youssef-Morgan, 2017). The first mechanism, self-efficacy, referring to the perception of one's own ability to achieve goals (Bandura, 2012), would act by favoring the consideration of an employee as a generator of ideas and the ability to obtain support to implement them, thus being able to act in the two stages of IWB. The second mechanism, optimism, would entail a positive expectation of the future, as well as an explanatory style of attributing failure to temporary and external circumstances and success to stable and internal circumstances (Forgeard & Seligman, 2012). Thus, during the two stages of IWB, optimism would help with a positive and adaptive explanatory style to the circumstances. The third mechanism, hope, acts on agency or willpower and finding alternative ways to achieve goals (Snyder, 2002) so that employees could achieve their innovative goals with perseverance and finding alternative routes in case of setbacks in the different stages of IWB. The fourth mechanism, resilience, relates to the ability to positively adapt and thrive in adverse circumstances (Masten et al., 2012), thus making it easier for employees to generate and implement ideas in difficult or stressful circumstances.

2.3 Methodology

Conducting a systematic literature review (SLR) is nowadays considered a "fundamental scientific activity" (Mulrow, 1994), whose main objective is to identify empirical evidence through a systematic, transparent, and reproducible methodological review process (Walker, 2010). SLR identifies research that addresses a specific question under methodological rigor and provides a balanced and unbiased summary of knowledge from the literature (Tranfield et al., 2003). The methodology, used in the present systematic review, was conducted by identifying four phases: (a) the purpose and objective of the review; (b) the inclusion and exclusion criteria; (c) identification of studies; and (d) the analysis plan. Changes to the protocol used could introduce bias (Nightingale, 2009) and, fortunately, were not necessary.

2.3.1 Review objective

In this review, we aim to clarify the relationship of PsyCap to employee IWB, to respond to calls from the scientific community (Abbas & Raja, 2015; Choi & Lee, 2014; Wojtczuk-Turek, 2012) and to facilitate future research studying both concepts. The objective is defined in the following two questions. The first is: what is the relationship between the individual PsyCap factor as antecedent, mediator and moderator in the IWB? And the second: what instruments have been used to measure the relationship between the two constructs? Having defined the purpose of this review, the researchers proceeded to identify the articles from many available sources.

2.3.2 Inclusion and exclusion criteria

The articles analyzed were those published since 2011 onwards, which corresponds to the first publication linking PsyCap to a concept related to innovation, specifically creative performance, by Sweetman et al. (2011). Studies linking PsyCap and IWB were selected or excluded using six criteria: (a) articles being published in English or Spanish; (b) articles being published in peer-reviewed or double-blind journals, excluding book chapters, conference proceedings or dissertations; (c) articles that included the study of PsyCap as a single construct formed by the four dimensions (optimism, hope, self-efficacy, resilience), excluding those studies that neglected any of them; (d) the instrument used to measure employee innovation had to be conceptualized as IWB by the original authors, or be an adaptation derived from such a tool, with the aim of measuring the two main stages of IWB (idea generation and idea implementation); (e) the studies had to examine IWB and PsyCap at the individual level, excluding those at the team or organizational level; and (f) the article had to be empirical rather than a conceptual or theoretical in nature. Finally, articles whose full text could not be accessed were excluded. Using these criteria, 39 articles were included, excluding duplicates and those that appeared to use the same sample in different studies.

2.3.3 Identification of studies

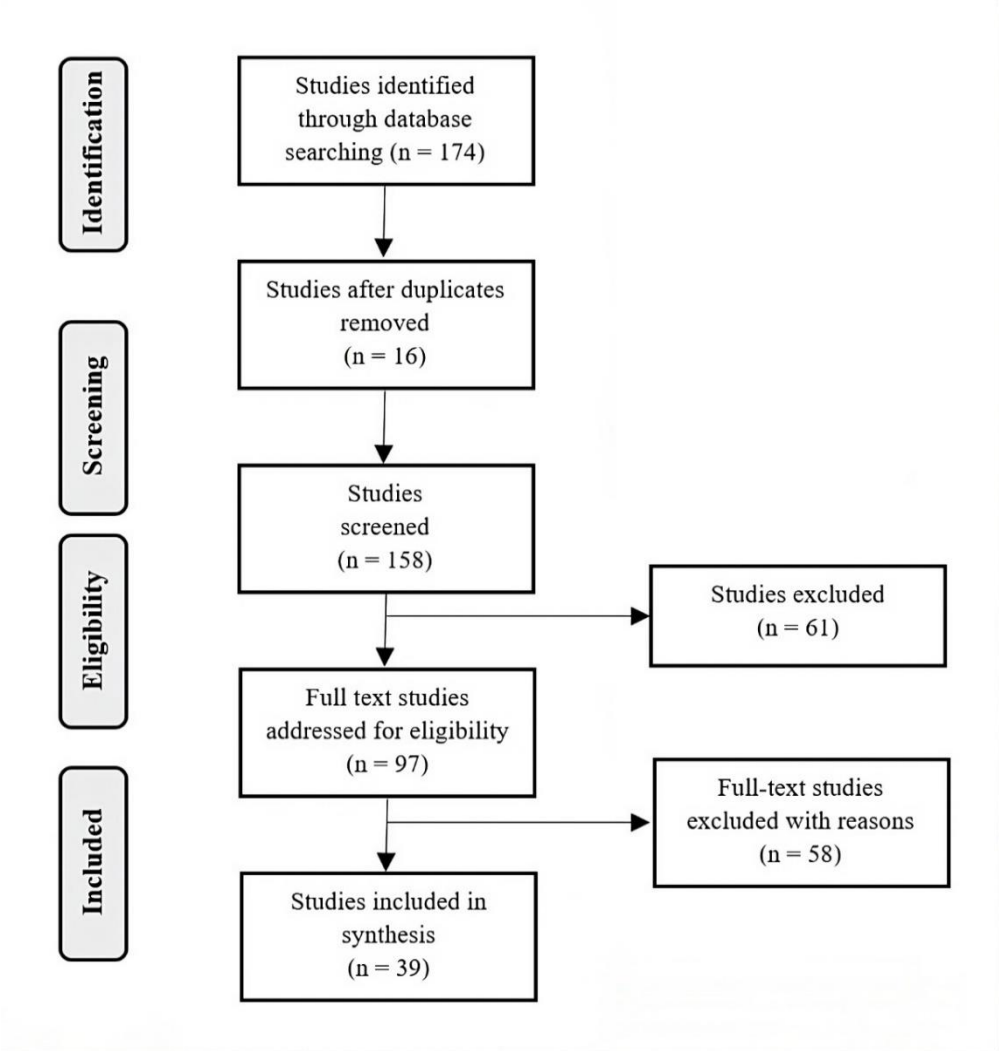
The search began in October 2021 and concluded in May 2023 after several exploration processes, in databases and electronic search engines such as Scopus, Web of Science, EBSCOHost, PsycINFO, PsycARTICLES, and Google Scholar. The

descriptors "PsyCap", "Psychological capital", "Innovative work behavior", and "IWB" were used and combined with the Boolean operators "and" and "or" to unify the two concepts.

2.3.4 Analysis plan

The initial search process yielded a total of 161 articles, plus a further 13 added due to the snowball effect. After an identification process, we eliminated 16 articles that were duplicates or used the same sample. Of the 158 articles selected, 13 of them were not access the full text, 31 studies were written in Chinese, Korean, Malay, and Arabic, among other languages. Seventeen were theoretical articles. It results a total of 61 excluded articles. According to the inclusion criteria, we decided to retain articles that used tools called IWB by the original authors or adaptations of such tools, thus eliminating 42 studies. In addition, we eliminated 8 articles that measured one or both variables at the team or organizational level, and 6 articles that measured PsyCap without some of its components. Finally, 2 papers were eliminated due to lack of specificity in the tools used. It resulted in a total of 58 articles being excluded for specific reasons. The final sample was set at 39 articles, all of which met the inclusion criteria. The decision to include or exclude articles was agreed upon by all the researchers involved in this review to minimize selection bias (Nightingale, 2009). Figure 1 presents a PRISMA flowchart showing the selection process of the articles ultimately included in this review.

Figure 1. PRISMA diagram of systematic review process.



2.4 Results

After obtaining a final sample of 39 articles, we describe the results in terms of the methodology used, the location where the studies were conducted, the research design, and the years with higher publication rates. All the studies used quantitative methodology, and only one of them used individual interviews, where the questionnaire was read by the researcher (Özsungur, 2019). The countries in which the studies were conducted, in decreasing order are, China (N=6), Indonesia (N=6), Pakistan (N=5), India (N=3), South Korea (N=3), Türkiye (N=3), Iran (N=2), Nigeria (N=2), Poland (N=2), Taiwan (N=1), Thailand (N=1), Rwanda (N=1), Argentina (N=1), Saudi Arabia (N=1), USA-Australia (N=1), and Dubai-New Zealand-Pakistan (N=1). It can be seen that most of the studies were conducted in non-Western countries. Most of the articles used a cross-sectional design, with the exception of 5 studies (12.8%) that used

longitudinal designs, more specifically panel studies, where the number of measurements and the time interval per measurement varied between the articles. Three of them measured different constructs in three measurement waves, at intervals ranging from twenty days to three months (Jha, 2021; Kim et al., 2018; Lan, 2019). One study used the same questionnaire in two waves, adding the Service Innovative Behavior (SIB) construct, or employee IWB adapted to customer service, in the final measurement (Schuckert et al., 2018). The last panel study measured PsyCap and humour at T1 and IWB at T2 without outlining the time interval between waves (Suciati et al., 2018). We can also observe an increase in research on both constructs in recent years (Burhanuddin et al., 2019; Hassan et al., 2021). Thus, the main part of the articles, namely 31 (79.5 %) were published in the period between 2018 and 2021. The remaining 8 articles (20.5%) were published between 2012 and 2017. Table 1, 2 and 3, following suggestions made by Popay et al. (2006), describes the 39 articles included in this review, ordered according to the role of PsyCap as antecedent (Table 1), mediator (Table 2) and moderator (Table 3). The authors, the year of publication, the country where the study was carried out, the objectives, the variables used (antecedents, mediators/moderators, and dependent variables), the sample evaluated, the instruments used, the design, the unit of analysis, the results referring to PsyCap and IWB, and the implications of each study are specified.

2.4.1 PsyCap's role in the relationship with IWB

After an analysis of the articles, included in this review and oriented to our first proposed objective, we can observe that PsyCap has been studied mainly as an antecedent and mediator of IWB, finding only 4 studies in which it has been analyzed as a moderator (see Table 3). Moreover, in all the studies in which it has been analyzed, the correlations between the variables PsyCap and IWB are positive and significant. Likewise, 4 studies analyzed the relationships between the four PsyCap capacities and IWB, and in 3 of them all the relationships were positive and significant (Tang et al., 2019; Wojtczuk-Turek, 2012). Regarding the mediating role of PsyCap on employees' IWB, we can observe that, in 17 of the 19 articles reviewed, PsyCap partially or fully mediated the relationship between an antecedent and IWB. Finally, the 4 articles reviewed that examined whether PsyCap plays a moderating role between a variable and its relationship with IWB provides results in both directions (see Table 4).

Table 1. Articles included in this review with PsyCap as an antecedent.

Nº	AUTHOR (DATE)	COUNTRY	OBJECTIVES	(A), (M), (MO), & (DV)	SAMPLE	INSTRUMENT TO MEASURE PSYCAP	INSTRUMENT TO MEASURE IWB	DESIGN / UNIT OF ANALYSIS	RESULTS BETWEEN PSYCAP AND IWB	DISCUSSION AND IMPLICATIONS
1	Ratnaningsih et al. (2016)	Indonesia	To examine the relationship between **PsyCap** and **IWB** of employees in an organization.	**PsyCap** (A), **IWB** (Dv).	N = 149 employees of a clothing factory.	PCQ-24 scale from Luthans et al., 2007.	IWB-9 scale from Etikariena and Muluk, 2014 (Based on Scott and Bruce, 1994 and Janssen, 2000).	Cross-sectional / Individual	**PsyCap** and **IWB**: Correlation: (r = .52, p < .001) **PsyCap** (four capacities), **IWB**: The correlations of the four **Psycap** capacities are positive and significant in the **IWB**.	The results reveal that the demographics of the participants (differences in age, education and sex) do not imply differences in the **IWB**.
2	Paul and Devi (2018)	India	This research explores how the **IWB** of information technology (IT) employees affects their job performance. It also explores the influence of **PsyCap** and employee expectations on their **IWB**.	**PsyCap** (A), outcome expectation (A, M), **IWB** (M), job performance (Dv).	N = 180, employees working in information technology companies.	PCQ-12 scale from Avey, Avolio et al., 2011.	IWB-9 scale from Janssen, 2000.	Cross-sectional/ Individual/	**PsyCap** and **IWB**: Direct effect: (β = .69, p < .001) **PsyCap** (four capacities), **IWB**: The correlations and effects of the four **PsyCap** capacities on **IWB** are positive and significant, except for the effect of resilience on **IWB**, which is positive but not significant.	The results reveal that **IWB** mediates the relationship between **PsyCap**, outcome expectations, and job performance among information technology employees.
3	Nwanzu and Babalola (2019)	Nigeria	To examine the relationship between **PsyCap** and **IWB**, taking into account the mediation of task autonomy, in employees of public organizations.	**PsyCap** (A), task autonomy (Mo), **IWB** (Dv).	N = 125, public hospital employees.	PCQ-24 scale from Luthans et al., 2007.	IWB-9 scale from Janssen, 2000.	Cross-sectional / Individual	**PsyCap** and **IWB**: Correlation: (r = .51, p < .05) **PsyCap** (four capacities), **IWB**: The correlations of the four **PsyCap** capacities on **IWB** are positive and significant.	The study confirms social cognitive theory (Bandura, 2012) and Vroom's expectancy theory (Vroom et al., 2015). The data did not confirm the moderating effect of task autonomy.
4	Tang et al. (2019)	China	This study explores the effect of **PsyCap** on employees' **IWB** through the mediation of job satisfaction and organizational commitment.	**PsyCap** (A), job satisfaction (M), organizational commitment (M), **IWB** (Dv).	N = 266, employees of various companies.	PCQ-24 scale from Luthans et al., 2007.	IWB-6 scale from Scott and Bruce, 1994 and IWB-3 scale from Tsai and Kao, 2004.	Cross-sectional / Individual	**PsyCap** and **IWB**: (Not listed, not hypothesized) **PsyCap** (four capacities), **IWB**: The correlations of the four **Psycap** capacities are positive and significant in the **IWB**.	Employee **PsyCap** is confirmed to affect **IWB** through organizational commitment and job satisfaction for small and medium-sized enterprises (SMEs)
5	Wojtczuk-Turek (2012)	Poland	Investigate the relationship between individual dimensions of **PsyCap** and employees' **IWB**.	**PsyCap** (A), **IWB** (Dv).	N = 246, employees of various companies.	PCQ-12 scale from Avey, Avolio et al., 2011.	IWB-14 scale from Kleysen and Street, 2001.	Cross-sectional / Individual	**PsyCap** and **IWB**: (Does not list the result, but the authors report it as positive and significant.)	The results explain the importance of high **PsyCap** in employees, highlighting the self-efficacy dimension, and its relationship with the **IWB**.
6	Abbas and Raja (2015)	Pakistan	This study explores the impact of **PsyCap** on **IWB** and job stress, drawing on Fredrickson's (2013) "broaden and build" theory.	**PsyCap** (A), **IWB** (Dv), job stress (Dv).	N = 237, administrative and technical staff.	PCQ-24 scale from Luthans et al., 2007.	IWB-6 scale from IWB-9 Janssen, 2000.	Cross-sectional/ Individual/ Multilevel (**IWB** measured by supervisor)	**PsyCap** and **IWB**: Correlation: (r = .20, p < .01) Direct effect: (β = .21, p < .001)	The research showed that people with high **PsyCap** experienced low levels of job stress.

Table 1. Articles included in this review with PsyCap as an antecedent (continued).

Nº	AUTHOR (DATE)	COUNTRY	OBJECTIVES	(A), (M), (MO), & (DV)	SAMPLE	INSTRUMENT TO MEASURE PSYCAP	INSTRUMENT TO MEASURE IWB	DESIGN / UNIT OF ANALYSIS	RESULTS BETWEEN PSYCAP AND IWB	DISCUSSION AND IMPLICATIONS
7	Chitsazan et al. (2017)	Iran	This study explores the effects of psychological, intellectual and social capital on business innovation. It also examines whether organizational culture plays a moderating role in the association between these variables.	Social capital (A), intellectual capital (A), **PsyCap** (A), organizational culture (Mo), **IWB** (Dv).	N = 126 middle and high-level managers of knowledge and high technology companies.	PCQ-24 scale from Luthans et al., 2007.	IWB-6 scale from Scott and Bruce, 1994.	Cross-sectional / Individual	**PsyCap** and **IWB**: Direct effect: (β = 0.36, p < .01)	The results show that the structural factor in intellectual capital (IC), cognitive ability in social capital, and hope in **PsyCap** have the strongest effect on **IWB**. We found the moderating impact of organizational culture on the association between **PsyCap** and IC and **IWB**. The IC construct of a company has the strongest effect on **IWB**.
8	Akhtar et al. (2018)	Pakistan	This research studies the impact of **PsyCap**, supervisor support and managerial risk tolerance on employee **IWB**.	Social organization support (A), risk tolerance in manager (A), **PsyCap** (A), **IWB** (Dv).	N = 400 employees of various companies.	PCQ-12 scale from Avey, Avolio et al., 2011.	IWB-9 scale from Janssen, 2000.	Cross-sectional / Individual	**PsyCap** and **IWB**: Correlation: (r = .38, p < .05) Direct effect: (β = .33, p < .001)	The results show that **PsyCap**, supervisor support, and innovative risk behavior have a positive effect on employees' **IWB**. If the supervisor takes risks, her subordinates are likely to do innovative work.
9	Lan (2019)	China	This study explores the impact of employee **PsyCap** on **IWB** and the role of job embeddedness (JE) and internal social capital (ISC) in this process.	**PsyCap** (A), internal social capital (Mo), job embeddedness (M), **IWB** (Dv).	N = 66 leaders and 106 leader-employee pairs were matched.	PCQ-24 scale from Luthans et al., 2007.	IWB-6 scale from Scott and Bruce, 1994.	3 times / 3 mont lag / panel / multilevel (T1-leader: ISC, T2-employees: **PsyCap** and JE, T3-leader: **IWB**)	**PsyCap** and **IWB**: Correlation: (r = .24, p < .01) Total effect: (β = .28, p < .05) Direct effect: (β = .12, p > .05) (the direct effect is not significant)	In line with the conservation of resources (COR) theory (Hobfoll et al., 2018), this study enriches the literature by evidencing the mediating effect of job embeddedness and the moderating effect of internal social capital on the relationship between **PsyCap** and **IWB**.
10	Sun and Huang (2019)	China	To examine the role of psychological safety as a mediator of the relationship between **PsyCap** and **IWB**.	**PsyCap** (A), psychological safety (M), **IWB** (Dv).	N = 136 university teachers.	PCQ-24 scale from Luthans et al., 2007.	IWB-6 scale from Scott and Bruce, 1994.	Cross-sectional / Individual	**PsyCap** and **IWB**: Total effect: (β = .48, p < .01) Direct effect: (β = .33, p < .01)	The study shows that psychological safety partially mediated the relationship between **PsyCap** and **IWB**. It shows the importance of employees' PsyCap in understanding their IWB.
11	Salessi (2020)	Argentina	This study analyzes the direct and indirect effect of **PsyCap** and passion for work on employees' **IWB**.	**PsyCap** (A), passion for work (M), **IWB** (Dv).	N = 458 teachers from various management schools.	CapPsi-12 scale from Omar, Salessi and Urteaga, 2014.	IWBST-12 scale from Salessi and Etchevers, 2020 (Based in Janssen, 2000).	Cross-sectional / Individual	**PsyCap** and **IWB**: (Does not list the result, but the authors report it as positive and significant.)	This study incorporates into the literature the partial mediating role of passion for work in the relationship between **PsyCap** and **IWB**.
12	Adikara and Soetjipto (2021)	Indonesia	Examine the effect of leader-member exchange (LMX) and **PsyCap** on job crafting and **IWB**, in addition to the mediating effect of job crafting.	Leader-member exchange (A), **PsyCap** (A), job crafting (M), **IWB** (Dv).	N = 105 entry-level employees from a government office.	PCQ-12 scale from Avey, Avolio et al., 2011.	IWB-14 scale from Kleysen and Street, 2001.	Cross-sectional / Individual	**PsyCap** and **IWB**: Total effect: (β = .65, p < .01) Direct effect: (β = .39, p < .01)	This research shows that job crafting acts as a partial mediator between employees' **PsyCap** and their **IWB**. The application of job crafting theory (Tims and Bakker, 2010) should be encouraged in organizations to achieve positive change.

Table 1. Articles included in this review with PsyCap as an antecedent (continued).

Nº	AUTHOR (DATE)	COUNTRY	OBJECTIVES	(A), (M), (MO), & (DV)	SAMPLE	INSTRUMENT TO MEASURE PSYCAP	INSTRUMENT TO MEASURE IWB	DESIGN / UNIT OF ANALYSIS	RESULTS BETWEEN PSYCAP AND IWB	DISCUSSION AND IMPLICATIONS
13	Alshebami (2021)	Saudi Arabia	This study investigates the impact of **PsyCap** on employees' **IWB** through the mediating effect of job satisfaction and employees' innovative intention.	**PsyCap** (A), employees' job satisfaction (M), employees' innovative intention (M), **IWB** (Dv).	N = 204 employees of small and medium enterprises (SMEs)	PCQ-24 scale from Luthans et al., 2007.	IWB-6 scale from Scott and Bruce, 1994.	Cross-sectional / Individual	**PsyCap** and **IWB**: Total effect: (β = .47, $p < .001$) Direct effect: (β = .24, $p < .001$)	This study provides empirical evidence on the relationship of **PsyCap** with job satisfaction, employee innovative intention and **IWB** for SMEs in Saudi Arabia. **PsyCap** had a direct effect on **IWB**, and also through job satisfaction.
14	Farrukh and Ansari (2021)	Pakistan	This research examines the mediating effect of **SIB** on the relationship between employee **PsyCap** and customer value cocreation (VCC).	**PsyCap** (A), **SIB** (M), customer value cocreation (Dv).	N = 255 hotel employee-customer dyads.	PCQ-12 scale from Avey, Avolio et al., 2011.	SIB-6 scale from Hu et al., 2009 (Based in Scott and Bruce, 1994).	Cross-sectional / Multilevel (Employees-customers dyads)	**PsyCap** and **IWB**: Total effect: (β = .40, $p < .001$) Direct effect: (β = .20, $p < .001$)	This research demonstrated that **SIB** partially mediates the relationship between **Psycap** and VCC, thus extending the literature.
15	Ghafoor and Haar (2021)	Dubai, New Zealand and Pakistan	The study examines the relationship between **PsyCap** and job stress (JS) in the employees' **IWB**. It also investigates the mediating role of job satisfaction and the moderating role of JS.	**PsyCap** (A), job satisfaction (M), job stress (Mo), **IWB** (Dv).	Sample 1 N = 269 employees, 1 country and different companies. Sample 2 N = 475 employees, 3 countries and different companies.	PCQ-12 scale from Avey, Avolio et al., 2011.	IWB-9 scale from Janssen, 2000.	Cross-sectional / Individual	**PsyCap** and **IWB**: Sample 1: Correlation: ($r = .47$, $p < .01$) Direct effect: (β = .18, $p < .01$) Sample 2: Correlation: ($r = .49$, $p < .01$) Direct effect: (β = .52, $p < .001$)	Job stress is shown to have a positive moderating effect toward **IWB**. Job satisfaction mediated the relationship between **PsyCap** and **IWB**. Within the framework of COR theory (Hobfoll et al., 2018), the potentially positive influence of stress when combined with high psychological resources (**PsyCap**) is demonstrated.
16	Jha (2021)	India	Investigate the relationship between **PsyCap** and the employee's **IWB**, as well as the behavior of the employee's voice (EVB) as a mediator. The study also studied the high-performance system working (HPWS) as a moderator between PsyCap and voice behavior.	**PsyCap** (A), high performance work system (Mo), employee voice behavior (M), **IWB** (Dv).	N = 514 managers and supervisors.	PCQ-24 scale from Luthans et al., 2007.	IWB-9 scale from Janssen, 2000.	2 times / 20 days lag / panel / Individual (T1-**PsyCap** and HPWS, T2-demographic variables, EVB and **IWB**)	**PsyCap** and **IWB**: Correlation: ($r = .66$, $p < .01$) Direct effect: (β = .48, $p < .01$)	The study contributed significantly to the HPWS literature by understanding the relationship between **PsyCap**-EVB-**IWB**, the mediation of which was positive and significant.

Note. Antecedents (A), mediators (M), moderators (Mo), dependent variables (Dv). Acronyms proposed for the instruments by the original authors: (IWB) innovative work behavior, (CapPsi) psychological capital, (PCQ) psychological capital questionnaire, (SIB) service innovative behavior. Acronyms proposed for the instruments by the authors of this review, based on the term adopted for the questionnaire: (IWBST) innovative work behavior scale for teachers. Creativity as a single construct has not been considered in this review.

Table 2. Articles included in this review with PsyCap as a mediator.

Nº	AUTHOR (DATE)	COUNTRY	OBJECTIVES	(A), (M), (MO), & (DV)	SAMPLE	INSTRUMENT TO MEASURE PSYCAP	INSTRUMENT TO MEASURE IWB	DESIGN / UNIT OF ANALYSIS	RESULTS BETWEEN PSYCAP AND IWB	DISCUSSION AND IMPLICATIONS
17	Hsu and Chen (2017)	Taiwan	To explore whether the **PsyCap** of the employees is a mediator between the organizational innovation climate and the **IWB** of the employees, from a multilevel approach.	Organizational innovation climate (A), **PsyCap** (M), **IWB** (Dv).	N = 781 diverse employees from 16 organizations.	PCQ-24 scale from Luthans et al., 2007.	IWB-6 scale from Scott and Bruce, 1994.	Cross-sectional / Multilevel (Climate measured at the organizational level)	**PsyCap** and **IWB**: Correlation: (r = .71, p < .01) Effect: (β = .96, p < .01) **PsyCap** fully mediates the relationship between organizational innovation climate and **IWB**.	The present study found evidence that personal characteristics (**PsyCap**) may be more important than the influence of the environment (organisational innovation climate) on employees' **IWB**.
18	Etikariena (2018)	Indonesia	This study examines the mediating role of the employee's **PsyCap** in the relationship between happiness at work and the employee's **IWB**.	Work happiness (A), **PsyCap** (M), **IWB** (Dv).	N = 135 bank employees.	PCQ-24 scale from Luthans et al., 2007.	IWB-9 scale from Janssen, 2000.	Cross-sectional / Individual	**PsyCap** and **IWB**: Correlation: (r = .33, p < .001) **PsyCap** does not mediate between happiness at work and **IWB**.	This research shows that happiness at work and **IWB** are not significantly correlated. Thus, and based on previous studies, happiness would not be related to increased employee productivity, and in this case **IWB**.
19	Kim et al. (2018)	South Korea	To examine whether **PsyCap** plays a mediating role in the relationship between psychological breach of contract (PCB) and **SIB**.	Psychological contract breach (A), **PsyCap** (M), **SIB** (Dv).	N = 314 managerial and non-managerial employees of 15 five-star hotels.	PCQ-24 scale from Luthans et al., 2007.	SIB-6 scale from Hu et al., 2009 (Based in Scott and Bruce, 1994).	3 times / 1 month lag / panel / Individual (T1- PCB, T2- **PsyCap**, T3- **SIB**)	**PsyCap** and **SIB**: Correlation: (r = .62, p < .01) Effect: (β = .47, p < .001) **PsyCap** is a partial mediator between PCB and **SIB**.	It is demonstrated that PCB impedes the **SIB** of employees in contact with the customer, while the joint presence of self-efficacy, hope, resilience and optimism (**PsyCap**) encourages their **SIB**.
20	He (2013)	China	This study explores the influence of the perceived innovative organizational climate on the employees' **IWB**, as well as the mediating role of **PsyCap** between both variables.	Organizational innovative climate (A), **PsyCap** (M), **IWB** (Dv).	N = 209 employees of various companies.	PCQ-24 scale from Luthans et al., 2007.	IIBM-scale from Huang, 2006 (Based on Kleysen and Street, 2001).	Cross-sectional / Individual	**PsyCap** and **IWB**: Effect: (β = .80, p < .001) **PsyCap** partially mediated the influence of organizational innovative climate on **IWB**.	This study showed that the innovative climate of the organization has a positive impact on the **IWB** of creative talents. It is essential to develop and improve the **PsyCap** of creative talents to facilitate their **IWB**.
21	Wojtczuk-Turek and Turek (2015)	Poland	To investigate how the flexibility of the HR system, in combination with the individual flexibility (IF) of employees and their positive character traits (**PsyCap**) predict **IWB**.	HR flexibility (A), individual flexibility (A), **PsyCap** (M), **IWB** (Dv).	N = 236 employees of various organizations and graduate student-employees.	PCQ-12 scale from Avey, Avolio et al., 2011.	IWB-14 scale from Kleysen and Street, 2001.	Cross-sectional / Individual	**PsyCap** and **IWB**: Correlation: (r = .55, p < .01) Effect: (β = .73, p < .01) **PsyCap** fully mediates the relationship between antecedents and **IWB**.	The results confirm that HR and IF are not directly related to **IWB**. Consequently, we might assume that individual skills and HR practices are necessary but not sufficient to initiate **IWB**. It should be noted that the relationship of these variables is indirect with **PsyCap** as a mediator.
22	Schuckert et al. (2018)	South Korea	To empirically test a research model that investigates the effects of authentic leadership (AL) and transformational leadership (TL) on follower **SIB** with follower **PsyCap** as a partial mediator.	Transformational leadership (A), authentic leadership (A), **PsyCap** (M), **IWB** (Dv).	N = 336 full-time frontline employees.	PCQ-24 scale from Luthans et al., 2007.	SIB-6 scale from Hu et al., 2009 (Based in Scott and Bruce, 1994).	2 times / 1 month lag / panel / Individual (T1- TL, AL, **PsyCap** / T2- T1 survey + **SIB**)	**PsyCap** and **SIB**: Correlation: (r = .61, p < .01) Effect: (β = .27, p < .001) **PsyCap** is a partial mediator between AL and TL on **SIB**.	The results suggest that AL has a greater effect on the **PsyCap** and **SIB** follower than TL. The practice of corporate human resource management must emphasize the development of AL.

Table 2. Articles included in this review with PsyCap as a mediator (continued).

Nº	AUTHOR (DATE)	COUNTRY	OBJECTIVES	(A), (M), (MO), & (DV)	SAMPLE	INSTRUMENT TO MEASURE PSYCAP	INSTRUMENT TO MEASURE IWB	DESIGN / UNIT OF ANALYSIS	RESULTS BETWEEN PSYCAP AND IWB	DISCUSSION AND IMPLICATIONS
23	Suciati et al. (2018)	Indonesia	To explore the relationship between humour and **IWB**, as well as the mediating role of **PsyCap**, using the "broaden and build" theory (Fredrickson, 2013).	Humour (A), **PsyCap** (M), **IWB** (Dv).	N = 172 employees of various companies.	PCQ-12 scale from Avey, Avolio et al., 2011.	IWB-9 scale from Janssen, 2000.	2 times / panel / Individual (T1- Humour, **PsyCap**, T2- **IWB**)	**PsyCap** and **IWB**: Correlation: (r = .46, p < .01) Effect: (β = .57, p < .01) **PsyCap** fully mediates the relationship between humour and **IWB**.	The study contributes to knowledge about the role of **PsyCap** by explaining how humour can improve **IWB**. Humour is one of the responses to adapt to problems, which can help build **PsyCap**.
24	El Fath and Radikun (2019)	Indonesia	This study examines the role of authentic leadership (AL) as a predictor of **IWB** using **PsyCap** as a mediator in the model.	Authentic leadership (A), **PsyCap** (M), **IWB** (Dv).	N = 115 employees of various companies.	PCQ-12 scale from Avey, Avolio et al., 2011.	IWB-9 scale from Janssen, 2000.	Cross-sectional / Individual	**PsyCap** and **IWB**: Correlation: (r = .35, p < .05) Effect: (β = .29, p < .05) The effect of AL on **IWB** is fully mediated by **PsyCap**.	This finding provides a new perspective on the influence of AL on teamwork. AL supports people toward positive achievement and resilience, fostering confidence and hope, which, in turn, helps employees to innovative.
25	Mishra et al.(2019)	India	To study how work-to-family enrichment and family-to-work enrichment are positively related to **PsyCap**, and **PsyCap** in turn to **IWB** in an oriental culture, under the framework "broaden and build" theory (Fredrickson, 2013).	Work-to-family enrichment (A), family-to-work enrichment (A), **PsyCap** (M), supervisor support for **IWB** (Mo), **IWB** (Dv).	N = 398 service-sector employees.	PCQ-12 scale from Avey, Avolio et al., 2011.	IWB-6 scale from IWB-14 scale of Kleysen and Street, 2001.	Cross-sectional / Individual	**PsyCap** and **IWB**: Correlation: (r = .93, p < .05) Model A: Effect: (β = .96, p < .01) Model B: Effect: (β = .91, p < .01) **PsyCap** fully mediated the relationship between bi-directional enrichment and **IWB**.	The study demonstrates that **PsyCap**'s full mediation between bidirectional enrichment and the **IWB** and the supervisor's support directly related to the **IWB**, suggests that these are factors that promote individual innovation.
26	Özsungur (2019)	Türkiye	To evaluate the impact of ethical leadership (EL) in **SIB**, examining the role of **PsyCap** as a mediator in this relationship.	Ethical leadership (A), **PsyCap** (M), **SIB** (Dv).	N = 376 blue-collar workers.	PCQ-24 scale from Luthans et al., 2007.	SIB-6 scale from Hu et al., 2009 (Based in Scott and Bruce, 1994).	Cross-sectional / Individual / Questionnaire read by the researcher	**PsyCap** and **SIB**: Correlation: (r = .68, p < .01) Effect: (β = .68, p < .000) **PsyCap** partially mediates the relationship between EL and **SIB.**	The results confirm the relationship between EL and **PsyCap** and its influence on the employees' **SIB**. In this study, female employees had higher levels of **PsyCap**, **IWB**, and perceived EL than male employees.
27	Suvonova et al. (2019)	South Korea	This research explores the effects of organizational preparedness for corporate entrepreneurship (OPCE) on employees' **PsyCap** and **IWB** in SMEs, and the moderating effect of managerial level.	OPCE (A), managerial level (Mo), **PsyCap** (M), **IWB** (Dv).	N = 217 managers in South Korean SMEs.	PCQ-12 scale from Avey, Avolio et al., 2011.	IWB-8 scale adapted from two previous studies, based on De Jong and Den Hartog, 2010; Scott and Bruce, 1994.	Cross-sectional / Individual	**PsyCap** and **IWB**: Correlation: (r = .70, p < .01) Effect: (β = .80, p < .01) No statistical procedure was performed to estimate the effect of possible full or partial **PsyCap** mediation.	It is shown that middle managers' perception of the OPCE and **PsyCap** dimensions is significantly more positive for upper-level managers than for lower-level managers. In addition, two of the four OPCE dimensions are positively related to **PsyCap** and **PsyCap** is positively related to **IWB**.

Table 2. Articles included in this review with PsyCap as a mediator (continued).

Nº	AUTHOR (DATE)	COUNTRY	OBJECTIVES	(A), (M), (MO), & (DV)	SAMPLE	INSTRUMENT TO MEASURE PSYCAP	INSTRUMENT TO MEASURE IWB	DESIGN / UNIT OF ANALYSIS	RESULTS BETWEEN PSYCAP AND IWB	DISCUSSION AND IMPLICATIONS
28	Aghighi and Manteghi (2021)	Iran	To investigate the relationship between humble leadership and **IWB** with emphasis on the mediating role of **PsyCap**.	Humble leadership (A), **PsyCap** (M), **IWB** (Dv)	N = 123 employees of public libraries.	PCQ-24 scale from Luthans et al., 2007.	IWB-6 scale from Scott and Bruce, 1994.	Cross-sectional / Individual	**PsyCap** and **IWB**: Effect: (β = .17, $p < .001$) **PsyCap** works as a partial mediator between humble leadership and **IWB**.	The results show that the theoretical model is valid for increasing employee **IWB**, and all direct relationships between the model variables are significant.
29	Brunetto et al. (2020)	United States and Australia	This paper examines the impact of personal attributes (**PsyCap**) and organizational support (LMX) on the **IWB**.	Leader-member exchange (A), **PsyCap** (M), **IWB** (Dv).	N = 260 USA health workers N = 220 Australia health workers.	PCQ-12 scale from Avey, Avolio et al., 2011.	IWB-6 scale from Scott and Bruce, 1994.	Cross-sectional / Individual	**PsyCap** and **IWB**: USA: Correlation: ($r = .60$, $p < .01$) Effect: (β = .60, $p < .001$) Australia: Correlation: ($r = .34$, $p < .01$) Effect: (β = .43, $p < .001$) **PsyCap** fully mediated the relationship between LMX and **IWB** for both countries.	The study shows that organizational (LMX) and individual (**PsyCap**) supports significantly influence **IWB**, with U.S. respondents having the highest values for all three variables evaluated.
30	Chongvisal (2020)	Thailand	Investigate about the factors that affect the **IWB** of senior and middle managers in private and public organizations.	Servant leadership (A), workplace spirituality (A), work engagement (M), **PsyCap** (M), **IWB** (Dv).	N = 746 senior-level or middle-level.	PCQ-12 scale from Avey, Avolio et al., 2011.	IWB-12 scale from IWB-17 scale De Jong and Den Hartog, 2010.	Cross-sectional / Individual	**PsyCap** and **IWB**: Correlation: ($r = .74$, $p < .01$) Effect: (β = .50, $p < .01$) **PsyCap** partially mediates the relationship between antecedents and managers' **IWB**.	The results confirm the importance of the variables servant leadership, **PsyCap**, workplace spirituality and work engagement and their relationship with managers' **IWB**, all of which have a positive and significant effect.
31	Karakitapoğlu-Aygün et al. (2020)	Türkiye	The study investigates the effects of the three dimensions of paternalistic leadership (PL) on task performance (TP) and **IWB**. It also studies the role of the employee **PsyCap** as a mediator.	Paternalistic leadership (A), **PsyCap** (M), task performance (Dv), **IWB** (Dv).	N = 409 Turkish employees and their 72 leaders.	PCQ-24 scale from Luthans et al., 2007.	IWB-9 scale from Janssen, 2000.	Cross-sectional / Multilevel (Employees: PL and **PsyCap**, leaders: TP and **IWB**).	**PsyCap** and **IWB**: Correlation: ($r = .22$, $p < .001$) Effect: (β = .13, $p < .001$) **PsyCap** acts as a mediator in the three dimensions of PL and its relationship with **IWB**. For the authoritarian and authoritative leadership dimensions, mediation was total. For the benevolent leadership dimension, mediation was partial.	No study to date has investigated how PL affect followers' **PsyCap**, and in turn TP and **IWB**. The results show that said leadership style is not related to TP but it is related to **IWB**, at least in two of its dimensions, benevolent and authoritarian leadership. **PsyCap** acts as a mediator and is related to **IWB** and not to TP.
32	Rachmawati (2020)	Indonesia	Investigate how internal (**PsyCap** and learning goal orientation or LGO) and organizational (servant leadership or SL) factors affect **IWB** employees.	Servant leadership (A), learning goal orientation (A), **PsyCap** (M), **IWB** (Dv)	N = 407 non-managerial employees of a public organization.	PCQ-12 scale from Avey, Avolio et al., 2011.	IWB-9 scale from Janssen, 2000.	Cross-sectional / Individual	**PsyCap** and **IWB**: Correlation: ($r = .73$, $p < .05$) **PsyCap** completely mediates SL and **IWB**, and partially mediates LGO and **IWB**.	The finding of this research shows that internal factors (LGO and **PsyCap**) have more influence on **IWB** than external factors (SL).

Table 2. Articles included in this review with PsyCap as a mediator (continued).

Nº	AUTHOR (DATE)	COUNTRY	OBJECTIVES	(A), (M), (MO), & (DV)	SAMPLE	INSTRUMENT TO MEASURE PSYCAP	INSTRUMENT TO MEASURE IWB	DESIGN / UNIT OF ANALYSIS	RESULTS BETWEEN PSYCAP AND IWB	DISCUSSION AND IMPLICATIONS
33	Erdem (2021)	Türkiye	To determine whether **PsyCap** functions as a mediator in the relationship between ethical leadership (EL) and employee **SIB**.	Ethical leadership (A), **PsyCap** (M), **SIB** (Dv).	N = 170 hotel employees.	PCQ-24 scale from Luthans et al., 2007.	SIB-6 scale from Hu et al., 2009 (Based in Scott and Bruce, 1994).	Cross-sectional / Individual	**PsyCap** and **SIB**: Effect: ($\beta = .70$, $p < .01$) **PsyCap** has a partial mediating role in the effect of EL on employees' **SIB**.	The results show that the positive factors **PsyCap** and EL are directly and indirectly related to employees' **SIB**.
34	Farrukh et al. (2021)	Pakistan	This study investigates the role of High-Performance Work Practices (HPWP) and **PsyCap** in the **SIB** of employees, under the COR theory (Hobfoll et al., 2018)	High-Performance Work Practices (A), **PsyCap** (M), **SIB** (Dv).	N = 330 frontline service employees.	PCQ-12 scale from Avey, Avolio et al., 2011.	SIB-6 scale from Hu et al., 2009 (Based in Scott and Bruce, 1994).	Cross-sectional / Individual	**PsyCap** and **SIB**: Effect: ($\beta = .25$, $p < .000$) **PsyCap** partially mediates the relationship between HPWP and employee **SIB**.	This study indicates that HPWP and **PsyCap** are important factors in fostering employee **SIB**, as they are positively and significantly related.
35	Gashema and Kadhafi (2020)	Rwanda	To determine if **PsyCap** will act as a mediator in the relationship between TL and **IWB**, in addition to the moderating effect of Effort-Reward Equity (ERE) perceptions between TL and **IWB**.	Transformational leadership (A), **PsyCap** (M), Effort-Reward Equity (Mo), **IWB** (Dv).	N = 412 bank employees.	PCQ-12 scale from Avey, Avolio et al., 2011.	IWB-6 scale from Scott and Bruce, 1994.	Cross-sectional / Individual	**PsyCap** and **IWB**: Correlation: ($r = .57$, $p < .01$) Effect: ($\beta = .51$, $p < .001$) **PsyCap** partially mediates the relationship between TL and **IWB**, and ERE acts as a moderator on the same relationship.	The study extends the understanding of the moderating effect of ERE and the mediating effect of **PsyCap** on the relationship between employee TL and **IWB**. Both should be taken into account when designing organizational strategies.

Note. Antecedents (A), mediators (M), moderators (Mo), dependent variables (Dv). Acronyms proposed for the instruments by the original authors: (IWB) innovative work behaviour, (PCQ) psychological capital questionnaire, (SIB) service innovative behaviour. Acronyms proposed for the instruments by the authors of this review, based on the term adopted for the questionnaire: (IIBM) individual innovative behavior measure. Creativity as a single construct has not been taken into account in this review.

Table 3. Articles included in this review with PsyCap as a moderator.

Nº	AUTHOR (DATE)	COUNTRY	OBJECTIVES	(A), (M), (MO), & (DV)	SAMPLE	INSTRUMENT TO MEASURE PSYCAP	INSTRUMENT TO MEASURE IWB	DESIGN / UNIT OF ANALYSIS	RESULTS BETWEEN PSYCAP AND IWB	DISCUSSION AND IMPLICATIONS
36	Zhu and Mu (2016)	China	This research aims to establish a moderate mediation framework to explore the factors that influence the **IWB** of employees in organizations.	Transformational leadership (A), knowledge sharing (M) **PsyCap** (Mo), **IWB** (Dv).	N = 212 employees of various companies.	PCQ-24 scale from Luthans et al., 2007.	IWB-14 scale from Kleysen and Street, 2001.	Cross-sectional / Individual	**PsyCap** and **IWB**: Correlation: (r = .42, p < .01) TL is positively related to followers' **IWB** and this relationship is strengthened when followers possess high **PsyCap**. High **PsyCap** (β = 0.27, p <. 05) Low **PsyCap** (β = -0.02, *ns*)	This article enriches the innovation literature by empirically testing the moderating role of **PsyCap** and the mediating role of knowledge sharing on the link between TL and **IWB**.
37	Tsegaye et al. (2020)	China	To examine the antecedent effect of cultural value orientation (CVO) and **PsyCap** on employees' **IWB**, as well as to test whether there is also a moderating effect of **PsyCap** on the relationship between CVO and **IWB**.	Organizational culture (A), CVO (A), **PsyCap** (A, Mo), **IWB** (Dv).	N = 370, engineering and design employees of various nationalities.	PsyCap-15 scale from Gupta and Singh, 2014.	IWB-9 scale from Janssen, 2000.	Cross-sectional / Individual	**PsyCap** and **IWB**: Correlation: (r = .68, p < .01) Effect: (β = .37, p < .001) **PsyCap** has a moderating effect on the relationship between CVO and employees' **IWB** on the dimensions; power distance (β = -0.09, p < 0.05), uncertainty avoidance (β = -0.14, p < 0.01), and masculinity (β = -0.16, p < 0.01).	The study shows that employees with high **PsyCap**, high masculinity, low power distance, low collectivism, and low uncertainty avoidance score higher **IWB**. This shows that **IWB** is not only influenced by a socially initiated factor of cultural value orientation; instead, personal factors also affect it.
38	Ishaq et al. (2021)	Pakistan	To examine the Big Five personality traits of leaders as antecedents of **IWB** and employee in-role performance (IRP), and the mediation of paradoxical leader behavior (PLB). It also examines the moderating effect of **PsyCap** on the relationship between PLB and outcome variables.	Leaders' Big Five personality traits (A), PLB (M) **PsyCap** (Mo), in-role performance behavior (Dv), **IWB** (Dv).	N = 131 managers and 609 followers.	PCQ-24 scale from Luthans et al., 2007.	IWB-6 scale from Scott and Bruce, 1994.	Cross-sectional / Individual	**PsyCap** and **IWB**: Correlation: (r = .10, p < .01) **PsyCap** moderates the relationship between PLB and IRP, but does not moderate the relationship with followers' **IWB** (β = 0.01, p = ns).	This study demonstrates that follower **PsyCap** reinforces the positive relationship between PLB and IRP outcomes; however, it does not do so for **IWB**. This shows that leader behaviors and follower characteristics may have a differential impact on work behaviors.
39	Ijie et al. (2021)	Nigeria	This study aims to test a conceptual model on the impact of workload on the **IWB** of employees and the role of their **PsyCap**.	Workload (A) **PsyCap** (A, Mo), **IWB** (Dv).	N = 315 manufacturing company employees.	PCQ-24 scale from Luthans et al., 2007.	IWB-6 scale from Scott and Bruce, 1994.	Cross-sectional / Individual	**PsyCap** and **IWB**: Correlation: (r = .81, p < .05) Effect: (β = .59, p < .05) **PsyCap** has a moderating role in the relationship between workload and employee **IWB** (β = 0.07, p < 0.05).	The results present workload as a job demand that could be mitigated by a high **PsyCap** as a personal resource, in order to promote employees' **IWB**.

Note. Antecedents (A), mediators (M), moderators (Mo), dependent variables (Dv). Acronyms proposed for the instruments by the original authors: (IWB) innovative work behavior, (PCQ) psychological capital questionnaire. Acronyms proposed for the instruments by the authors of this review, based on the term adopted for the questionnaire: (PsyCap-15) psychological capital-15 items. Creativity as a single construct has not been considered in this review.

Table 4. Summary of the observed relationship in table 1, 2, and 3.

Role of PsyCap	Nature of the relationship	Measures
PsyCap as an antecedent (Table 1)	Variable that mediates the relationship between PsyCap and IWB	Job satisfaction (4,13,15), organizational commitment (4), job embeddedness (9), psychological safety (10), passion for work (11), job crafting (12), employee voice behavior (16).
	Variable moderating the relationship between PsyCap and IWB	Organizational culture (7).
Psycap as a mediator (Table2)	Antecedents of IWB when PsyCap has a total mediator role.	Organizational innovation climate (17), HR flexibility (21), individual flexibility (21), humour (23), authentic leadership (24), work-to-family enrichment (25), family-to-work enrichment (25), leader-member exchange (29).
	Antecedents of IWB when PsyCap has a partial mediator role.	Psychological contract breach (19), organizational innovative climate (20), transformational leadership (22, 35), authentic leadership (22), ethical leadership (26,33), humble leadership (28), servant leadership (30), workplace spirituality (30), high-performance work practices (34).
	Dimensions of IWB antecedents when PsyCap has a partial mediator role.	Paternalistic leadership (benevolent leadership) (31).
	Dimensions of IWB antecedents when PsyCap has a total mediator role.	Paternalistic leadership (authoritarian leadership, authoritative leadership) (31).
Psycap as a moderator (Table 3)	Variables whose effect on IWB is moderated by PsyCap.	Transformational leadership (36), workload (39).
	Variables whose effect on IWB is not moderated by PsyCap.	Paradoxical leader behavior (38).
	Dimensions of variables whose effect on IWB is moderated by PsyCap.	Organizational culture (power distance, uncertainty avoidance, masculinity) (37).
	Dimensions of variables whose effect on IWB is not moderated by PsyCap.	Organizational culture (collectivism) (37).

Note. (nº) Article number of our review according to the order in Table 1, 2, or 3.

2.4.1.1 PsyCap as Antecedent to IWB

The PsyCap as an antecedent of IWB appears in 16 articles in our review. In all of them the correlations and/or effects of PsyCap on IWB are analyzed, and in most of the articles reviewed the relationship is positive and statistically significant. Furthermore, in 4 articles (the first ones in Table 1), the authors reported the results of the relationship between the four PsyCap components and IWB.

Results of the relationship between PsyCap and IWB. Regarding the results of the correlations, the highest values between both variables were obtained in the studies of Jha (2012) ($r = 0.66$, $p < 0.01$), and Ratnaningsih et al. (2016) ($r = 0.52$, $p < 0.01$). Regarding the regression analyses of PsyCap on IWB, the only study that does not report a positive and significant direct effect is the article by Lan (2019), ($\gamma = 0.12$, $p > 0.05$), which is not the case in its total effect ($\gamma = 0.28$, $p < 0.05$) where, as we can see, it is positive and significant due to its effect on IWB through the mediation of job embeddedness. We consider important to highlight that the direct effect of PsyCap on IWB is neither hypothesized nor reported in the Tang et al. (2019) study. The effect is positive and significant through the mediators of job satisfaction and organizational commitment. In addition, the relationship between PsyCap and IWB was positive in the Nwanzu and Babalola (2019) study; however, the relationship was not moderated by task autonomy. The variables moderating or mediating the relationship between PsyCap and IWB are listed in Table 4. It highlights the role of job satisfaction which mediated the relationship in 3 of the studies. Finally, the results of some of the articles in the present review analyze the proportion of IWB variance that is explained by the PsyCap effect, deduced from the percentage of prediction derived from the coefficient of determination (R^2). Thus, Paul and Devi (2018) conclude that a 48.4 % change in employees' IWB is due to their PsyCap. Ratnaningsih et al. (2016) evaluate the proportion of IWB variance explained by the PsyCap effect as 27 %, and the study by Chitsazan et al. (2017) reports it as 36 %.

Results of the relationship between the four components of PsyCap and IWB. Regarding the 4 articles analyzing such relationship, the studies by Nwanzu and Babalola (2019) and Paul and Devi (2018), provide the highest values of the optimism component in IWB, ($r = 0.50$, $p < 0.01$) and ($r = 0.37$, $p < 0.01$) respectively, being both positive and statistically significant. However, in the study by Tang et al. (2019), the correlation result between self-efficacy and IWB was the highest ($r = 0.83$, $p < 0.01$), as in the study by Ratnaningsih et al. (2016) ($r = 0.57$, $p < 0.01$). With these results, we observe that optimism and self-efficacy are the capacities that obtain the highest coefficients, being statistically significant. Regarding regression analyses, only one article shows such results (Paul & Devi, 2018), being positive and significant in the optimism, self-efficacy and hope components, but not significant in the resilience component ($\beta = 0.04$, $p > 0.1$).

2.4.1.2 PsyCap as IWB Mediator

PsyCap appears as mediator in 19 articles in the present review. In 6 articles, PsyCap mediation between antecedent and the IWB is reported as full mediation, in 9 articles,

PsyCap partially mediates the relationship, and in 1 article PsyCap acts as both partial mediator and full mediator between two antecedents and the IWB. In 1 article, mediation was analyzed on the various dimensions of the IWB antecedent, providing different results (see all results in Table 3). Regarding the remaining 2 articles, PsyCap was not considered a mediator in the relationship between happiness at work and IWB in Etikariena's (2018) study, and mediation was not analyzed in Suvonova et al. (2019) research. In addition, most articles that used PsyCap as a mediator also reflected the correlation results and/or effect of PsyCap on IWB. The highest value in the correlation results between two variables was offered by Mishra et al. (2019) study (r = 0. 93, $p < 0.01$), and the largest effect (β = .96, p < .01) appeared in Hsu and Chen' (2017) research. Importantly, Brunetto et al. (2020) analyzed the effects of personal and organizational support on the IWB of frontline health care workers in Australia (N = 220) and the United States (N = 260). They found that PsyCap acted as an overall mediator of the relationship in both countries. However, there were significant differences in the variance of IWB, explained by PsyCap, representing 15% in the Australian sample and 40% in the US sample. Finally, simple regression results for both samples yielded a higher value in the US sample (β = 0.60, p < 0.01) compared to the Australian sample (β = 0.43, $p < 0.01$). It reveals the difference of the results depending on, among other factors, of the location where the study takes place.

2.4.1.3 PsyCap as a Moderator and its influence on IWB

Following our review of the literature, PsyCap moderation between a variable and IWB was studied in 4 articles. In 2 articles such moderation occurred, in 1 article moderation occurred in some of the dimensions of the construct studied (see results in Table 4), and finally in the article by Ishaq et al. (2021), PsyCap did not moderate the relationship between leader's paradoxical behavior and employees' IWB. In addition, all articles reflected the results of the correlation between PsyCap and IWB. The highest value between both variables was offered by Ijie et al. (2021) research (r = 0. 81, p < .05). Finally, in 2 studies, the role of PsyCap as an antecedent of IWB was also investigated, with the largest effect being provided by the regression analysis of Ijie et al. (2021) article (β = .59, p < .05).

2.4.2 Instruments used to measure constructs

The second aim of the present review was to reflect the variety of instruments, used to measure both psychological constructs. The two constructs have been extensively researched by the scientific community in recent years, therefore, many questionnaires to measure them have been developed (de Jong & Den Hartog, 2010; Luthans et al., 2007), their psychometric

properties have been studied in depth (Dawkins et al., 2013) and some of them have been adapted to different languages (Choisay et al., 2021; Lecat et al., 2018; León-Pérez et al., 2017; Pohl & Binard, 2014). The present study will focus exclusively on the tools, used in the articles where both constructs appear, following the exclusion-inclusion criteria, set out in the previous section.

Table 5. Measures used in the 39 studies in this review.

Psychological variable	Measures	Items	Number of studies (%)	Number of participants
Psychological capital	PCQ-24 (Luthans et al., 2007)	24	21 (54 %)	5847
	PCQ-12 (Avey, Avolio & Luthans, 2011)	12	16 (41 %)	5443
	PsyCap-Scale developed by the authors (Gupta & Singh; 2014)	15	1 (2.5 %)	866
	CapPsi-12 (Omar et al., 2014)	12	1 (2.5 %)	458
Innovative work behavior	IWB (Janssen, 2000)	9	12 (30.7 %)	3808
	IWB (Scott & Bruce, 1994)	6	10 (25.6 %)	3292
	IWB (Kleysen & Street, 2001)	14	5 (12.8 %)	1197
	IWB (own constructions based on different authors)	Various	3 (7.7 %)	632
	IWB (de Jong & Den Hartog, 2010)	10 (initially 17)	1 (2.6 %)	746
	IWBST (Salessi & Etchevers, 2020) (special for teachers)	12	1 (2.6 %)	458
	IIBM (Huang, 2006).	Unknown	1 (2.6 %)	209
	SIB (Hu et al., 2009) (special for frontline service employees)	6	6 (15.4 %)	1781

Note. (PCQ) psychological capital questionnaire; (IWB) innovative work behavior; (CapPsy/PsyCap) psychological capital; (IWBST) innovative work behavior scale for teachers; (IIBM) individual innovative behavior measure; (SIB) service innovative behavior.

2.4.2.1 Instruments to measure PsyCap in our review

The measurement of the PsyCap concept has been carried out mainly with the PCQ-24 tool, developed by Luthans et al. (2007). This tool is derived from pre-existing measures of self-efficacy (Parker, 1998), resilience (Wagnild & Young, 1993), optimism (Scheier & Carver, 1985), and hope (Snyder et al., 1996). Some items were removed from these measures and others were modified to adapt them to the organizational setting (Dawkins et

al., 2013). End up resulting distributing 6 items in each dimension. Subsequently, Avey, Avolio and Luthans (2011) developed a reduced scale called PCQ-12, using the criteria specified by Stanton et al. (2002) and writing all items in a positive form, with no reverse-scored items, which supposedly improves the reliability of the scale (Youssef-Morgan, 2014). The scale is composed of 3 items representing self-efficacy, 4 items for hope (2 items representing each of the mechanisms of hope, pathways, and agency), 3 items representing resilience, and 2 items for optimism. In the present review, 21 studies used PCQ-24 and 16 studies used PCQ-12. The authors of the remaining 2 articles decided to measure PsyCap with self-built tools. The first one uses the 15-item scale developed by Gupta and Singh (2014), based on the measures of optimism by Scheier and Carver (1985) with 4 items, resilience by Wagnild and Young (1993) with 4 items, hope by Snyder et al. (1996) with 3 items, and self-efficacy by Tierney and Farmer (2002) with 4 items. The authors of this measure warn against its use, due to the low internal consistency of its dimensions. Finally, an article in the present review uses a self-built 12-item scale by Omar et al. (2014) called CapPsi-12 (PsyCap in Spanish), validated with good reliability in a sample of workers in Argentina. The items that constitute the four capacities were drafted based on a series of focus group sessions and a literature review (Bandura, 2012; Omar et al., 2013; Schrank et al., 2011; Seligman, 2006).

2.4.2.2 Instruments for measuring IWB in our review

Operationalizing and measuring employee innovation has been a challenge in the scientific community, and many instruments have been developed to measure such behavior, including IWB and its proxies (creativity, creative performance, creative behavior, innovation, etc.). Several authors warn researchers about the inappropriate use of IWB proxies' tools which often measure only a part of IWB behavior, idea generation or idea implementation (Botha & Steyn, 2020; Potočnik & Anderson, 2016). It is therefore important to be clear about the purpose and scope of the measurement, as the use of IWB "proxies" may lead to a result that is not the desired one. Therefore, in our review, we only included studies in which the measurement instrument was conceptualized as an IWB by its authors, or studies that used questionnaires derived from them. According to the literature, the first unidimensional IWB scale was developed by Scott and Bruce (1994), suggesting three phases through which ideas were generated, coalitions were created, and ideas were realized. Shortly afterward, Janssen (2000) attempted to develop a 3-phase multidimensional measure: idea generation, idea promotion, and idea implementation. Due to the high correlation between them, Janssen (2000) suggested the unidimensional use of such a scale. These two scales are

the most commonly used in our review, with 10 and 12 studies, respectively. Subsequently, Kleysen and Street (2001) unified seventeen behaviors associated with innovative behavior into five factors. It gave rise to the phases of opportunity exploration, generativity, formative investigation, championing, and application. However, the authors also advised using the measure in a unidimensional way. This scale ranks third in terms of its use in our review, with a total of 5 articles applying it. One study used the scale, developed by de Jong and Den Hartog (2010) (inspired by Janssen, 2000; Kleysen & Street, 2001; and Scott & Bruce, 1994), which suggests four phases (problem recognition, idea generation, idea promotion, and idea realization), and like the previous ones, the authors suggest the unidimensional use. In 3 articles, the authors opted for self-built scales. These self-constructed questionnaires are derived from combinations of tools widely used to measure IWB (e.g., de Jong & Den Hartog, 2010; Janssen, 2000; Scott & Bruce, 1994), and consequently measure the two stages that we consider fundamental to IWB, idea generation and idea implementation. In one article the authors used Huang's (2006) IIBM scale, which refined the Kleysen and Street (2001) scale by applying it to research in Taiwan and showing good internal consistency and reliability. Finally, this review includes two tools that measure IWB in specific groups. The first of these is the Service Innovative Behavior (SIB), consisting of 6 self-report items and developed by Hu et al. (2009), based on the three-phase scale developed by Scott and Bruce (1994). This scale has been used in numerous studies and has sufficient empirical support. In the present review, it appears in 5 studies whose sample is made up of employees in the hospitality and tourism industry, and in one study whose sample was drawn from organizations in the service sector. The second tool (IWBST or Innovative Work Behavior Scale for Teachers) is an instrument in Spanish with 12 items and four phases (exploration of opportunities, generation of ideas, socialization of ideas and realization of ideas) developed by Salessi and Etchevers (2020) and based on Janssen (2000) IWB scale. It was created from a sample of primary school teachers in Argentina. The authors propose future studies in other occupational groups, thus making it possible to find differences between professions and provide validity to this measurement tool. This last scale appears in an article in the present review.

2.5 Discussion

The present review contributes to the investigation of the psychological concepts PsyCap and IWB, based on two pre-established objectives. The first one was to present a review of PsyCap and its relationship and influence as an antecedent, mediator, and

moderator in IWB. The second one was to analyze the variety of instruments that have been used to measure both constructs in the articles reviewed.

2.5.1 Theoretical implications

Regarding the first objective, our results confirm the important role of PsyCap in employees' IWB. Indeed, we can observe positive and significant relationships between both variables in most of the articles in our review. Furthermore, we can observe that PsyCap has been studied mostly as an antecedent and mediator of IWB, with 16 and 19 articles respectively, finding only 4 studies in which it has been analyzed as a moderator. In the first case (i.e., PsyCap studied as antecedent of IWB), the correlations and effects of PsyCap on IWB reported in the 16 articles are always positive and significant. In two studies (Lan, 2019; Tang et al., 2019), there was no direct effect of PsyCap on IWB. Nevertheless, the effect was positive and significant through job embeddedness (Lan, 2019), and through job satisfaction and organizational commitment (Tang et al., 2019). These three variables (job embeddedness, job satisfaction and organizational commitment) have been argued as antecedents of IWB in various literature reviews (i.e., Anderson et al., 2014; Li & Zheng, 2014; Srirahayu et al., 2023). This could explain its full mediation effect between PsyCap and IWB. Regarding the results of the relationship between the four PsyCap and IWB capacities, we observed that optimism and self-efficacy are the capacities that obtain the highest, positive and statistically significant coefficients. Both capacities have been analyzed and confirmed in relation to IWB (Hsiao et al., 2011; Hsu et al., 2011; Islam et al., 2022), although future studies may further explore about the factors that could favor or enhance such relationship. Therefore, the role of PsyCap as an antecedent of IWB seems to report good results if studied as a single construct, as advised by the literature (Bos-Nehles et al., 2017; Luthans et al., 2007). In the second case, the role of PsyCap as a mediator between a variable and IWB also seems appropriate. In all analyzed articles, PsyCap is considered as a partial or full mediator, except in two studies. Indeed, in Etikariena (2018)' study, PsyCap mediation between happiness at work and IWB does not occur; and in the Suvonova et al. (2019)' study, mediation was not tested. The most used antecedents to study their influence on IWB through PsyCap medication were: organizational innovation climate, authentic leadership, transformational leadership, and ethical leadership, all of them appeared in two studies (see Table 4). The last two antecedents, transformational leadership (Gashema & Kadhafi, 2020; Schuckert et al., 2018) and ethical leadership (Erdem, 2021; Özsungur, 2019) yielded similar results, PsyCap acted as a partial mediator in the relationship with IWB. However, organizational innovation climate (He, 2013; Hsu & Chen; 2017) and authentic leadership (El Fath & Radikun, 2019; Schuckert et

al., 2018) yielded different results in the two studies. Indeed, PsyCap was considered a partial mediator in one study and a full mediator in the other, and vice versa. In this sense, and among other factors, the different occupational groups from which the sample is derived could have influenced the results. In addition, all correlations and effects analyzed between PsyCap and IWB constructs were positive and significant when PsyCap was considered a mediator. In the third case, we can highlight the moderating role of PsyCap in the relationship between transformational leadership and IWB (Zhu & Mu, 2016), and workload and the IWB of employees (Ijie et al., 2021). Even though the number of studies in which PsyCap plays a moderating role between a variable and IWB is scarce, the results seem to confirm this role. Finally, all the correlations and effects analyzed between the PsyCap and IWB constructs were positive and significant when PsyCap was considered as a moderator. Thus, and following the suggestion of the authors of the reviewed articles, we underline the need for further investigation of the PsyCap construct as antecedent, mediator, or moderator in the IWB relationship. Our findings, although positive, show that there is still limited knowledge on the relationship between both variables and the factors that favor it.

With regard to the second objective (i.e., measures of constructs), and starting with employee innovation, we would highlight the widespread confusion in determining the concept, establishing the different phases in which it develops and measuring it appropriately and effectively. Thus, the most widely used concept for measuring employee innovation is the IWB, included in our review and originally conceived by West and Farr (1990). Based on it, several adaptations for specific groups such as customer service (SIB) and primary school teachers (IWBST) have also been included in our review. This behavior (i.e., IWB) would be arranged in two main stages, one derived from creativity or first stage, the other one derived from the implementation of the idea or second stage (Patterson, 2002). Both stages were developed by various authors in up to six phases. The most widely used tools to measure IWB in our review have been the three-phase measurements by Janssen (2000) with 12 studies, and by Scott and Bruce (1994) with 10 studies. Regardless of the phases, the original authors advise taking the measurement in a unidimensional manner, due to the strong correlations between the phases and/or associated behaviors. As for the PsyCap construct, the original authors also advise its unidimensional use due to the synergistic effect between its four components (self-efficacy, optimism, hope and resilience). The most commonly used tools to measure PsyCap were, PCQ-24 (Luthans et al., 2007) with 21 studies and PCQ-12 (Avey, Avolio & Luthans, 2011) with 16 studies. It is worth mentioning that both PCQ tools are protected by copyright but can be acquired free of charge for research purposes[5]. The

authors of the remaining 2 articles decided to measure PsyCap with self-built tools, such as PsyCap-15 (Gupta & Singh; 2014) and CapPsi-12 (Omar et al., 2014), although they have hardly been used in literature and their use might not provide reliable results due to poor theoretical support.

Finally, research interest in both constructs seems to have increased in recent years. We find that 79.5% of the articles in this review have been published between 2018 and 2021, suggesting a trend to explore, at the individual level, the impact of PsyCap on employees' IWB, following recommendations from the literature (Li & Zheng, 2014). It is also important to highlight that most of the studies in this review were conducted in non-Western contexts, specifically 35 articles (90%). This could be explained by the growing interest in the search for factors that increase innovation in organizations from continents such as Asia and Africa. These studies would contribute to these organizations to achieve a competitive advantage in a highly globalized market (Dorenbosch et al., 2005).

2.5.2 Practical implications

Based on the results obtained in this review, we propose to organizations and HR professionals: (a) a series of resources to increase IWB directly, and from employee PsyCap; and (b) suggestions for the measurement of both variables. First, a series of training programs that increase employees' personal resources are proposed. To favor the generation and implementation of ideas, we suggest creativity training based on TRIZ (theory of inventive problem solving), which enhances the cognitive and affective dimensions facilitating individual innovation (Birdi et al., 2012). Another type of training is psychological capital intervention (PCI), which increases PsyCap levels, as the construct is state-based and open to development (Luthans et al., 2007). By increasing this positive resource, employees can cope better with future changes and challenges required by the IWB (Hsu & Chen, 2017). It should be noted that this type of positive interventions should be carried out by professionals to avoid the possible U-invert effect (Grant & Schwartz, 2011). This effect, which comes from a high PsyCap, could occur in some individuals and derive in negative consequences, both for the individual and for others (Hervás, 2017). Similarly, requesting a high number of innovations from employees could induce states of anxiety and low performance. Managers should be aware of these undesirable consequences when managing work teams (Bolino et al., 2016; González-Romá, & Hernández, 2016). We also recommend the incorporation of programs that promote authentic leadership, transformational leadership, ethical leadership, servant leadership or humble leadership

behaviors, thus fostering an environment conducive to IWB through the establishment of innovative objectives or direct encouragement to employees (Anderson et al., 2014; Li & Zheng, 2014). In the same vein, we propose to develop employees' flexibility, humor or spirituality in the workplace. Last but not least, cultural differences can be found in organizations, hence training programs should be specific and culturally oriented (Gupta et al., 2002).

Second, based on the results of this review, we recommend the use of the following measurement tools. On the one hand, to measure employee's PsyCap, we suggest PCQ-24 and PCQ-12 questionnaires, both of which are the most widely used in the literature and are protected by copyright[1]. However, and although the authors of the articles in our review have not used it, we propose the CPC-12 or Compound PsyCap Scale tool, developed in German by Lorenz et al. (2016), open access and validated in other languages such as Japanese, Slovak and Spanish among others (Ikeda et al., 2022; Kačmár et al., 2022; Platania & Paolillo, 2022). Recently, Dudasova et al. (2021) recommend using the revision of that tool or CPC-12R, which provides better internal consistency and has better psychometric characteristics than the original. On the other hand, and although the measurement of the IWB is still evolving, we suggest the tools developed by the original authors (de Jong & Den Hartog, 2010; Janssen, 2000; Kleysen & Street, 2001; Scott & Bruce, 1994), and the adaptation for the customer service collective (SIB). All of them have greater empirical support than the scales self-built by the authors of some articles in this review. Finally, we advise HR professionals to properly specify the objective of measuring innovation in the organization. Thus, using tools that measure IWB or choosing one of its proxies (creative performance, innovativeness, etc.), will achieve a reliable result and an effective measurement.

2.5.3 Limitations and future research directions

Regarding the limitations, derived from the articles analyzed in this review, we can find the following. On the one hand, 77 % of the articles examined were designed in a cross-sectional manner, based on self-report measures (30 articles). For these last 30 articles, we cannot draw causal conclusions and whose conclusions are limited. Five studies (12.8%) have been conducted using panel studies, and four studies (10.2%) using tools involving multiple raters, both methods to minimize common method bias (Podsakoff et al., 2003) and the probably distorted view of innovative behaviors themselves reflected in self-report

[1] Contact www.mindgarden.com to acquire the license to use the PsyCap questionnaire. Free for research.

measures (de Jong & Den Hartog, 2010). Still, we recommend longitudinal and/or experimental studies to establish the directionality and causal order of the relationships between the analyzed factors. In this way, future research could, for example, examine how employees' IWB influences their PsyCap, and whether this relationship could be beneficial for both the organization and its innovative capacity, as for the employee and his or her own psychological wellbeing. On the other hand, we consider it is important to highlight that most of the results found are based on samples, obtained in non-Western countries. Consequently, we consider that the studies should be replicated in order to generalize the findings in Western countries and in different cultural settings (Hofstede, 2011). Regarding the method, used in our review, we consider it relevant for future studies to obtain data qualitatively. We found no such method in any of the articles reviewed, with the limited exception of Özsungur's (2019) study, in which the questionnaire was read by the researcher. Regarding the established inclusion criteria, we recall that only studies, written in English or Spanish, and those published in peer-reviewed or double-blinded journals were accepted, thus eliminating book chapters, conference proceedings or dissertations. Greater flexibility in these criteria could have provided us with some relevant publications in our review. Furthermore, limiting the studies to be examined to those that included IWB and PsyCap at the individual level may have conditioned our results. Another inclusion criterion that may have limited the results was the terms concerning tools. Indeed, tools for measuring employee innovation had to be referred to as IWB by their authors or were derived from them. Some IWB proxies and the relationship with PsyCap could have yielded different results than those proposed in this review. In this sense, we propose the scientific community further research on IWB scales and their proxies, based on comparative psychometric analyses in order to explore the relationships, similarities, and overlaps between constructs, and the extent to which they represent truly distinct phenomena (Potočnik & Anderson, 2016). Finally, although most authors agree that IWB is a multidimensional construct, it is advisable to use it in a unidimensional way, due to the high correlation between its component phases (Janssen, 2000). Future research could identify other possible antecedents, mediators or moderators at different levels that improve IWB outcomes at the individual, team, and organizational level, to shed some light on improving innovation in organizations (Axtell et al., 2000).

2.6 Conclusion

We believe that the present review summarizes attempts to draw links between PsyCap and IWB. Our article contributes to literature through an analysis of the articles that have investigated it, with PsyCap in the role of antecedent, as well as mediator or moderator.

In addition, it provides suggestions both to measure and to favor employees' PsyCap and IWB. Finally, we hope that the findings, presented in this integrative review, will help future researchers to generate questions. This review could serve as a guide for designing future studies, aimed at increasing knowledge about the relationship between PsyCap and IWB.

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CHAPTER 3

PSYCHOLOGICAL CAPITAL, AUTONOMOUS MOTIVATION AND INNOVATIVE BEHAVIOR: A STUDY AIMED AT EMPLOYEES IN SOCIAL NETWORKS

Abstract

The present study investigates the relationship between positive psychological capital (PsyCap) and innovative work behavior (IWB), as mediated by autonomous motivation and participative leadership moderation. The study was conducted on a sample of 246 employees from various public and private organizations, recruited through different social networks. The moderated mediation analysis provided evidence about the impact of employees' PsyCap on their innovative behavior at work. This behavior will be higher when individual factors (PsyCap) and social factors (participative leadership) interact with one of the most self-determined forms of motivation. Our findings highlight the importance of the individual's positive psychological capital in activating the resources and motivation, necessary to develop innovative behavior in employees, thus achieving organizational success in today's dynamic and competitive business environment. The results also confirmed the moderating effect of participative leadership on the relationship between autonomous motivation and innovative behavior of employees, supporting that the relationship will be stronger when participative leadership is higher. Theoretical and practical implications are discussed, as well as limitations and suggestions for future studies.

Keywords: psychological capital, innovative work behavior, motivation, participative leadership, self-determination.

3.1 Introduction

The increasing transformation of the global economy and a dynamic and competitive business environment drives organizations to improve market strategies in order to survive in the face of uncertainty. In such a confusing environment, improving organizational effectiveness depends on employees' interest in the success of their organization through active contribution. This is the key to the competitive advantage that will contribute to the company's sustainable future (Luthans et al., 2015). In recent years, there has been an increased interest in human capital, defined as the set of competences, knowledge, habits, personality traits and cognitive abilities, capable of producing economic value (Sihag & Sarikwal, 2014). The difficulty to acquire or imitate it has led the scientific community to explore which organizational, team and individual resources can contribute to develop and complement it, in order to provide organizations with greater business success (Luthans et al., 2015). The management of employee behavior has always received special attention from researchers, and since the emergence of the so-called positive organizational psychology (Luthans & Avolio, 2009), the interest in positive constructs to improve results at the organizational level is increasing (Salanova et al., 2021). Thus appears the so-called positive organizational behavior, or simply POB, defined as "the study and application of human resource strengths and positively oriented psychological capacities that can be effectively developed, measured, and managed to improve workplace performance" (Luthans, 2002, p. 59). Derived from the POB perspective emerges the concept of positive psychological capital (PsyCap), a higher-order core positive construct that activates resources and motivation for goal achievement (Luthans et al., 2015; Youssef & Luthans, 2013), and represents a "positive evaluation of circumstances and a probability of success based on motivated effort and perseverance" (Luthans, Avolio et al., 2007, p. 550). Organizations should pay more attention to PsyCap, because it is related to a positive and perseverant way of acting in the face of challenges, having a positive impact on attitudes, behaviors and work performance (Luthans et al., 2015). By orienting such positive impact to develop employees' creativity and innovative behavior, we will achieve an important contribution to success in organizations (Amabile & Pratt, 2016; Thurlings et al., 2015). Thus, through these capacities, employees can generate and implement new ideas to improve or invent products, services and processes at work (Alshebami, 2021). These innovative behaviors of employees become the fundamental initiative for innovation in organizations, hence the importance of knowing the individual and social factors that act on these behaviors.

The main purpose of the present study is to examine the antecedents of innovative behavior at work. The drive to initiate this innovative behavior could be individual (triggered by internal psychological characteristics) or social (to gain the support and respect of others) (Amabile & Pratt, 2016; Tsegaye et al., 2020). In this study, we will test the role of PsyCap and autonomous motivation (i.e., intrinsic motivation and extrinsic motivation with integrated regulation) as individual factors that activate IWB, while participative leadership as a social factor will be taken into account. Therefore, we will test the relationship between PsyCap and IWB through the mediation of autonomous motivation and the moderating role of individual perceptions of participative leadership as a social factor. Our results will contribute to the scientific understanding of the antecedents of innovative behavior at work, and demonstrate that motivational processes such as PsyCap, autonomous motivation and participative leadership can favor greater innovation and profitability in organizations.

3.2 Theoretical background and hypotheses

3.2.1 Positive psychological capital

The constant transformation of organizations and the global economy lead companies to a series of reinventions and adaptations they use to face future challenges and increase competitiveness in the market. Researching the capacity of influence of social and individual factors on employees is the best way to face this transformation, so that human resources can be consolidated as the best competitive advantage, a capital that can be developed and that is unique to each organization, inimitable and non-duplicable (Larson & Luthans, 2006). In this sense, PsyCap is defined as "the state of positive psychological development of an individual that is characterized by: 1) having self-confidence (self-efficacy) to undertake and dedicate the necessary effort for the purpose of achieving success in challenging tasks; 2) making a positive attribution (optimism) about being successful now and in the future; 3) persevere toward goal accomplishment and, when necessary, redirect goal trajectories (hope) to succeed, and; 4) when beset by problems or adversity, sustain and recover, and even beyond, (resilience) to achieve success" (Luthans et al., 2015, p.2). Therefore, PsyCap is considered a second-order core factor that includes all four positive resources, having a greater positive synergistic effect than each of them individually (Avey, Reichard et al., 2011). It represents a motivational tendency to act positively and is a positive predictor of attitudes, behaviors, and performance at the organizational and individual levels (Avey, Reichard et al., 2011; Luthans, 2012; Sarwar et al., 2017). PsyCap is considered an internal psychological state that develops a cognitive ability to focus on the positive aspects of the environment, altering the

affective and behavioral functioning of individuals and creating solutions to problems through perseverance and motivation. This results in a greater likelihood of success in their tasks and goals (Fidelis et al., 2021; Luthans et al., 2015). If individuals have a high level of PsyCap, they gain an additional amount of energy that will impact performance at work and extend it over time (Avey, Avolio & Luthans, 2011; Sarwar et al., 2017). In this way, PsyCap is considered a unique personal resource that allows employees to invest it positively in the challenges of their workday (Laschinger & Fida, 2014), becoming a storehouse where employees draw from or deposit the resources they need (Peterson et al., 2011). This benefit of accumulation and utilization of PsyCap as a psychological resource would be determined by the conservation-of-resources theory or COR (Hobfoll et al., 2018). This theory states that individuals tend to acquire, protect and develop their valuable resources over time to perform excellently in their outcomes, creating gain spirals (Salamon et al., 2022) that generate and reinforce each other, contributing to the creation of the so-called "resource caravans" (Hobfoll et al., 2018). In their meta-analysis, Avey, Reichard, et al. (2011) revealed that PsyCap has a positive relationship with desirable attitudes and behaviors such as job satisfaction, organizational commitment, psychological well-being and performance, and a negative relationship with anxiety, stress and job turnover, among others.

3.2.2 Innovative work behavior

On the other hand, the innovative behavior of employees contributes to the performance and success of an organization, and furthermore, "the study of what motivates or enables individual innovative behavior is critical" (Scott & Bruce, 1994, p. 580). West and Farr (1990) defined innovation as the "voluntary introduction and application of ideas, procedures, processes or products that are new to those who adopt them, within an organization or work group, and that confer benefits to society at large, organizations, groups or individuals" (p. 9). Thus, the innovative behavior of employees is related to the production of new ideas and the behaviors that will be carried out to implement them in the organization, resulting in higher productivity and business performance (de Jong & Den Hartog, 2010; Uen et al., 2021). Such behavior is manifested in three phases of innovative development, idea generation, idea promotion and finally idea realization. In the first phase, employees identify needs, related to their work, and generate novel or adopted ideas to satisfy them, thus providing new solutions. The second phase is when employees seek support to promote their ideas and sponsors to provide resources to implement them. And the last and third phase is when employees transform their ideas into a product, process or service that can be offered or used within a work group or the organization (Janssen, 2000). These stages

cannot be seen empirically and may be combined. Thus, and although, theoretically, it is a construct with three dimensions, most research has observed high correlations between these stages, which is why it can be considered as a unidimensional construct (Bos-Nehles et al., 2017; Janssen, 2000).

3.2.3 PsyCap and innovative work behavior

The conservation-of-resources (COR) theory provides our study with a conceptual framework from which workers decide to conserve, acquire or develop a series of personal resources, subject to motivational factors (Hobfoll et al., 2018). According to the COR theory, employees will be motivated to use their resources and adopt a particular behavior, depending on the job or task assigned and on whether such behavior helps to maintain their resources, obtain them, or entails some loss. Individuals with many resources will cope with difficulties and achieve desired goals, being less likely to lose them and obtaining them more easily (Hobfoll et al., 2018). Based on the mechanisms of the COR theory, PsyCap can be interpreted as a psychological resource that will allow responding positively to work challenge (Laschinger & Fida, 2014) as long as individuals attach importance to such goals (Hobfoll et al., 2018). This individual motivational factor, supported by personal resources, will imply a unique and exclusive effect on organizational behavioral outcomes (Alessandri et al., 2018). Considering innovation at work important and challenging activates personal resources with the aim of obtaining a series of benefits, such as acquiring knowledge and developing both personally as well as professionally, investing resources and thus acquiring new ones (Wang et al., 2021). Thus, PsyCap provides employees with positive resources to face goals or challenges in creative and innovative ways (Hsu & Chen, 2017) by developing pathways to achieve goals (hope), trusting themselves as they move through them (self-efficacy), relying on a positive vision of the future (optimism), and adapting to difficulties and emerging stronger (resilience) (Luthans et al., 2015; Ziyae et al., 2015). PsyCap provides individuals with positive cognitive and motivational resources, not only for job performance, but also for persevering in the goals of achieving innovative results in organizations, even in the face of initial failures and difficulties (Abbas & Raja, 2015; Karakitapoğlu-Aygün et al., 2020). On the other hand, PsyCap produces positive emotions that could facilitate an increase in individual cognitive repertoire, and thus trigger more creative and innovative behavior (Luthans et al., 2011). According to Fredrickson's (2013) expand-and-build theory, positive emotions expand thought-action repertoires and originate an accumulation of resources, available to the individual, so that a high PsyCap would increase innovative behaviors, due to a greater capacity to combine thoughts and ideas (Luthans et al., 2011). Thus, PsyCap would

be positively related to creative performance (Ozturk & Karatepe, 2019), creativity (Cai et al., 2019) and innovative work behavior (Abbas & Raja, 2015; Nwanzu & Babalola, 2019; Paul & Devi, 2018). The scientific community is responding to the call for research on PsyCap and its influence on innovative work behavior, and multilevel research is emerging, providing further insight into the relationship of team PsyCap (Uen et al., 2021) and leader PsyCap (Wang et al., 2021), on individual-level employee innovative behavior, resulting in positive findings in both studies. Similarly, Tsegaye et al. (2020) studied the effect of PsyCap on innovative behavior in culturally diverse employees, resulting in a positive moderating effect on most employees' cultural value orientations (Hofstede, 2011). Still, studies on PsyCap and employees' innovative behavior remain scarce, and researchers call to deepen the relationships and mediate and moderate variables (Newman et al., 2014; Nwanzu & Babalola, 2019; Sameer & Ohly, 2017) that may influence innovative behavior. Based on the above considerations, we formulate the following hypothesis:

H1: Employees' psychological capital will be positively related to innovative work behavior.

3.2.4 The role of motivation

Motivation is the force that drives and activates human behavior, and stimulates it to action (Pinder, 2008). A motivated person will be energized or activated towards an end (Ryan & Deci, 2017). Self-determination theory (SDT) (Ryan & Deci, 2017), is a theory of motivation that defines it as an individual psychological process, influenced by innate personal needs and interactions with the environment. According to the SDT, there are three categories of motivation, six levels of self-determination and two types of intention. Lack of intention would correspond to lack of motivation, and the presence of intention to controlled motivation and autonomous motivation.

The present article focuses on the latter, referring to a person behaving with a full sense of will and choice (Gillet et al., 2013) and involving in personally meaningful and satisfying actions, as opposed to controlled motivation performing tasks driven by external reasons. The most autonomous levels of self-determination would be intrinsic motivation and external motivation with integrated regulation, the latter completely internalized because the values that guide the individual's behavior are congruent with his or her internal values and needs (Battistelli et al., 2013). According to Ryan and Deci (2017), promoting self-determined motivation would be feasible under a social environment that allows the satisfaction of three basic human psychological needs: the need for competence (feeling

effective and competent), the need for autonomy (self-organization and control over your own actions) and the need for relatedness (belonging and support) (Bammens et al., 2015), essential to achieve well-being and personal and social development (Piedimonte & Depaula, 2018). Several authors have suggested that individual differences could affect the worker's valuation of his or her environment, and consequently meet or not meet such needs (Gagné & Vansteenkiste, 2013; Ferraro et al., 2018). Individuals with high levels of self-efficacy, optimism, hope and resilience (PsyCap) could perceive that satisfying environment as more accessible, due to a beneficial positive psychological state of mind (Oliveira, 2016). According to the POB, the psychological mechanisms that connect the PsyCap dimensions in a central factor would be rooted in a motivated and persevering effort to achieve the proposed goals (Youssef-Morgan, 2014). Autonomous motivation as a driving force could activate PsyCap and favor the perception of the environment and, consequently, the satisfaction of the three basic psychological needs. Although there are very few studies linking the PsyCap concept and the SDT theory, recently, Datu et al. (2018) found that PsyCap positively predicted autonomous motivation and controlled motivation in a longitudinal study, with the highest values for autonomous motivation at both measurement times. Corroborating those results, Fidelis et al. (2021) found that the higher the PsyCap level, the more the motivation increased toward the more autonomous types of regulation, thus manifesting that there is a relationship between the SDT theory motivation continuum and employees' PsyCap. And finally, Oliveira (2016) reported a significant and negative relationship between PsyCap and demotivation, mediated by the frustration of basic needs satisfaction, with which PsyCap also had a negative relationship in a sample of unemployed people in Portugal. Thus, and due to the recent call of the scientific community to investigate the role of PsyCap in individual motivation (Datu et al., 2018; Fidelis et al., 2021) and supported by the SDT theory, we propose that:

H2: Employees' psychological capital will be positively related to autonomous motivation at work.

On the other hand, several researchers state that the innovation process is complex and risky, involves breaking stability and routine, and requires considerable effort (e.g., Kwon & Kim, 2020). It is an employee self-initiation procedure, derived from a motivational process that may not be accepted by their supervisors, and facing resistance from the rest of the employees who do not want the change (Carmeli et al., 2006; Tsegaye et al., 2020). That self-initiation process and interest in engaging in discretionary behaviors, such as innovative behavior, will be derived from motivational attitudes, and specifically from more self-

determined forms of motivation (Bin Saeed et al., 2019). Because, as we discussed earlier, the innovation process is complex and risky, employees need drives such as intrinsic motivation to overcome the challenges of innovative behavior (Gupta, 2020), in addition to being cognitively flexible and perseverant (Shin, 2015), conditions also provided by PsyCap (Luthans et al., 2015). These challenges require a high level of PsyCap that would favor the perception of the environment and, consequently, the satisfaction of the three basic psychological needs. This would create a predisposition to greater self-determined motivation in employees that would act as a mediator to carry out innovative behaviors, a more motivated and autonomous PsyCap that would manifest itself in better organizational results (Ferraro et al., 2018). There are not many studies that have investigated the mediating role of autonomous motivation in relation to innovative work behavior, but we estimate that employees with high levels of PsyCap will obtain higher autonomous motivation to generate, promote, and implement novel ideas. Numerous investigations have demonstrated the importance of intrinsic motivation in employee creativity (Amabile et al., 2018; Hammond et al., 2011), and given that creativity is associated with, but not exclusive to, the idea generation phase of innovative behavior, intrinsic motivation should relate to innovative behavior in all its phases (Yuan & Woodman, 2010).

On the other hand, studies by Ngan (2015) and Chen et al. (2010), based on the motivational synergy proposed by the intrinsic-extrinsic combination to benefit motivation in organizations (Amabile & Pratt, 2016), identified the importance of the combination of both types of motivation to have positive results in all stages of innovative behavior. Most of the studies that were consulted study the relationship of intrinsic motivation with innovative behavior, or the relationship of intrinsic versus extrinsic motivation in such behavior (Montani et al., 2017), neglecting the motivational synergy between the two, something that seems fundamental to us in our research. Thus, Gupta (2020) revealed that autonomous motivation (integrated extrinsic motivation and intrinsic motivation) mediated the relationship of leadership and innovative work behavior, so that both complement each other and foster individual innovation. Definitely, the results of the studies converge on the benefits of autonomous motivation for employees' innovative behavior (Saether, 2019), as they perceive the importance of innovation and significant changes at work in a more pronounced way (Montani et al., 2015), and their actions are congruent with their pleasure and enjoyment, values and interests. Based on the above, the hypothesis on the mediating effect of autonomous motivation is stated as follows:

H3: Autonomous work motivation mediates the relationship between individual PsyCap and innovative work behavior.

3.2.5 The moderating effect of participative leadership

Leadership plays a crucial role in developing work environments that enhance employee performance (Laschinger & Fida, 2014; Gupta & Singh, 2015). We can define leadership as the process by which an individual influences follower to contribute to the success of organizational goals (Bass, 2008) by setting direction, aligning employees, and motivating them (Kotter, 2008). Researchers attempt to determine the leadership behaviors and characteristics that facilitate employees' innovative behavior distinguishing it as one of its best predictors (e.g., Lukowski, 2017; Sethibe & Steyn, 2017). Leadership exhibits differences in its relationship with innovative work behavior, due to the intervention of other variables (Rosing et al., 2011), including individual differences in followers (Shin, 2015). Thus, the PsyCap of employees considered an individual personal resource would be reinforced by leadership as a work resource that would favor a positive mindset, contributing in obtaining a series of resources in exchange for others, as shown by the COR theory (Hobfoll et al., 2018). These benefits or new resources could be, for example, acquiring knowledge and developing on a personal and professional level (Wang et al., 2021). Our study also relies on the social-exchange theory (SET), theorizing that an individual performs a behavior in a given relationship according to the benefits or costs involved (Blau, 2017; Xerri, 2013). Consequently, by receiving, for example, trust from leaders or involving them in decision making, employees would decide to reciprocally compensate such behavior and engage in discretionary behaviors such as innovative behavior (Li & Hsu, 2018). Gupta (2020) revealed that positive leadership behaviors can foster followers' autonomous motivation, thus satisfying more self-determined levels of motivation. When employees are invited to participate in decision making, their sense of competence increases, as their opinions are heard and trust in the leader grows (Chang et al., 2019, Wang et al., 2022). Similarly, giving them some responsibility for decision making, problem solving and designing their own tasks increases their autonomy (Wang et al., 2022). In addition, building positive relationships with followers (Chan, 2019) helps more open communication among team members, which decreases barriers between them and favors the needs for relatedness, belonging and support (Chang et al., 2019). These types of behaviors are part of participative leadership, a leadership that involves followers in decision making, valuing their views and opinions (Wang et al., 2022). In participative management, leaders and followers meet, discuss problems and express their views, so that employees are assigned greater

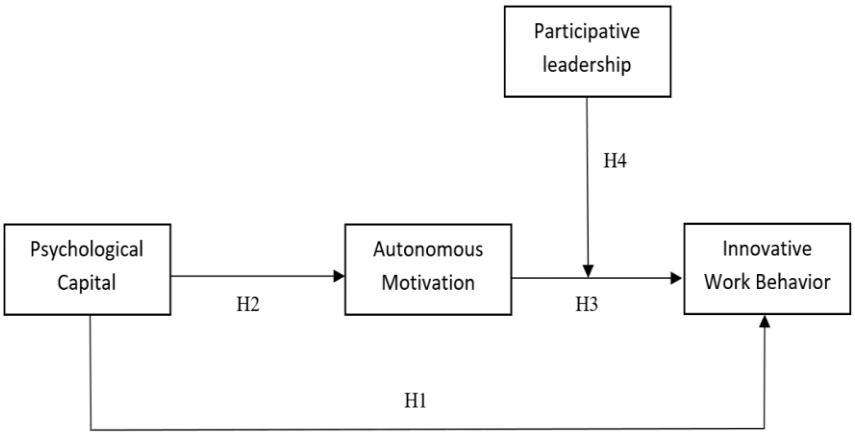
responsibility and perceive a bigger influence on organizational decisions (Chan, 2019). The critical and analytical exchange and discussion of new ideas enhances employee involvement in the solutions adopted, due to the sense of ownership of these solutions (Wang et al., 2022). The participative leader invites the expression of ideas, generating a climate of trust and respect in which employees feel free to raise novel ideas without fear of ridicule or lack of approval (Edmondson & Lei, 2014; Rego et al., 2012), thus facilitating the exploration of new cognitive avenues and adopting more innovative behaviors (Odoardi et al., 2019). Recently, a literature review on participative leadership (Wang et al., 2022) examines its conceptualization and measurement, investigates the role of such leadership style in organizations, and provides excellent material for further study in the future.

In our model and according to the SET theory, the moderating effect of participative leadership that fosters innovation to explore new opportunities and challenges (Edmondson & Lei, 2014) could lead employees to make the decision to reciprocally compensate such leadership style with innovative behaviors. Such encouragement of innovation would attribute positive meaning to innovative behavior and activate employees' PsyCap through autonomous motivation that aligns action, goal and personal values with the enjoyment and pleasure, associated with their accomplishment. The moderating impact of participative leadership has hardly been examined in literature, but several studies have shown a positive relationship between participative leadership and innovative behavior at work. Krause (2004) found a positive and significant relationship between support for innovation, participation in decision making, and autonomy in idea generation and implementation, and Somech (2005) related participative leadership to the innovation of several teams in different elementary schools. More recently, Odoardi et al., (2019) found that the relationship between affective organizational commitment and innovative employee behavior was stronger when participative leadership at the team level was high. Furthermore, participative leadership has been positively related to performance when employees perceived that their leaders exhibited consistently high participative leadership and high information sharing (Lam et al., 2015). Consequently, we suggest that participative leadership would act as a moderator of the relationship between autonomous motivation and employees' innovative behavior. This leads us to the following hypothesis:

H4: Participative leadership will moderate the relationship between autonomous motivation and employees' innovative behavior, with the relationship being stronger when participative leadership is higher.

The proposed research model can be seen in Figure 1.

Figure 1. Research model.



3.3 Method

3.3.1 Participants and Procedure

This study was conducted in Spain based on a sample obtained from three social networks, Linkedin, Facebook and Whatsapp, adding two reminders ten days apart. A total of 349 employees from public and private organizations agreed to participate in the study through the online interview platform Qualtrics, but only 246 questionnaires were valid for data analysis due to systematic errors or incomplete information (response rate = 70.5%). The professional fields of the participants were mainly healthcare, public services, manufacturing, hospitality, information technology, banking and finance, education and other less prominent fields. Of all the participants, 171 (69.5%) were female. The average age of all participants was 43 years (SD = 9.52). Of the total sample, 65.9% of the employees belonged to large companies, 72% to the service sector, and 85% worked full time. In addition, 67% worked entirely on a face-to-face basis, the others opting for telework or mixed alternatives. The questionnaire, which took approximately 15 minutes to complete, was addressed to active employees, regardless of job position, task or function performed, via a link. All participants provided the requested data after reading the informed consent that guarantees confidentiality and voluntarily agreeing to participate in the study.

3.3.2 Measures

Psychological capital (PsyCap) was measured using the short Spanish version of 12-items of the Psychological Capital Questionnaire (PCQ-12) (Avey, Avolio & Luthans, 2011).

This questionnaire, distributed by Mind Garden, Inc., contains four items to measure hope, three items to measure self-efficacy, three items to measure resilience, and two items to measure optimism[2]. Examples of items for each subscale are: optimism "I'm optimistic about what will happen to me in the future as it pertains to work", hope "I can think of many ways to reach my current work goals", resilience "I usually take stressful things at work in stride". Items were measured on a six-point Likert scale ranging from 1 "strongly disagree" to 6 "strongly agree".

Autonomous Work Motivation was measured using a 5-item for the two dimensions of intrinsic motivation and integrated motivation from the Multidimensional Work Motivation Scale (MWMS) of Battistelli et al. (2017). This measure is a Spanish version of the original MWMS of Gagné et al. (2015). Sample items include: intrinsic motivation "I try hard because I enjoy this work very much", integrated motivation "I strive because I am fully fulfilled in this work". Participants answered on a seven-point Likert type scale ranging from 1 "not at all" to 7 "completely".

Innovative work behavior (IWB) was assessed using a 9-item scale, developed by Janssen (2000) and used in its Spanish version (González et al., 2020). The IWB includes three different subscales: generation of ideas, promotion of ideas and realization of ideas. Respondents were asked to rate how often they adopt a series of innovative behaviors in their work. Sample items include: realization "How often do you transform your innovative ideas into useful applications for your work?", generation "How often do you generate new ideas for difficult issues?", promotion "How often are you acquiring approval for innovative ideas?". The items were measured on a five-point Likert scale type ranging from 1 "rarely" to 5 "often".

Participative Leadership was measured using a 6-item of the participative decision-making scale, developed by Arnold et al. (2000) to measure Empowering Leadership (ELQ). The Spanish version of the ELQ was obtained from the translation, used by Becerra Pando et al. (2017). An example of an item is: "My direct supervisor encourages work group members to express ideas/suggestions". Responses to items ranged from 1 "never" to 5 "always".

3.4 Results

[2] We contacted Mindgarden to acquire the license and use the questionnaire in Spanish. We requested the number of questionnaires and the time of use. Free for research.

3.4.1 Confirmatory Factor Analysis

We first conducted a confirmatory factor analysis (CFA) by maximum likelihood estimation with the AMOS 21.0 statistical software (Arbuckle, 2016) on the four variables of our study: psychological capital, autonomous motivation, innovative work behavior and participative leadership. Results are presented in Table 1. The fit of the hypothesized four-factor model, in which each multi-item scale loaded on a first-order latent factor, was acceptable. This model was compared with two alternative, more parsimonious models with three factors each. In the first, psychological capital and autonomous motivation loaded on a single factor ($\Delta\chi2$ (1 gl) = 451.033), and in the second model, autonomous motivation and participative leadership loaded on a single factor ($\Delta\chi2$ (1 gl) = 879.735). Finally, the hypothesized four-factor model was compared with a single-factor model in which all independent variables loaded on a common factor ($\Delta\chi2$ (4 gl) = 1970.572). Thus, as can be seen in table 2, the results indicated that the four-factor model fitted the data well, according to the recommended criteria (Hu & Bentler, 1999), and was better than any of the alternative modes, so the four-factor model was retained.

Table 1. Fit indices for confirmatory factor analysis

Model	χ^2	df	$\Delta\chi^2$	Δdf	CFI	TLI	SRMR	RMSEA
Hypothesized model	867.913	426	--	--	.913	.905	.0601	.065
Three factors: Combining PsyCap and AM	1321.672	429	453.759	3	.825	.810	.1070	.092
Three factors: Combining AM and PL	1750.374	429	882.461	3	.741	.719	.1057	.112
One factor model	2841.211	432	1973.298	6	.528	.492	.1255	.151

Note: N = 246. AM = autonomous motivation; PL = participative leadership; PsyCap = psychological capital; df. = degree of freedom; $\Delta\chi2$; $\chi2$ difference tests between the four-factor model and alternative models; CFI = Comparative Fit Index; TLI = Tucker Lewis Fit Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Square Residual.

3.4.2 Descriptive Analyses

First, descriptive analyses were performed and internal consistencies (Cronbach's alpha) were analyzed for each of the study scales using IBM SPSS Statistics 22.0. The means, standard deviations and correlations between the dimensions of PsyCap, autonomous motivation, innovative behavior and participative leadership are presented in Table 2. Because PsyCap, autonomous motivation, participative leadership and innovative work behavior were measured at the same time by the same source, we checked whether the matrix is affected by common variance bias, in which case all the variables analyzed would be

grouped into a single factor, using Harman's one-factor test (Podsakoff et al., 2003). In our study data, there are no problems of common method bias, as the total variance extracted by one factor is 36.39% and therefore below the recommended threshold of 50%. Consequently, common method bias did not significantly distort the results of our study.

Table 2. Means, Standard Deviations, and Correlations

Variables	Mean	SD	1	2	3	4
PsyCap	4.64	.67	--			
AM	3.35	.78	.45**	--		
IWB	4.65	1.25	.48**	.53**	--	
PL	2.48	.67	.40**	.39**	.42**	--

Note: N = 246. AM = autonomous motivation; IWB = innovative work behavior; PL = participative leadership; PsyCap = psychological capital. *p < .05, **p < .01

3.4.3 Hypothesis Testing

The macro script "PROCESS" version 3.5.3, developed by Hayes (2017) (complementary program to SPSS), was used to test the mediation and moderation effects. When assessing indirect effects, PROCESS allows the use of bootstrapping, a resampling strategy for estimation and hypothesis testing where the sample is conceptualized as a pseudo-population representing the larger population from which the sample was derived (Preacher, Rucker and Hayes, 2007, p. 190). In our case we used 10,000 bootstrap samples (95% CI). Firstly, we tested if the autonomous motivation mediated the relationship between PsyCap and innovative work behavior. The results, as can be seen in Table 3, showed that PsyCap was positively associated with innovative work behavior [β = 0.284, t = 4.099, 95% CI = (0.147, 0.420)] and autonomous motivation [β = 0.857, t = 7.768, 95% CI = (0.639, 1.074)], which supports hypotheses 1 and 2. Furthermore, autonomous motivation was positively associated with innovative work behavior [β = 0.275, t = 7.660, 95% CI = (0.205, 0.346)] and the indirect effect between PsyCap and innovative work behavior was significant. [β = 0.236, 95% CI = (0.150, 0.334)]. The total effect (direct effect + indirect effect) of PsyCap on the IWB through autonomous motivation was also significant [β = 0.520, t = 7.543, 95% CI = (0.384, 0.655)]. Therefore, our hypothesis 3 was supported. The statistically significant direct effect of PsyCap on innovative work behavior, once the autonomous motivation mediator was included, supported a partial mediation.

Second, we examine the moderating role of participative leadership. As shown in Table 4, autonomous motivation was positively associated with innovative work behavior [β

= 0.249, 95% CI = (0.178, 0.320)], and the interaction of autonomous motivation and participative leadership played a significant role in innovative work behavior [β = −0.075, 95% CI = (0.015, 0.136)]. The moderate mediation index (0.064) was significant [95% CI = (0.015, 0.123)], therefore, the indirect effect of PsyCap on innovative work behavior through autonomous motivation was moderated by participative leadership (Table 5).

Additionally, the conditional indirect effect on the participative leadership values was calculated at three levels, as we can see in Table 6: a high one with a higher standard deviation (+0.67), the mean value, and a low one with a lower standard deviation (−0.67). The results showed that, at high levels [effect = 0.280, 95% CI: (0.170, 0.403)], medium [effect = 0.213, 95% CI: (0.125, 0.315)] and low [effect = 0.147, 95% CI: (0.046, 0.250)] for participative leadership, the conditional indirect effect between PsyCap and innovative work behavior was significant, the greatest effect being at high levels of participative leadership, as shown in Figure 2. These results support hypothesis 4. In any case, and due to the limited number of previous research regarding the possibility of a reciprocal relationship between PsyCap and autonomous motivation (Datu et al., 2018), we decided to conduct an additional analysis by testing an alternative moderated mediation model (i.e., autonomous motivation - PsyCap - IWB, and participative leadership as moderator). The results did not support this alternative model, due to the lack of moderate mediation [effect = 0.012, 95% CI: (-0.013, 0.039)].

Table 3. Mediating effect of autonomous motivation in the relationship between PsyCap and innovative work behavior.

	β	**SE**	**t**	**p**	**LLCI**	**ULCI**
Direct Effects						
PsyCap-AM	0.857***	0.110	7.768	.000	0.639	1.074
AM-IWB	0.275***	0.036	7.660	.000	0.205	0.346
PsyCap-IWB	0.284***	0.069	4.099	.000	0.147	0.420
	Boot β	**Boot SE**			**LLCI**	**ULCI**
Indirect Effect						
PsyCap-AM-IWB	0.236***	0.047			0.150	0.334
	β	**SE**	**t**	**p**	**LLCI**	**ULCI**
Total Effect						
PsyCap-IWB	0.520***	0.069	7.543	.000	0.384	0.655

Notes: N=246. AM = autonomous motivation; IWB = innovative work behavior; PsyCap = psychological capital. Bootstrap size = 10000, bootstrap confidence interval = 95%. LL, low limit; CI, confidence interval; UL, upper limit. *P<0.05, **P<0.01, ***P<0.001.

Table 4. Results of participative leadership moderate the mediation process.

	β	SE	t	p	LLCI	ULCI
Moderated mediation analysis						
Outcome variable: AM						
PsyCap	0.857***	0.110	7.768	.000	0.639	1.074
Outcome variable: IWB						
PsyCap	0.204**	0.070	2.897	.004	0.065	0.342
AM	0.249***	0.036	6.880	.000	0.178	0.320
PL	0.162**	0.045	3.589	.000	0.073	0.250
AM x PL	0.075**	0.031	2.447	.015	0.015	0.136

Notes: N=246. AM = autonomous motivation; IWB = innovative work behavior; PL = participative leadership; PsyCap = psychological capital. Bootstrap size = 10000, bootstrap confidence interval = 95%. LL, low limit; CI, confidence interval; UL, upper limit. *P<0.05, **P<0.01, ***P<0.001.

Table 5. Index of moderated mediation.

Variables	Index	Boot SE	Boot LLCI	Boot ULCI
Participative Leadership	0.064	0.028	0.015	0.123

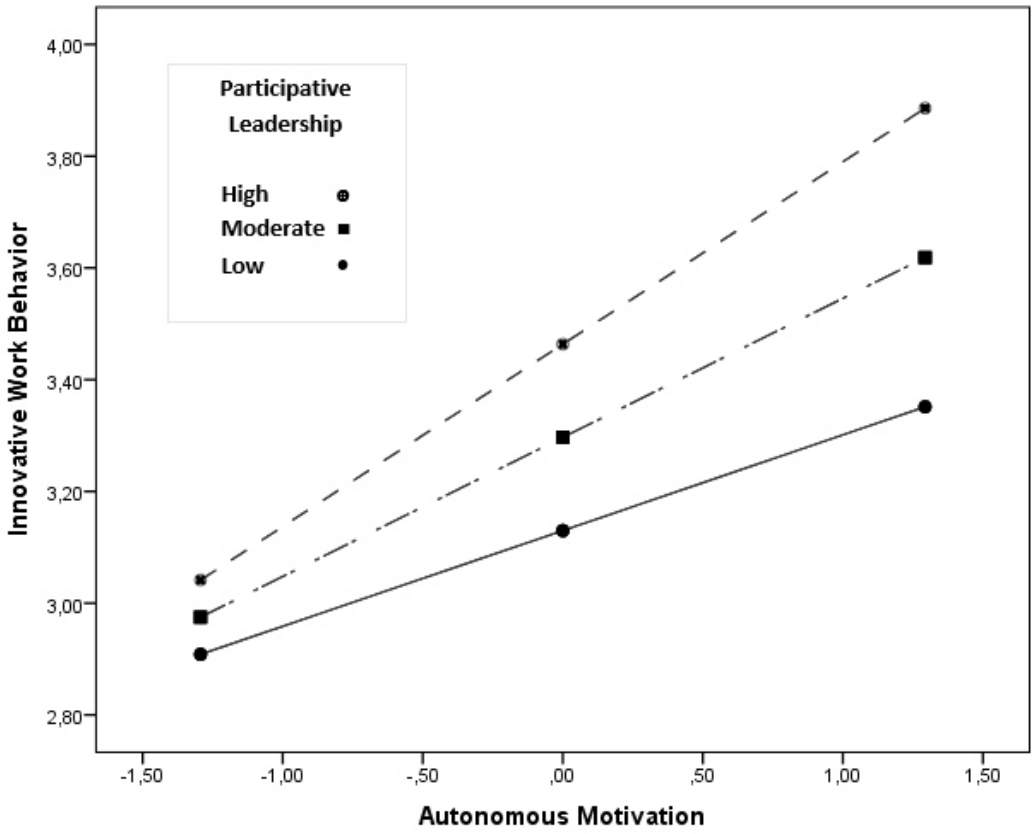
Notes: N=246. Bootstrap size = 10000, bootstrap confidence interval = 95%. LL, low limit; CI, confidence interval; UL, upper limit.

Table 6. Results for conditional indirect effect analysis.

Participative Leadership	Effect	Boot SE	Boot LLCI	Boot ULCI
−1 SD (−0.67)	0.147	0.052	0.046	0.250
Mean	0.213	0.048	0.125	0.315
+1 SD (+0.67)	0.280	0.060	0.170	0.403

Bootstrap size = 10000. SD, standard deviation; LL, low limit; CI, confidence interval; UL, upper limit.

Figure 2. The moderation effect of participative leadership on autonomous motivation to innovative work behavior.



3.5 Discussion

The study examined the influence of PsyCap on innovative work behavior in employees with a wide variety of functions, as well as the role of autonomous motivation and participative leadership in the relationship between PsyCap and such innovative behavior. Overall, the results confirmed that there is a positive relationship between PsyCap and IWB (confirming hypothesis 1), and that this relationship is partially mediated by autonomous motivation (confirming hypotheses 2 and 3). In addition, the results show the moderating role of participative leadership in the relationship between autonomous motivation and IWB (confirming hypothesis 4), with the relationship being stronger when participative leadership is higher. Consequently, when employees perceive participative leadership, they more readily develop innovative behaviors. The results provide implications for research and practice.

3.5.1 Theoretical Implications

This article contributes to the existing literature on the individual and contextual factors that would be related positively to innovative behavior in organizations and the underlying motivational processes. First, we have provided evidence about the relationship of PsyCap on innovative work behavior. Under the framework of the COR theory (Hobfoll et al., 2018), we have extended knowledge of the role of PsyCap in motivational processes, oriented toward innovative behavior. The COR theory defines employees' decision-making ability to adopt a certain behavior, taking into account the preservation, acquisition or development of a number of personal resources. The result of our study is consistent with the COR theory, as activating PsyCap would provide employees with positive resources to face challenges in a creative and innovative way (Hsu & Chen; 2017), in exchange for a number of benefits and new desired resources, such as increasing efficacy beliefs or professional and personal development, thus increasing their "resource caravan" (Hobfoll et al., 2018). These results are consistent with previous studies (Abbas & Raja, 2015; Gupta & Singh, 2014; Jafri, 2012; Paul & Devi, 2018; Sameer, 2018; Ziyae et al., 2015). Second, the results would also support that PsyCap would be related to IWB through autonomous motivation. Relying on the theoretical framework of SDT (Ryan & Deci, 2017), the results confirm that, thanks to PsyCap and its beneficial positive mental state, the three basic human psychological needs could be satisfied to a great extent, deriving in the emergence of the most self-determined motivational states. This relationship would be consistent with previous studies (Datu et al., 2018; Fidelis et al., 2021). On the other hand, and according to Bin Saeed et al. (2019), the interest to engage in discretionary behaviors such as innovative behavior would be derived from motivational attitudes, and specifically from the more self-determined forms of motivation. Thus, employees would perceive the importance of innovation and significant changes at work more strongly (Montani et al., 2015), and their actions would be congruent with their pleasure and enjoyment, values and interests. The results of our study confirm the hypothesized spillover effects. Third, our results provide evidence about the moderating effect of participative leadership on the relationship between autonomous motivation and innovative work behavior, supporting that this relationship will be stronger when participative leadership is higher, as we hypothesized. Under the theoretical framework of the SET, which indicates that an individual performs a behavior in a given relationship, according to the benefits or costs involved (Blau, 2017; Xerri, 2013), we found the following evidence: involving followers in decision making would result in an increase in their innovative behavior, enabling them to compensate for the behaviors of the participative

leader. Moreover, in the same way as PsyCap, the behaviors of a participative leader could facilitate the satisfaction of basic needs (competence, autonomy and relatedness) and consequently develop the most self-determined types of motivation. Also, the leader's encouragement of innovation to explore new opportunities and challenges (Edmondson & Lei, 2014), and the attribution of positive meaning to innovative behavior, would activate employees' PsyCap through autonomous motivation. This would align the action, goal, and personal values (integrated motivation) with the enjoyment and pleasure involved in their accomplishment (intrinsic motivation). Our results suggest that this would lead to greater innovative work behavior, as well as being consistent with previous studies (Fatima et al., 2017; Odoardi et al., 2019). In short, the results suggest that, when employees possess high PsyCap, their innovative work behavior is also high, and this relationship is stronger if employees possess high levels of autonomous motivation and perceive participative leadership. This study goes a step further by suggesting that employees with high PsyCap (personal resource) may perceive a more favorable environment (work resource), due to a positive mindset, thus increasing their self-determined motivation and consequently innovative work behavior, obtaining a number of resources in exchange for others, as determined by the COR (Hobfoll et al., 2018) and SET (Blau, 2017) theories.

Finally, this article responds to calls in literature to study the psychological processes that lead employees to engage in innovative behavior (Anderson et al., 2014; Battistelli, 2014), in addition to seeking a greater understanding of the role of PsyCap in organizations (Rego et al., 2012). Also, this study represents a step forward for the literature, since it explores the synergy between the motivational processes of SDT and POB, suggested by several authors (Kong & Ho, 2016; Verleysen et al., 2015), thereby deepening the knowledge of positive human development.

3.5.2 Practical Implications

Our results show that a positive psychological environment seems to be fundamental in increasing the motivation and innovative behavior of employees, thus leading to greater innovation in organizations. Innovation is an important part of organizational strategy and is considered essential in all departments of the organization. Undoubtedly, all employees can be part of generating, promoting and implementing an idea, so companies should develop strategies and practices at the organizational and individual levels to enhance employees' innovative behavior (Tang et al., 2019). At the organizational level, companies can build a culture that supports innovation by granting recognition to innovative employees, developing

managers' interpersonal skills and problem-solving techniques, and establishing flexible and participatory practices where employees have confidence to express their opinions without fear of ridicule, error, or punishment. Companies can guide their leaders to develop participative behaviors, promote cooperation and group cohesion, encourage employees to participate in decision making, and organize regular meetings to identify problems, opportunities, and promote and implement innovative ideas. From a self-determination theory perspective, leaders should seek to satisfy the basic needs of competence, autonomy and relatedness by designing practices and initiating behaviors toward their followers (Ryan & Deci, 2017). Delegation of attributions, empowerment, alignment of values with the organization, order of task execution, feedback, constructive criticism to employees on new ideas, tangible and intangible incentives to innovation, and dissemination of innovative proposals to top management would favor the emergence of the more self-determined types of motivation, thus contributing to greater innovative behavior on the part of employees (Choi et al., 2016; Cingöz & Akdoğan, 2011; Garg & Dhar, 2017; Odoardi et al., 2019). On the other hand, maintaining excellent relationships and position in social networks by the organization ensures high visibility and updates on new trends in the sector that could provide solutions or innovative ideas to be explored (Ngan, 2015). At the individual level, it is considered of great strategic importance to develop employee positivity. PsyCap is a valuable resource for gaining positive psychological functioning, coping with adversities, and achieving at work. Interventions and training are effective procedures to enhance employees' personal resources (Bakker et al., 2023), and specific training to develop and maintain PsyCap could be a valuable tool to incorporate into human resource development programs in organizations (Roemer & Harris, 2018). Luthans, Youssef and Avolio, (2007) developed and implemented so-called "micro interventions" (lasting between 1 and 3 hours) which develop the PsyCap components in an integrated and synergistic manner, due to the fact that PsyCap is a state-type construct and is open to development. These psychological capital interventions (PCI), have been shown to increase PsyCap levels, even in brief online trainings (Luthans et al., 2008). This type of online training is interesting for organizations because of its flexibility and compatibility with work schedules (Meyers et al., 2013). Increasing employees' PsyCap levels through PCIs will not only help increase the positive psychological functioning and motivation of our human capital, but will promote positive changes and outcomes within organizations, such as the development of innovative behavior (Abbas & Raja, 2015; Ziyae et al., 2015), job satisfaction, organizational commitment, psychological well-being and performance, and decrease negative outcomes such as anxiety, stress and job turnover, among others (Avey, Reichard et al., 2011). In short, and due to the importance,

that innovation generates in the future of the company, it is recommended that organizations adequately manage the social and individual resources of employees to improve motivational processes and innovative behavior, thus promoting greater competitive advantage and business success.

3.5.3 Limitations and Future Research Directions

Although our study provides interesting results, it also has limitations that reduce the generalizability of the findings. First, data collection was obtained through self-report measures. This may cause the relationships between variables to be exaggerated, and our results to be influenced by common method bias due to the cross-sectional research design (Podsakoff et al., 2003). Since the constructs studied (PsyCap, autonomous motivation, and innovative work behavior) are concerned with the internal states of individuals, we argue that it is logical to collect data directly from the participants themselves, as they are the most accurate source of their internal perceptions. Still, to address this problem, we followed the recommendations of Podsakoff et al. (2003) and ensured the anonymity of the respondents. Thus, we ensure the reduction of the probability of common method bias, as the possibility of this error can never be completely ruled out. Nevertheless, we believe that multilevel research would provide greater insight into the relationships, as perceived by the employee, co-workers and supervisors (Battistelli, 2014), and would allow us to gain a deeper understanding of the dynamics of organizational and individual factors in employee behavior. We encourage researchers to conduct studies at the team and organizational levels, in order to learn more about psychological processes within organizations, including ratings from other sources such as supervisors, peers, interviews, or through "participant observation." Second, our study was based on a cross-sectional design, so we cannot establish causal connections between the research variables (Bono and McNamara, 2011). This is even more relevant in our study because it analyzes moderated mediation, a difficult combination to explore in part because of unmeasured moderators affecting the strength of the mediated relationship (Calantone et al., 2017; Preacher, Rucker, & Hayes, 2007). Studies in the future could adopt a longitudinal research design to establish directionality and allow for causal interpretation. A third limitation that could be considered is the size and variety of professions and participants in the sample, leading to limited generalizability of our results. To make our model more robust, it would be advisable to replicate the study in different populations, countries and organizations with diversified sizes and characteristics. On the other hand, we have studied all the variables globally and may have overlooked unique relationships between the different sub-dimensions. For example, each stage of innovative behavior might require a different

type of motivational regulation according to the SDT theory (Ngan, 2015). Despite the limitations, our results evidence that the PsyCap and autonomous motivation variables are positively related, and that both may favor innovative behavior in employees. Employees' perceptions of their leader also showed that participative management helps innovative behavior. Finally, we should consider that certain factors that were not studied could influence the results, so future research should examine other mediators or moderators that would enhance the relationship of PsyCap on innovative work behavior.

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CHAPTER 4

THE RELATIONSHIP BETWEEN PSYCHOLOGICAL CAPITAL AND INNOVATIVE WORK BEHAVIOR: THE ROLE OF AUTONOMY AND WORK ENGAGEMENT

Abstract

The present study investigates the relationship between psychological capital (PsyCap) and innovative work behavior (IWB), both directly as well as through the mediation of work engagement (WE). In addition, the moderation of job autonomy (JA) and its influence on the relationship between PsyCap and WE have also been examined. The study was conducted through an online questionnaire on a sample of 273 employees from various organizations. The moderated mediation analysis provided evidence on the impact of employees' PsyCap on their IWB, both directly and indirectly through WE. The results also confirmed the moderating effect of JA on the relationship between PsyCap and WE. The findings highlight the importance of PsyCap and JA resources in developing WE and IWB in employees, thus fostering organizational competitiveness. This increases the understanding of the factors that facilitate IWB. Strategies and practices to enhance IWB are proposed, and limitations and suggestions for future studies discussed.

Keywords: psychological capital, innovative work behavior, job autonomy, work engagement.

4.1 Introduction

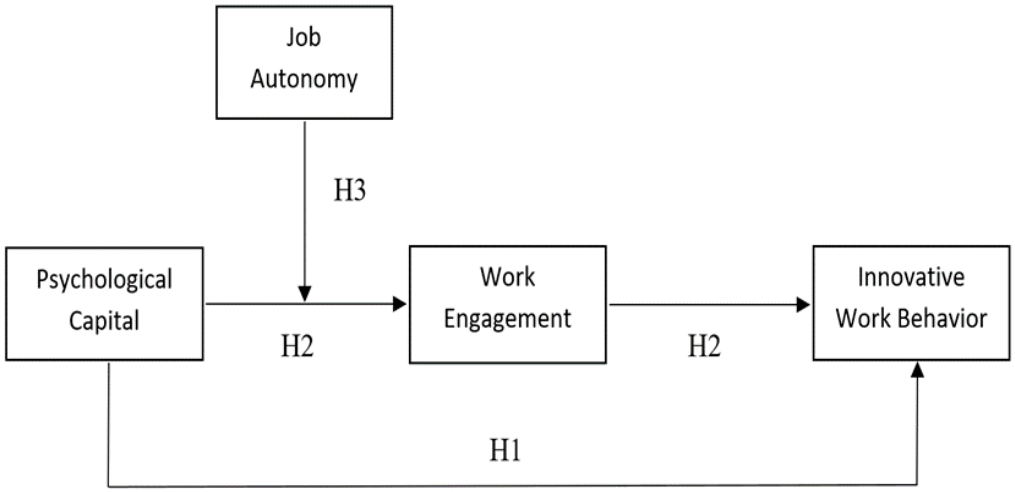
In a business environment that is constantly changing and where flexibility and adaptation are becoming the standard for companies and organizations, innovation is one of the keys to success in the business world. Organizations that want to overcome challenges and become more efficient need human capital, willing to stay and grow with an organization that is capable of continuously reshaping the way tasks are performed, in order to create a competitive advantage and survive increasingly globalized competition (Muthukumar, 2016; Pomi et al., 2021). More and more, employees are looking for employers who contribute to their career development and enable them to bring value to the organization; they do not perceive simply performing the tasks assigned in their job description as a challenge (Hutahayan, 2020; Nogueira et al., 2016; Sima et al., 2020). Thus, nowadays, the accomplishment of organizational goals is not only achieved by employees' compliance with the pre-established behaviors in their employment contracts, but rather through creative and spontaneous behaviors (Muthukumar, 2016). The successful creation and development of new ideas is critical for survival and competitiveness. However, not only spontaneous or occasional innovation, but also regular and sustained innovation that emerges from employees (Mitchell, 2015; Ullah et al., 2021; Wu & Lin, 2018) and that is met with a structure, adapted and conducive to the generation, promotion, and implementation of such ideas at all levels of the organization. This employee behavior, referred to as innovative work behavior (IWB), is an intentional activity that should produce some benefit to the organization from new and/or improved processes, products, or services (Alarifi & Adam, 2023; Zhu & Mu, 2016). Increasing the knowledge of predictors and their contribution to the development of IWB will help organizations favoring and stimulating such behavior through concrete actions, thus promoting and facilitating the working conditions where it can emerge (Dzieńdziora et al., 2022; Wojtczuk-Turek & Turek, 2015). According to scientific literature, the antecedents facilitating IWB at the individual level would be a combination of internal and external factors. Internal factors refer to personal resources such as personality, character traits, cognitive styles, etc., while external factors would be distinguished between i); task-specific characteristics such as autonomy, task complexity, etc., and ii); social context-specific resources, such as leadership, culture for innovation or psychological contract (Anderson et al., 2014; Battistelli, 2014; Rattanawichai et al., 2022; Salam, & Senin, 2022). In our research, we explored the combination of psychological capital (PsyCap) as a personal resource and internal factor, as well as job autonomy (JA) as a task-related resource or external factor. Both factors will be studied within the theoretical frameworks Job Demands - Resources (JD-R; Bakker et al., 2023) and conservation of resources (COR; Hobfoll et al.,

2018). First, the impact of PsyCap on IWB will be verified directly and then, it will be tested indirectly through the employees' work engagement (WE). At present, several studies have positively and significantly related PsyCap to IWB (e.g., Nwanzu & Babalola, 2019; Ghafoor & Haar, 2021); however, the mediating role of WE in such relationship has not been sufficiently investigated. Verhagen's (2016) study was the first one to relate PsyCap and IWB under the JD-R model, asking the following question: "could employees' IWB be promoted by following the motivational path in the JD-R model?" (p. 3). This interest of the scientific community led Kwon and Kim (2020) to extend and refine the original JD-R model, introducing IWB as an outcome of WE, and giving it an independent status as original construct, without the resembling extra-role performance in which it had been studied until then in the JD-R framework. In this sense, our research is framed within the JD-R model, adapted from Kwon and Kim (2020), that aims to understand the existing relationship between WE and IWB, as well as to provide a motivational context to study the relationship between demands, resources, buffering and coping, and their roles in process outcomes. Second, we will test the moderating role of JA in the relationship between PsyCap and WE, something that has not been studied to date. Our study aims to investigate whether the relationship between PsyCap and WE is enhanced when JA moderates this relationship. Likewise, and recently, certain components of PsyCap (i.e., self-efficacy, resilience, and optimism) and JA have been highlighted as important factors in the occurrence of WE (Bakker et al., 2023).

In short, and based on the proposed model (Figure 1), the present study aims to: i) provide empirical evidence for the integration of IWB into the JD-R framework, proposed by Kwon and Kim (2020); ii) study the impact of PsyCap on IWB, both directly as well as through the mediation of WE; and iii) investigate the moderating role of JA in the relationship between PsyCap and WE. In this way, we contribute to the literature calls in exploring the factors that enhance employees' IWB and the underlying motivational processes (Bayona, 2019; Kwon & Kim, 2020).

The proposed research model can be seen in Figure 1.

Figure 1. Research model.



4.2 Theoretical background and hypotheses

4.2.1 Psychological capital

Psychological capital is a psychological capacity or resource that has its origin in positive organizational behavior (POB) (Luthans & Youssef, 2007), defined as "the study and application of positively oriented psychological capacities that can be measured, developed and effectively managed to improve work performance" (p.59) (Luthans, 2002). Such malleability of PsyCap components makes enables their development (Luthans et al., 2007), thus positioning it as a goal-oriented motivational and cognitive construct at work that can efficiently contribute to organizational productivity and profitability (Luthans et al., 2015). PsyCap is defined as the positive psychological state of an individual's development that is characterized by (a) self-efficacy: having confidence and making the necessary effort to overcome challenging tasks, (b) optimism: positively evaluating the possibility of success in the present and in the future, (c) hope: persevering toward goals and redirecting paths to success if necessary, and (d) resilience: recovering and sustaining – and even beyond – to achieve success when faced with problems and adversity (Luthans et al., 2015). Due to a synergy between the dimensions self-efficacy, optimism, hope, and resilience, the motivational effects resulting from each of the components converge in a greater impact on performance than would be the result for each dimension individually (Luthans et al., 2015). On the other hand, employees with a high level of PsyCap obtain the necessary motivation and energy to achieve high performance over long periods of time, in addition to a higher probability of success in their tasks (Avey et al., 2011). PsyCap is a construct under constant

study by the academic world, and has been related to attitudes, behaviors, and different types of work outcomes such as employee performance (Luthans et al., 2015; Ngo, 2021; Rabenu et al., 2017), job satisfaction (Abbas & Raja, 2015; Cizrelioğullan & Babayiğit, 2022; Paliga et al., 2022), organizational commitment (Nguyen & Ngo, 2020; Tang et al., 2019), innovative behavior (Abbas & Raja, 2015; Adikara & Soetjipto, 2021; Sun & Huang, 2019), and inversely related to turnover intentions (Arora & Dhiman, 2020; Ozturk & Karatepe, 2019; Wen, 2020), job stress (Abbas & Raja, 2015; Demir, 2018) or absenteeism (Bouzari & Karatepe, 2017; Karatepe & Karadas, 2014).

4.2.2 PsyCap and innovative work behavior

Innovation research by academics has increased over the last half century, as it is considered a fundamental part of economic and human development. Contributing to the innovative effort by organizations is essential in a competitive and global marketplace where uncertainty and changing market needs are part of everyday life (de Jong & den Hartog, 2007; Dodgson et al., 2005). This capacity to innovate is delegated to the organization's human capital, whose intentional actions will generate, promote, and implement ideas within a job role, group, or organization, in order to improve the performance of the role, group, or organization (Janssen, 2000). This ability to innovate was conceptualized as innovative work behavior or IWB, originally conceived by West and Farr (1990) and Scott and Bruce (1994). The IWB has given rise to multiple studies establishing several stages through which ideas are generated and subsequently implemented. Most of the studies conducted have considered three stages (Al-Omari et al., 2019; Muchiri et al., 2020): i) idea generation, ii) idea promotion and iii) idea implementation. However, authors advise unifying the measure into a single unidimensional construct (Scott & Bruce, 1994; Janssen, 2000; Kleysen & Street; 2001). At the individual level of analysis, there is a wide variety of factors that influence IWB (e.g., Anderson et al., 2014; Dzieńdziora et al., 2022; Nguyen, 2023; Nguyen & McGuirk, 2022; Rattanawichai et al., 2022; Salam, & Senin, 2022), associated by literature into internal factors and external factors. One of the internal factors and its relationship with innovation that have been studied most in recent years is the employee´s PsyCap. The first study in this regard was conducted by Sweetman et al. (2011), investigating the relationship between PsyCap and creative performance. Although this creative performance is related to IWB, it only reflects the creative or idea-generating stage of innovative behavior. Thus, the first study where the actual relationship between PsyCap and IWB was investigated, is the one conducted by Wojtczuk-Turek (2012). Here, the positive and significant relationship between both constructs and their dimensions was demonstrated, which was a starting point

for the research community, confirming such relationship (Gupta & Singh, 2014; Nwanzu & Babalola, 2019; Paul & Devi, 2018). The synergy of PsyCap components would facilitate the development of the different stages of IWB by employees (Wojtczuk-Turek, 2012), based on a cognitive and agentic capacity that represents "a positive evaluation of circumstances and the likelihood of success with motivated effort and perseverance" (Luthans, Avolio et al., 2007, p. 550). Self-efficacy, the first dimension of PsyCap, would be related to the perception of one's competence in a specific task and its successful performance, which could lead to undertaking more challenging and innovative activities (Rego et al., 2012). Optimism, the second component, is defined as the positive attribution regarding current and future success, which would entail a perception of positive expectations about new ways of doing things and the search for innovative ideas and solutions (Jafri, 2012). Hope, the third dimension, driven by an agentic capacity, induces to explore goals and seek alternative paths when obstacles arise, using creativity and innovation in the process (Rego et al., 2009). Finally, the resilience component would be related to an energetic and enthusiastic attitude in life, based on overcoming and recovering from difficulties, implying openness to change and new experiences that involve new ideas (Tugade et al., 2004). In short, putting into practice the phases of idea generation and implementation, of which the IWB consists, would be favored by employees with high PsyCap because they possess an agentic and motivational capacity through which: i) they trust their own competencies to develop challenging ideas and proposals, ii) they consider that their actions will be successful in the future, iii) they seek alternative paths to achieve their innovative goals if they encounter difficulties, and iv) they recover and overcome in the face of failures (Sameer, 2018). Thus, following the above considerations and the recent interest by researchers and practitioners about a greater understanding of the relationship between PsyCap and employees' IWB, we propose that:

H1: Employees' psychological capital will be positively related to innovative work behavior.

4.2.3 JD-R model and its relationship with the IWB

The JD-R theory is considered a job design theory that unites and synthesizes several theoretical perspectives on job stress and motivation (Bakker et al., 2023). In this sense, such theory has been used as a framework to study the underlying psychological processes that job resources, personal resources, and job demands provide in the occurrence of WE and the consequent impact on outcomes and behaviors in organizations (Bakker et al., 2023). Job resources (such as JA) would be the "physical, social, or organizational aspects that can (a)

reduce job demands and associated physiological and psychological costs; (b) facilitate the achievement of work goals; or (c) stimulate growth, learning, and personal development" (Bakker, 2011, p. 266). As for personal resources (such as PsyCap), they would be "positive self-evaluations linked to resilience and the ability to have an impact on the environment based on motivation and goal setting" (Bakker, 2011, p. 266). The JD-R model is divided into two processes, the first referring to the deterioration of health due to job demands that require physical and/or psychological efforts causing stress, strain, and burnout, and the second referring to a motivational process, activated by job and personal resources that independently or combined predict WE, in turn impacting performance (Bakker & Demerouti, 2008) and other desired work outcomes, such as IWB (Agarwal, 2014). To better explain the dynamics between WE and IWB, Kwon and Kim (2020) refined the original JD-R model by demonstrating the interaction between demands and resources that can influence employees' IWB. This new framework no longer relates IWB as an extra-role performance at work, as done in the original JD-R framework, but rather makes it independent as a stand-alone construct. In this regard, the authors recommend increasing research on this new category of IWB and its inclusion as an outcome in such a framework (Kwon & Kim, 2020). In addition to the inclusion of IWB as an outcome, the integration of several theories into the JD-R framework, such as resource conservation theory or COR, has been studied in the last two decades (Hobfoll et al., 2018). In the present research, in addition to the JD-R theoretical framework, we will also apply the COR theory for a better understanding and study of the proposed model. The COR theory (Hobfoll et al., 2018) suggests that individuals attempt to obtain, accumulate, conserve, and protect their resources to shield themselves from unfavorable outcomes, reinforcing each other and creating resource gain cycles (Chen et al., 2015; Salanova et al., 2010). Such resources are used to meet job demands and obtain favorable outcomes, with the loss or gain of resources triggering employees' motivation to adopt certain behaviors at work that help avoid losses or accumulate new resources (Hobfoll et al., 2018). People who possess more resources tend to conserve them and obtain new resources more easily than people who possess fewer resources (Wheeler et al., 2012). They are also able to create resource caravans and generate positive outcomes such as well-being (Xanthopoulou et al., 2007). These resources can be social, obtained from the contexts where the individual operates, or personal, i.e., intrinsic to the individual (Hobfoll et al., 2018). Already some years ago, Xanthopoulou et al. (2007) claimed that there were commonalities between the COR theory and the JD-R model. Currently, the JD-R theory has proposed, among others, the integration of the COR theory into its model for a better understanding of employee well-being and performance (Bakker et al., 2023). In this research, for a better fit

in both theories, the IWB facilitating factors under study – internal factor (PsyCap) and external factor (JA) – will be referred to as resources. The internal factor PsyCap as a personal resource and the external factor JA as a job resource will be explored to increase the knowledge of their influence on WE, and the consequent impact on IWB. WE has been extensively investigated as a predictor of job performance through employee well-being within the JD-R model (Bakker et al., 2023), and recently proposed as a driver of IWB, due to the interplay between demands and resources, and the buffering and coping mechanisms that the JD-R framework provides (Kwon & Kim, 2020).

4.2.3.1 PsyCap and job autonomy as resources in the motivational process

Following the COR theory, resources tend to appear cumulative rather than isolated, because access to certain resources can lead to the accumulation of additional resources in the so-called "earnings spiral". This accumulation and the possible interaction between job resources and personal resources could strengthen positive employee outcomes. In this regard, the extension of the JD-R model by Xanthopoulou et al. (2007) showed that job resources and personal resources could relate to each other and enhance organizational outcomes. Moreover, employees may use one type of resource to conserve or enhance another resource (ten Brummelhuis & Bakker, 2012), so that both job resources could increase personal resources and, conversely, compensate and enhance each other (Hobfoll et al., 2018). Although there have been previous studies from which different job resources (e.g., trust in supervisor, leader-member exchange, job autonomy, learning organization) and personal resources (e.g., self-leadership), as well as their relationship with IWB through employee WE were investigated, none of them have been framed within the JD-R theoretical framework, according to Kwon and Kim's (2020) integrative literature review, except for the study by Agarwal (2014), where the relationship of perceived organizational support and leader-member exchange job resources with IWB through WE mediation was studied, using that framework. According to the literature reviewed, only two articles have investigated the relationship of PsyCap and JA with WE under the JD-R theory, even though they have not studied the subsequent impact on IWB. In the study by Mazzetti et al. (2016), the mediation of PsyCap on the relationship between job resources (autonomy and co-workers' support) and WE, was total. On the other hand, in the study by Syahnaz (2019), only the correlation of the PsyCap, JA, and WE variables was studied, all of them being positive and significant. In this sense, our study aims to fill the gap and increase knowledge regarding the relationship between WE and IWB when PsyCap and JA resources are combined under the JD-R framework, extended by Kwon and Kim (2020), and the integration of the COR theory.

These resources would succeed in generating a gain spiral, augmenting and enhancing each other, thus positively influencing the outcomes, in our case WE and its subsequent impact on IWB.

4.2.3.2 PsyCap as a personal resource

PsyCap is a higher-order core construct that combines the motivational mechanisms that self-efficacy, optimism, hope, and resilience have in common (Luthans, Youssef & Avolio, 2007). These resources do not act independently, but provide mutual feedback through a shared mechanism, which is why it is advisable to study PsyCap together (Luthans, Youssef & Avolio, 2007). Consistent with the COR theory, the four components of PsyCap would generate a "gain spiral", thus enhancing the predictive power of the construct (Luthans, Avolio et al., 2007). Moreover, employees who possess a high PsyCap will not only strive to keep it, but will try to accumulate and generate more resources by creating resource caravans (Xanthopoulou et al., 2007), as argued by the COR theory. A high PsyCap could even compensate for the absence of job resources (Sweetman et al., 2011). PsyCap has been studied as a personal resource in several studies using the JD-R (e.g., Adil & Kamal, 2020; Grover et al., 2018; Wirawan et al., 2020) and COR theories (e.g., Carmona-Halty et al., 2019; Karatepe & Karadas, 2014; Newman et al., 2018), relating to desirable outcomes and positively affecting attitudes and behaviors at work (Avey et al., 2011). Thus, PsyCap as a personal resource is considered a good predictor of WE (Chen, 2015; Paek et al., 2015; Niswaty et al., 2021; Wirawan et al., 2020), favored by the energy and positive emotions generated from the motivational process (Bakker & Demerouti, 2008; Fredrickson & Joiner 2002), derived from the synergy of its four components (Luthans & Youssef-Morgan, 2017). In addition, several studies have positively and significantly related PsyCap to IWB (e.g., Nwanzu & Babalola, 2019; Ghafoor & Haar, 2021), and twice, this relationship has been studied from WE mediation under the JD-R framework. In Bayona's master thesis (2019), WE did not mediate the relationship between PsyCap and IWB, whereas it did in Verhagen et al.'s (2016) study. The study by Baharudin (2022) also confirmed WE mediation of the relationship between PsyCap and IWB, although he did not frame his study in the JD-R theory. Ultimately, our research would increase knowledge by addressing the relationship between PsyCap and WE variables, in addition to studying their impact on IWB using the COR theory and the JD-R framework, extended by Kwon and Kim (2020).

4.2.3.3 WE as an antecedent of IWB

To compete effectively, the labor market needs employees who invest energy and are proactive and committed to their work (Leiter & Bakker, 2010). This commitment to the work activity was developed by Schaufeli et al. (2002), based on the idea of Kahn (1990), and called "work engagement". Suggested as a "persistent and generalized affective-cognitive mental state, not focused on any particular individual, object or event" (Schaufeli et al., 2002, p.74), it is characterized by a high level of energy and a strong identification with work (Schaufeli & Bakker, 2010). It was defined as an active and positive work-related state, characterized by vigor (behavioral-energetic component), dedication (emotional component), and absorption (cognitive component) (Schaufeli & Bakker, 2010). In this sense, vigor would entail high levels of energy and resilience at work, in addition to the willingness to invest effort in the face of difficulties. Dedication would be related to involvement in the professional activity and the meaning, enthusiasm, pride, and challenge that it can bring. Finally, absorption would entail a total concentration on the job that would entail the loss of the notion of time (Schaufeli & Bakker, 2010). Employees with high levels of WE provide higher job performance (Motyka, 2018; Neuber et al., 2021; Park et al., 2022), possess better health and work ability (Mazzetti et al., 2021; van Dorssen-Boog et al., 2021), higher ratings in intra- and extra-role behaviors (Gupta & Sharma, 2018; Peláez Zuberbühler et al., 2021), as well as more creative and innovative behaviors (Aboramadan et al., 2022; Alfes et al., 2013; Bannay et al., 2020; Demerouti et al., 2015). Thus, WE is related to desirable behaviors at work, among which we find IWB. According to Kwon and Kim (2020), the synergy between the cognitive, emotional, and physical components of WE and IWB in the three dimensions of both constructs would relate separately and collectively as follows: (i) the cognitive component (absorption) will be linked with idea generation, due to the need for combination with unconventional structures (first stage), (ii) the emotional component (dedication) will be linked with idea promotion and persuasion to stakeholders to get their support (second stage), and (iii) the behavioral-energetic component (vigor) will be linked with idea implementation to manage exhaustion in the face of complexity and lack of adequate structures in the organization (third stage). The relationship between WE and IWB has been studied in recent years (Baharudin, 2022; Bayona, 2019; Verhagen et al., 2016), although not always under the JD-R theoretical model, as we can verify in the recent integrative review by Kwon and Kim (2020) and the meta-analysis by Sari et al. (2021). In our research, we will study the relationship between WE and IWB under such theoretical framework, as it provides a motivational context of great empirical evidence that integrates

antecedents and consequences of WE, and the dynamics between these variables. Thus, and due to the lack of studies incorporating IWB as an outcome in the JD-R framework, as well as the call of the scientific community to increase such knowledge (Bakker et al., 2023; Kwon & Kim, 2020), we hypothesize the following:

H2: Work engagement will mediate the relationship between PsyCap and employees' innovative behavior.

4.2.3.4 The moderating effect of job autonomy as a job resource

Interest in JA as a prominent factor of influence in various theories of human behavior in organizations has been continuous over the past half century (Muecke & Iseke, 2019). Defined as "the degree to which the job provides the individual with freedom, independence, and discretion to schedule work and determine the procedures to be used to accomplish it" (Hackman & Oldham, 1976, p. 258), JA enables employees to act in accordance with their goals, interests, and values (Graves & Luciano, 2013). The multidimensional nature of JA which, from its multiple definitions, is presupposed to the construct, has led to a diversity in the number of conceptualizations, predictive qualities and, consequently, tools for its measurement (e.g., Morgeson & Humphrey, 2006; de Spiegelaere et al., 2016). Researchers generally recognize JA as a multidimensional and multifaceted construct (Khoshnaw & Alavi, 2020) which is positively related to motivation (Malinowska et al., 2018), job satisfaction (Mustafa et al., 2020; Saragih, 2015), employee well-being (Clausen et al., 2022; Yang & Zhao, 2018), job performance (Khoshnaw & Alavi, 2020; Nielsen et al., 2017), WE (Malinowska et al., 2018; Sung et al., 2022), and safety outcomes (Nahrgang et al., 2011), and negatively with turnover (Hayes et al., 2012; Pagdonsolan et al., 2020) and organizational cynicism (Shaharruddin, 2017; Shaharruddin & Ahmad, 2016), among others. Nevertheless, and even with strong evidence of positive work outcomes, some researchers have found that JA can be detrimental in some situations, especially when job demands are high or when employees do not feel the need for such autonomy (Kubicek et al., 2017). JA has been studied by the scientific community under different perspectives and theories, including the job characteristics model (Hackman & Oldham, 1976) or the self-determination theory (Ryan & Deci, 2017). Employee perception of JA, and its adequate protection and accumulation as a job resource, would be in line with the COR theory (Hobfoll et al., 2018), prompting employees to manage their routines and avoid negative work-related outcomes. In the JD-R model (Bakker et al., 2023), an increase in JA would stimulate effective coping skills, in addition to the ability to obtain new resources and compensate for job demands,

resulting in greater psychological well-being (Bakker et al., 2023; Bakker & Demerouti, 2008;). In general, JA fosters employee commitment and motivation, leading to high job responsibility (Hackman & Oldham, 1976), thus contributing to higher WE. Such positive relationship has been confirmed in several studies (Malinowska et al., 2018; Nielsen et al., 2017; Sung et al., 2022; van Dorssen-Boog et al., 2020), in addition to a longitudinal study where WE and JA reported a positive spiral, derived from a reciprocal relationship between both constructs (Llorens et al., 2007). On the other hand, JA is a factor that fosters employees' confidence and enthusiasm (Terason, 2018), which would also favor the emergence of the PsyCap motivational mechanism to achieve results in their daily work. Acquired responsibility for work goals, derived from autonomy in decision making, work scheduling, and the creation of procedures to get the job done, would be favored by the synergistic effect of self-efficacy, optimism, hope and resilience (Babar, 2019), thus confirming the positive relationship of JA with PsyCap (De Wee, 2020; Sameer et al., 2019). However, and although the relationship between JA and PsyCap (De Wee, 2020), and JA and WE (Sung et al., 2022), has been found to be positive in several studies, to date we have not found research addressing the moderating role of JA in the relationship between PsyCap and WE. Only the study by Syahnaz (2019) revealed a positive correlation between the three variables, although regression analyses were not conducted. Finally, and although our study does not investigate the relationship between JA and IWB, it is likely that employees with high JA are motivated to overcome challenges (Langfred & Moye, 2004) and feel free to use their cognitive resources to generate and implement new ideas, thus performing tasks in an innovative way (Cangialosi et al., 2020). In this sense, JA would have been identified as one of the main antecedents of IWB (de Spiegelaere et al., 2016; Hammond et al., 2011, Nasution et al., 2021). Ultimately, we aim to increase knowledge regarding the relationship between PsyCap and WE when JA assumes a moderating role, under the COR theory and its integration into the JD-R framework. Thus, we expect that a high perception of JA will increase the relationship between employees' PsyCap and WE. A low perception of JA would lead to the opposite effect. Accordingly, we hypothesize that:

H3: Job autonomy will moderate the relationship between employees' psychological capital and work engagement: the stronger the relationship, the greater the job autonomy.

4.3 Method

4.3.1 Participants and Procedure

This study was carried out on a sample of 353 employees who were invited to participate in the study via various social networks using the Qualtrics online survey platform and the Prolific survey website for scientific studies. The questionnaire, which took approximately 15 minutes to complete, was addressed via a link to active employees, regardless of job title, task or function performed. A total of 273 usable questionnaires were returned (response rate = 77.3%). Of the total number of participants, 157 (57.5%) were female. The average age of all participants was 38 years (SD = 12.15). Of the total sample, 76% worked full-time, and 64% worked full-time on site. All participants provided the requested data after reading the informed consent form guaranteeing confidentiality, and voluntarily agreeing to participate in the study.

4.3.2 Measures

Psychological capital (PsyCap) was measured using the short Spanish 12-items version of the Psychological Capital Questionnaire (PCQ-12) (Avey, Avolio et al., 2011). This questionnaire, distributed by Mind Garden, Inc., contains four items to measure hope, three items to measure self-efficacy, three items to measure resilience, and two items to measure optimism[3]. Examples of items for each subscale are: optimism "I'm optimistic about what will happen to me in the future as it pertains to work"; hope "I can think of many ways to reach my current work goals"; resilience "I usually take stressful things at work in stride". Items were measured on a six-point Likert scale ranging from 1 "strongly disagree" to 6 "strongly agree".

Job Autonomy (JA) was assessed from a 9-items scale, developed by Morgeson and Humphrey (2006) and used in its Spanish version (Fernández Ríos et al., 2017). The job autonomy questionnaire consists of three subscales of the work design questionnaire: work method autonomy, decision-making autonomy, and work-scheduling autonomy. Sample items include: work method autonomy "The job allows me to decide on my own how to go about doing my work.", decision-making autonomy "The job allows me to make a lot of decisions on my own", work-scheduling autonomy "The job allows me to decide on the order in which things are done on the job". All items were measured on a five-point Likert scale type ranging from 1 "never" to 5 "always".

[3] We contacted Mind Garden to acquire the license and use the questionnaire in Spanish. We requested the number of questionnaires and the time of use. Free for research.

Work engagement (WE) was collected with the short version of the Utrecht Work Engagement Scale (UWES) in Spanish (Schaufeli, Salanova, et al., 2002). The 9 item-scale was composed of three dimensions: vigor, dedication, and absorption. Sample items include: vigor "In my work, I feel I have plenty of energy", dedication "My work is challenging", and absorption "Time flies when I am working". All items were measured on a seven-point Likert scale type ranging from 1 "never" to 7 "always".

Innovative work behavior (IWB) was assessed using a 9-item scale, developed by Janssen (2000) and used in its Spanish version (González et al., 2020). The IWB includes three different subscales: generation of ideas, promotion of ideas and realization of ideas. Respondents were asked to rate how often they adopt a series of innovative behaviors in their work. Sample items include: realization "How often do you transform your innovative ideas into useful applications for your work?", generation "How often do you generate new ideas for difficult issues?", promotion "How often are you acquiring approval for innovative ideas?". The items were measured on a five-point Likert scale type ranging from 1 "rarely" to 5 "often".

4.3.3 Data analysis

The present study was designed to test a series of moderated mediation hypotheses. The data were analyzed using the following procedures: first, descriptive analyses were performed and correlations were analyzed to see the relationship between the variables studied. Second, we examined the problem of common method bias using Harman's single factor test. Third, we conducted a confirmatory factor analysis (CFA) with the maximum likelihood estimation method of the AMOS 21.0 statistical software (Arbuckle, 2011) to examine the distinctiveness of the four variables in our model. Fourth and finally, we used model 4 of the macro script "PROCESS" version 3.5.3, developed by Hayes (2017) (SPSS companion program), to examine the mediating role of WE in the relationship between PsyCap and IWB, based on the bias-corrected percentile bootstrap method (10000 samples). Subsequently, we used model 7 of the macro script "PROCESS to examine the role of JA in our moderated mediation model.

4.4 Results

4.4.1 Descriptive Analyses

First, descriptive analysis was performed and internal consistencies (Cronbach's alpha) were analyzed for each of the study scales using IBM SPSS Statistics 22.0. Table 1

shows the means, standard deviations, and correlations between the study variables. Since the four variables were measured at the same time by the same source, we checked whether the matrix is affected by a common variance bias, in which case all the variables would be grouped into a single factor, using Harman's one-factor test (Podsakoff et al., 2003). The Harman's one-factor test showed that there are no problems of common method bias in the data of our study, since the total variance extracted by a factor is 35.56%, which is below the recommended threshold of 50%. Consequently, common method bias did not significantly distort the results of our study.

Table 1. Means, Standard Deviations, and Correlations

Variables	Mean	SD	1	2	3	4
1. PsyCap	4.46	.67	--			
2. JA	3.69	1.02	.48**	--		
3. WE	4.49	1.25	.61**	.30**	--	
4. IWB	3.26	.74	.52**	.32**	.48**	--

Note: N = 273. PsyCap = psychological capital; JA = job autonomy; WE = work engagement; IWB = innovative work behavior. **p < .01

4.4.2 Confirmatory Factor Analysis

Initially, we conducted a confirmatory factor analysis (CFA) with the maximum likelihood estimation method of AMOS 21.0 statistical software (Arbuckle, 2011), in order to examine the distinctiveness of the four variables in our model (i.e., psychological capital, job autonomy, work engagement and innovative work behavior). The results of the CFAs indicated that our four-factor model fits the data reasonably well, and significantly better than alternative, more parsimonious models (see Table 2). In the first, PsyCap and WE loaded on a single factor ($\Delta\chi2$ (0 gl) = 145.643). In the second model, PsyCap and JA loaded on a single factor ($\Delta\chi2$ (2 gl) = 324.048). In the third model, WE and JA loaded on a single factor ($\Delta\chi2$ (3 gl) = 633.062). Finally, the hypothesized four-factor model was compared with a single-factor model in which all independent variables loaded on a common factor ($\Delta\chi2$ (11 gl) = 1063.325). Thus, the results indicated that the four-factor model fits the data well, according to the recommended criteria (Hu & Bentler, 1999), and was better than any of the alternative models. Therefore, the four-factor model was retained.

Table 2. Fit indices for confirmatory factor analysis

Model	χ^2	df	$\Delta\chi^2$	Δdf	CFI	TLI	SRMR	RMSEA
Hypothesized model	1310.434	681	--	--	.920	.913	.0728	.058
Three factors: Combining PsyCap and WE	1456,077	681	145.643	0	.901	.893	.0965	.065
Three factors: Combining PsyCap and JA	1634,482	683	324.048	2	.879	.868	.1296	.072
Three factors: Combining WE and JA	1943,496	678	633.062	3	.839	.824	.1597	.083
One factor model	2373,759	670	1063.325	11	.783	.760	.1280	.097

Note: N = 273. JA = job autonomy; PsyCap = psychological capital; WE = work engagement; df. = degree of freedom; $\Delta\chi2$; $\chi2$ difference tests between the four-factor model and alternative models; CFI = Comparative Fit Index; TLI = Tucker Lewis Fit Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Square Residual.

4.4.3 Hypothesis Testing

To test our hypotheses, we use the macro script "PROCESS", version 3.5.3, developed by Hayes (2017). First, we will test hypotheses 1 and 2, i.e., the relationship between PsyCap and IWB, and the mediation of WE between PsyCap and IWB. In our case, we used 10,000 bootstrap samples (95 % CI). As can be seen in Table 3, the results showed that PsyCap was positively associated with IWB ($\beta = 0.429$, $t = 6.391$, $p < 0.001$), thus supporting hypothesis 1. In addition, PsyCap was positively associated with WE ($\beta = 1.118$, $t = 13.176$, $p < 0.001$), WE was positively associated with IWB ($\beta = 0.139$, $t = 3.701$, $p < 0.001$) and the indirect effect between PsyCap and IWB was significant [$\beta = 0.155$, 95% CI = (0.060, 0.249)]. The total effect (direct effect + indirect effect) of PsyCap on IWB across WE was also significant ($\beta = 0.584$, $t = 10.896$, $p < 0.001$). Therefore, our hypothesis 2 was supported. The statistically significant direct effect of PsyCap on IWB ($\beta = 0.429$, $p < 0.001$), once the WE mediator was included, supported partial mediation. Second, we examine the moderating role of JA. PsyCap was positively associated with WE ($\beta = 1.156$, $p < 0.001$) (see Table 4), and the interaction of PsyCap and JA played a significant role in WE [$\beta = 0.189$, 95% CI = (0.048, 0.330)]. The moderate mediation index (0.026) was significant [95% CI = (0.002, 0.059)], therefore, the indirect effect of PsyCap on IWB through WE was moderated by JA (see Table 5).

Additionally, the indirect conditional effect on the JA values was calculated at three levels, as can be seen in Table 6: a high one with a higher standard deviation (+1.02), the

mean value, and a low one with a lower standard deviation (−1.02). The results showed that, at high [effect = 0.187, CI 95%: (0.072, 0.308)], medium [effect = 0.161, CI 95%: (0.064, 0.259)] and low [effect = 0.134, CI 95%: (0.055, 0.219)] levels for JA, the conditional indirect effect between PsyCap and WE was significant, with the biggest effect at high levels of JA, as shown in Figure 2. These results support hypothesis 3. Due to the limited number of previous research regarding the possibility of a reciprocal relationship between PsyCap and WE (De Waal & Pienaar, 2013; Gupta & Shaheen, 2018), we decided to perform an additional analysis by testing an alternative moderated mediation model (i.e., WE - PsyCap - IWB, and JA as moderator). The results did not support this alternative model, due to the lack of moderate mediation [effect = 0.014, 95% CI: (-0.013, 0.035)].

Table 3. Mediating effect of work engagement in the relationship between PsyCap and innovative work behavior.

	β	**SE**	**t**	**p**	**LLCI**	**ULCI**
Direct Effects						
PsyCap-WE	1.118***	0.085	13.176	.000	0.951	1.284
WE-IWB	0.139***	0.037	3.701	.000	0.065	0.213
PsyCap-IWB	0.429***	0.067	6.391	.000	0.297	0.561
	Boot β	**Boot SE**			**LLCI**	**ULCI**
Indirect Effect						
PsyCap-WE-IWB	0.155***	0.048			0.060	0.249
	β	**SE**	**t**	**p**	**LLCI**	**ULCI**
Total Effect						
PsyCap-IWB	0.584***	0.054	10.896	.000	0.479	0.690

Notes: N=273. IWB = innovative work behavior; PsyCap = psychological capital; WE = work engagement. Bootstrap size = 10000, bootstrap confidence interval = 95%. LL, low limit; CI, confidence interval; UL, upper limit. *P<0.05, **P<0.01, ***P<0.001.

Table 4. Results of job autonomy moderate the mediation process.

	β	SE	t	p	LLCI	ULCI
Moderated mediation analysis						
Outcome variable: WE						
PsyCap	1.156***	0.098	11.753	.000	0.963	1.350
JA	0.038	0.068	.560	.576	-0.096	0.173
PsyCap x JA	0.189**	0.072	2.644	.009	0.048	0.330
Outcome variable: IWB						
PsyCap	0.429***	0.067	6.391	.000	0.297	0.561
WE	0.139***	0.038	3.701	.000	0.065	0.213

Notes: N=273. IWB = innovative work behavior; JA = job autonomy; PsyCap = psychological capital; WE = work engagement. Bootstrap size = 10000, bootstrap confidence interval = 95%. LL, low limit; CI, confidence interval; UL, upper limit. *P<0.05, **P<0.01, ***P<0.001.

Table 5. Index of moderated mediation.

Variables	Index	Boot SE	Boot LLCI	Boot ULCI
Job autonomy	0.026	0.015	0.002	0.059

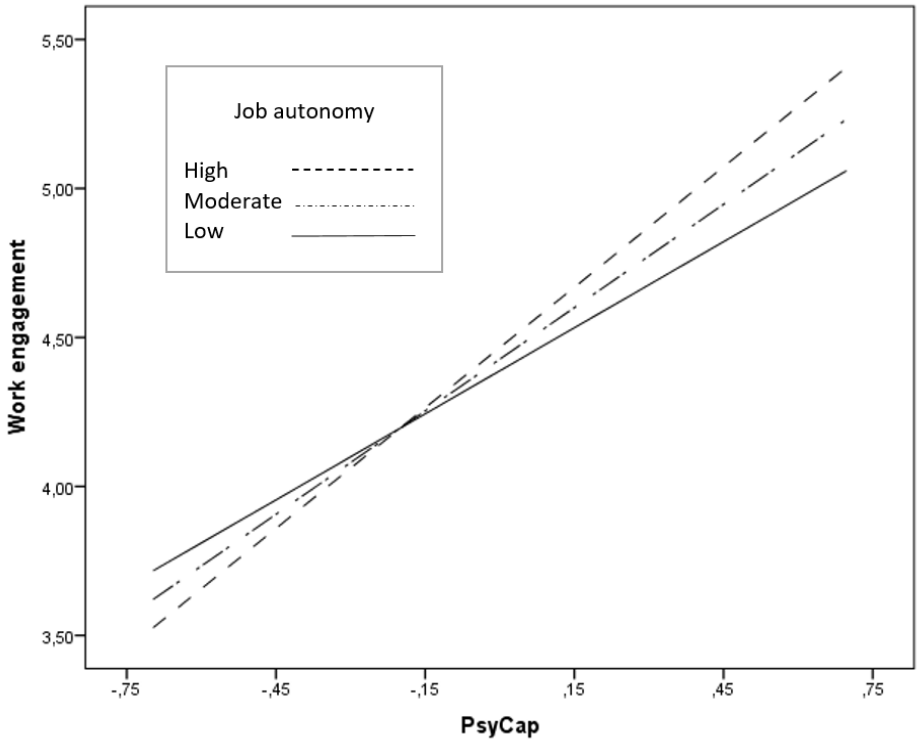
Notes: N=273. Bootstrap size = 10000, bootstrap confidence interval = 95%. LL, low limit; CI, confidence interval; UL, upper limit.

Table 6. Results for conditional indirect effect analysis.

Job autonomy	Effect	Boot SE	Boot LLCI	Boot ULCI
−1 SD (−1.02)	0.134	0.042	0.055	0.219
Mean	0.161	0.050	0.064	0.259
+1 SD (+1.02)	0.187	0.061	0.072	0.308

Bootstrap size = 10000. SD, standard deviation; LL, low limit; CI, confidence interval; UL, upper limit.

Figure 2. The moderation effect of job autonomy on PsyCap to work engagement.



4.5 Discussion

The current study examines the influence of PsyCap on employee IWB, as well as the mediating role of WE in the relationship. Moreover, the moderating role of JA between PsyCap and such WE was tested. The results confirmed that there is a positive relationship between PsyCap and IWB (confirming hypothesis 1), and that this relationship is partially mediated by WE (confirming hypothesis 2). In addition, the results show the moderating role of JA in the relationship between PsyCap and WE (confirming hypothesis 3), where the relationship is stronger when JA is higher. Consequently, when employees perceive greater JA, they develop WE more easily. From our results, we will present the theoretical and practical implications, as well as the limitations of our study and proposals for future research.

4.5.1 Theoretical Implications

The present research aims to contribute to the scientific literature that studies the internal and external factors, positively related to IWB, and the underlying motivational and attitudinal processes (Anderson et al., 2014; Battistelli, 2014). The present study is framed under the aforementioned JD-R theory, adapted from Kwon and Kim (2020), which aims to understand the existing relationship between WE and IWB, and to provide a motivational

context to study the relationship between demands, resources, buffering and coping, and their roles in such a framework. In addition, the COR theory has been integrated into such a theoretical framework (Kwon & Kim, 2020; Bakker et al., 2023), and from both theories, the present study investigated the relationships between PsyCap and JA resources, and their influence on employees' WE and IWB.

First, we provide evidence on the positive and significant relationship of employees' PsyCap on IWB. This result is consistent with the COR theory (Hobfoll et al., 2018), which suggests that individuals try to obtain, accumulate, conserve, and protect their resources – such as PsyCap – to obtain favorable outcomes, adopting certain behaviors at work – such as IWB – when they are highly motivated (Bayona, 2019). This behavior would help to avoid loss of previously acquired resources, as well as accumulate benefits or new resources, such as professional or personal development (Hobfoll et al., 2018; Xanthopoulou et al., 2007). Our results are consistent with previous studies (Nwanzu & Babalola, 2019; Paul & Devi, 2018; Sameer, 2018).

Second, the results support that PsyCap is related to IWB through WE. Thus, and under the JD-R and COR theoretical frameworks and Kwon and Kim's (2020) adaptation, we extend the knowledge of PsyCap's role in motivational processes directed toward IWB. Therefore, and focusing exclusively on the motivational process of the JD-R theoretical framework, the personal resource PsyCap would lead to the emerging of WE and the consequent impact on IWB. Also, under the COR theory, and compatible with the motivational process of the JD-R model (Xanthopoulou et al., 2007), the accumulation, retention, and utilization of the PsyCap personal resource by employees would relate to the desirable positive work outcomes of our study, WE and IWB. These results are also in line with previous studies. Chongvisal (2020) found that PsyCap and WE mediated the relationship between servant leadership and employees' IWB, and that PsyCap was strongly related to WE. The study by Verhagen et al. (2016) used the JD-R framework, and their hypothesis of WE mediating the relationship between PsyCap and IWB was accepted. The same framework was used by Bayona (2019), where the mediation hypothesis was rejected. In line with the study by Verhagen et al. (2016), our research demonstrates mediation, but furthermore does so under the extension of the JD-R framework and its inclusion of IWB, demonstrating how personal and job resources can go together and increase organizational outcomes (Xanthopoulou et al., 2007), related to innovation.

In this sense, and third and finally, and to fill the gap in the literature, our results provide evidence on the moderating effect of JA on the relationship between PsyCap and WE. This relationship will be stronger with higher perceived levels of JA, as hypothesized in hypothesis 3. Once again, and under the JD-R theoretical framework, the increase in JA would boost the ability to obtain new resources fostering the motivational component of PsyCap and contributing to a higher WE (Syahnaz, 2019). Thus, it is demonstrated how the interaction between the job resource JA and the personal resource PsyCap strengthens the relationship of PsyCap with WE, consequently improving work outcomes as argued by Xanthopoulou et al. (2007). Regarding the COR theory, the accumulation, preservation, and utilization of JA as a job resource and PsyCap as a personal resource would help employees obtain favorable work outcomes, reinforcing each other and creating resource gain cycles (Chen et al., 2015; Salanova et al., 2010). Nevertheless, and despite the fact that several studies show a positive relationship between JA and WE (de Spiegelaere et al., 2014; Sung et al., 2022; van Dorssen-Boog et al., 2020), this relationship was not significant in our study, although it was not hypothesized and does not impact on its effect as a moderator in the proposed model. Thus, both theoretical frameworks support our results and are consistent with multiple studies that confirm the positive moderating effect of JA on various favorable outcomes in organizations (Charoensukmongkol, 2022; Hall et al., 2006; Vui-Yee & Yen-Hwa, 2020). In light of the above, our results suggest that: i) the relationship between PsyCap and IWB is positive and significant, both directly as well as indirectly through WE, and ii) the relationship between employee's PsyCap and WE is stronger, the greater the moderating effect of employee JA.

In summary, this study extends the research, based on three theoretical contributions, derived from the results obtained. The first one would be the positive and significant relationship, found between PsyCap and IWB, the latter as a construct derived from several phases or stages and not assimilated to employee innovation variables such as creative performance, employee creativity, individual innovativeness, etc., that do not reflect the phases of such behavior (e.g., Bhatnagar, 2012; Eldor & Harpaz, 2016; Gomes et al., 2015). The second contribution, based on the adaptation of Kwon and Kim's (2020) JD-R model and its inclusion of the COR theory, would be the extension of knowledge of the PsyCap personal resource in motivational processes directed toward IWB, mediated by WE. Furthermore, our study provides evidence about the validity of Kwon and Kim's (2020) model and proves to be convincing when IWB is incorporated as an outcome. Still, and as the authors propose, further revisions and/or expansions of the model may be required for a comprehensive

understanding. Third and finally, we fill the gap in the literature by investigating the moderating role of the JA in the relationship between the employees' PsyCap and their WE. Its performance as a job resource would foster employee confidence and enthusiasm (Terason, 2018), triggering the PsyCap motivational mechanism to emerge and improving the relationship with the WE following the combination of both resources. This combination would also bring improved outcomes by mutual reinforcement. Therefore, our findings contribute to literature by increasing the understanding of the internal and external factors that facilitate IWB and the synergy between two theoretical frameworks that justify the process.

4.5.2 Practical Implications

Our findings provide important practical implications for fostering innovation in organizations. The adoption by management of innovation as a strategy that generates a competitive advantage must be sustained over time, arising from employees (Mitchell, 2015), and based on an organizational structure that knows how to embrace and develop it. In this sense, organizations should develop strategies and practices at the organizational and individual level to enhance IWB (Tang et al., 2019). At the organizational level, and to promote JA, management should empower employees and facilitate independence and flexibility for them to schedule their work and determine for themselves the procedures to follow for the successful execution of their tasks. However, the positive effects of JA depend on the balance of control, granted in its dimensions (autonomy in work method, autonomy in work scheduling and autonomy in decision making), the job demands and the individual and organizational factors that come into play. Implementing it involves studying each parameter and finding the right harmony (Kubicek et al., 2017). At the individual level, we consider it important to develop employees' positivity to favor their well-being and improve the organization's results. Training and capacity building are effective procedures to improve individual resources (Bakker & Demerouti, 2013); in this sense, we have positive interventions in psychological capital (PCI) which, from a series of "micro interventions" (duration between 1 and 3 hours), synergistically develop its four components by increasing levels, including through short online trainings (Luthans et al., 2008). These types of PsyCap interventions increase the positive psychological functioning of employees, consequently producing positive results within organizations (Luthans et al., 2014). The practices and trainings carried out should be accompanied by qualitative and/or quantitative monitoring by management in order to influence, modify, or exclude them, depending on the success of their results. Consequently, and according to the results of our study, the increase of JA by

organizations could activate the appearance of PsyCap in employees. In addition, and favored by periodic PsyCap trainings, they would increase their WE, due to the increase in their available "resource caravan", creating a positive work environment (Xanthopoulou et al., 2007). Thus, employees endowed with usable and accumulable resources will be able to effectively face challenges, participate in innovation processes that are difficult for competitors to imitate, create additional value, and contribute to the organization's development.

4.5.3 Limitations and Future Research Directions

The present research is not without limitations, and we suggest further studies for a better understanding of the constructs studied and the relationships between them. Our first limitation would be the collection of the sample from different organizations, both directly and through the Prolific web survey platform, which limits the results due to the lack of control of particular characteristics that the same organization might possess. Future studies could centralize the collection of the sample in specific organizations or measure whether certain particularities influence the results, and examine the differences between them. The second limitation would be related to the possible bias due to the common variance method, using self-report measures at a single measurement time, which could lead to certain biases such as single-source bias, non-objectivity of the responses, or social desirability. To avoid these distortions, we followed the recommendations of Podsakoff et al. (2003), guaranteeing the confidentiality of the participants, although the possibility of error is not ruled out completely. Similarly, we performed Harman's one-factor test, although this test only determines the degree to which common method bias could cause a problem (Aguirre-Urreta & Hu, 2019). Future studies should obtain data over different time periods and across multiple sources, such as coworkers, supervisors, or clients, from multilevel analysis designs (e.g., Battistelli, 2014). The third limitation of our study would be the use of data obtained cross-sectionally, and consequently the impossibility of establishing the direction of causality (Bono & McNamara, 2011). To minimize this limitation, we conducted an additional analysis to test the possibility of the reciprocal relationship between PsyCap and WE in an alternative moderated mediation model, which yielded a negative result. However, this analysis does not ensure the causal relationship derived from other alternative directions in the model. Future studies could use longitudinal methods with repeated observations, and experimental or quasi-experimental methods to establish directionality and allow causal interpretation. Finally, the sample was drawn from participants employed in companies, based in Spain, which does not favor generalization of the results. To obtain further empirical support for our

theoretical model, future studies could replicate the analyses in different cultures and populations. Despite all these limitations, our results show that the PsyCap and WE variables are positively related and that both may favor IWB. Moreover, employees' positive perception of JA reinforces their innovative behavior. Future studies could examine other contingent and/or contextual variables – not studied in our model – that could enhance the relationship between PsyCap and IWB.

4.6 Conclusion

This study provides evidence of the influence that personal resources and job resources have on IWB. In particular, the development of PsyCap would endow employees with the agentic and motivational capacity to develop innovative behavior. PsyCap training, oriented towards such behavior, could provide scientific evidence in this regard. In our model and under the JD-R and COR theoretical frameworks, WE is the attitudinal factor that partially mediates the PsyCap and IWB relationship. However, other work attitudes and revisions, or expansions of these theories, such as the one proposed by Kwon and Kim (2020) or by Bakker et al. (2023), could improve the PsyCap-IWB relationship, since both COR and JD-R were elaborated for stress coping and job performance respectively, and part of the scientific community remains unconvinced that both theoretical frameworks are adequate when incorporating IWB. Moreover, this study paves the way for further exploration of employees' perceptions of the different JA dimensions over which they exert less or more control, thus providing greater insight into the role of these dimensions in PsyCap activation. Ultimately, our study adds to the knowledge about the factors that drive employees' innovative behavior. This is considered a critical component for business excellence and competitiveness, a continuous and sustained innovation over time, which is driven by organizations for their transformation, and originates from their own human capital.

4.7 References

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CHAPTER 5

INNOVATIVE BEHAVIOR AT WORK ALLIES WITH POSITIVE PSYCHOLOGICAL CAPITAL: A THREE-WAVE INTERVENTION AND THE ROLE OF CONSIDERATION OF FUTURE CONSEQUENCES

Abstract

We uses the Conservation of Resources (COR) Theory as a theoretical framework of reference and proposes two studies with the aim of: 1) examining whether a high level of individual resource consideration of future consequences moderates the relationship between psychological capital (PsyCap) and innovative work behavior; and 2) verifying the effect of a psychological intervention of PsyCap (PCI) on the levels of PsyCap and innovative behavior of the employees – controlling the effects of consideration of future consequences – through a quasi-experimental design with three measurement points in time. The results of study 1 confirm the moderating effect of consideration of future consequences on the relationship between PsyCap and innovative work behavior, such that this relationship is stronger when the employee perceives higher levels of consideration of future consequences. The results of study 2 support partial efficacy of the intervention, since PsyCap levels increased after the intervention, but not the innovative behavior. Additionally, the intervention had significant and positive effects on autonomous work motivation and work engagement, since their levels increased after the intervention and remained high at the follow-up (3 months later). Regarding the theoretical and practical implications, it is suggested that: 1) the individual consideration of future consequences resource improves the innovative behavior of the employees; and 2) the PCI intervention is an effective tool to increase the PsyCap and also generates an improvement of autonomous work motivation and work engagement over time, considered relevant antecedents of the innovative work behavior. Suggestions for future research and limitations, present in our study, are put forward.

Keywords: psychological capital, innovative work behavior, consideration of future consequences, autonomous work motivation, work engagement, psychological intervention.

5.1 Introduction

The success of an organization in today's business environment derives from the competitive advantage, provided by innovation. The adaptation and flexibility that it brings to the constant changes in the market have made it a necessity, rather than an option (Anjum et al., 2023). Developed individually or collectively, innovation arises from employees and their behaviors, aimed at generating and implementing new ideas that benefit the organization. Therefore, the employee behavior management has received special attention in organizational psychology and, in this sense, innovative work behavior (IWB) is revealed as a necessary result in the business world, just as important as its study and knowledge by the scientific community. Supporting and promoting the innovative work behavior based on the development of human capital – defined as the set of competencies, personality traits, and cognitive abilities, capable of producing economic value (Sihag & Sarikwal, 2014) – should be crucial to challenge the constant changes in an increasingly global and competitive market (Gülbahar, 2017). Consequently, human capital becomes an important factor to take into account, especially since it is exclusive to the organization and cannot be easily imitated or acquired (Larson & Luthans, 2006), and investing in it ensures organizational success.

Derived from human capital, the concept of psychological capital (PsyCap) appears, a unique personal resource that improves the potential of employees and is made up of four psychological capacities: self-efficacy, resilience, hope, and optimism (Ngwenya & Pelser, 2020). High levels of PsyCap in employees increase agency and motivation, stimulate the search for challenges, and favor perseverance in the face of possible obstacles (Luthans et al., 2015). In this sense, the synergy of these capacities could result in a competitive advantage for those organizations that look to the future, contributing to the two stages of the innovative work behavior process: generation and implementation of an idea. The relationship between the PsyCap of employees and their innovative work behavior has been investigated in a recent systematic review (Blasco-Giner et al., 2023), demonstrating a positive and significant relationship in most of the studies that were carried out. This relationship can be explained through the conservation of resources (COR) theory (Hobfoll, 2018), which suggests that employees will be interested in accumulating, protecting, and using their resources – like PsyCap resources– to achieve favorable results from specific behaviors, directed, among others, at the generation and implementation of ideas that improve the achievement of organizational objectives (Ziyae et al., 2015).

In addition, the present study intends to go one step further by investigating the influence of time perspective on the relationship between PsyCap and innovative work behavior, specifically through the individual capacity to consider future consequences (Strathman et al., 1994). This individual willingness of employees would entail making certain concessions or sacrifices that are necessary in the present to challenge the "status quo" that innovation requires, but that would ultimately be of future benefit to the organization. To date, this individual consideration of future consequences has hardly been studied in work environments (Graso & Probst, 2012; Zhang et al., 2014). As far as we know, this research aims to be the first to verify the moderating effect of these expectations on the relationship between the PsyCap and the employee's innovative behavior. Thus, the present study suggests that the personal resources PsyCap and the consideration of future consequences could be related to the innovative behavior of the employees. In addition, and according to the COR theory, resources tend to appear accumulated rather than isolated, leading to an buildup of additional resources and generating a "profit spiral" to create a caravan of available resources (Xanthopoulou et al., 2007) that would mutually benefit from each other.

Because PsyCap is open to change and can be developed through training sessions or PCI (Psychological Capital Intervention) (Luthans et al., 2010), this study will present the results of an online intervention, intended to increase the PsyCap levels of the participants, and will check if said increase has a significant effect on the innovative work behavior levels. In addition, and since PsyCap has been related to innovative work behavior through the constructs work engagement (WE) (Bayona Goycochea, 2019) and autonomous work motivation (AWM) (Blasco-Giner et al., 2023), it was decided to also measure work engagement and autonomous work motivation to check whether the levels of both variables change after the intervention.

Therefore, and with the aim of contributing to the gaps detected in the existing literature, two studies will be carried out whose objectives are: 1) to study whether the consideration of future consequences moderates the relationship between the PsyCap and the employee's innovative behavior; and 2) verify the effect of a PCI intervention on the levels of PsyCap, innovative behavior, work engagement and autonomous motivation of the employees, through a quasi-experimental design with three measurement points in time (pre, post and follow-up).

5.2 Theoretical background and hypotheses

5.2.1 Innovative work behavior

Innovation at work contributes to success in organizations due to a greater ability to adapt to changes (Woodman, 2014). The most widely used definition of innovation comes from West and Farr (1990): "the voluntary introduction and implementation in a group or organization of innovative ideas and processes that are important to the unit in question to provide significant benefits to individuals, groups, organizations, and society" (p.9). This innovation can occur at the individual, team, organizational or multiple levels, reporting benefits at one or more of these levels of analysis (Anderson et al, 2014). At the individual level, research on innovation has focused on individual innovation behavior, becoming one of the most important aspects for the emergence of innovation at work (Paul & Devi, 2018).

Thus, innovative work behavior refers to the creation and application of new ideas within an organization (Janssen, 2000) and is considered a desirable behavior for organizations. Following most of the authors, the innovative work behavior is divided into two main stages, one derived from the generation of the idea as an individual process, and the other derived from the implementation of the idea as a social process where others participate and accept it idea (Axtell et al., 2000; Patterson, 2002). However, the empirical distinction of the stages proposed by the authors has not been successful due to the high correlation of the dimensions (Bos-Nehles et al., 2017), so it is advisable to use the unique construction of innovative work behavior (Botha & Steyn, 2020). Finally, and at the individual level of analysis, the antecedents that enable the appearance of innovative work behavior would be a combination of internal and external factors, distinguishing among the former the PsyCap of the employees, as demonstrated by several studies (e.g., Adikara & Soetjipto, 2021; Sun & Huang, 2019). Various authors proposed to deepen the relationship between the PsyCap of employees and their innovative work behavior, studying the factors that may favor it (e.g., Li & Zheng, 2014; Sartori et al., 2017), and this is the aim of this study.

5.2.2 The relationship between PsyCap and innovative work behavior

First, PsyCap is defined as "an individual's state of positive psychological development that is characterized by (1) having the confidence (self-efficacy) to take on and exert the effort, necessary to succeed in challenging tasks; (2) making a positive attribution (optimism) regarding being successful now and in the future; (3) persevering toward goals and, when necessary, redirecting paths toward them (hope) in order to succeed; and (4) when beset by problems and adversity, sustain and recover, and even beyond (resilience) to achieve success" (Luthans, Youssef & Avolio, 2007, p. 3). These four PsyCap capacities act

synergistically, based on a “positive assessment of the circumstances and the probability of success based on motivated effort and perseverance” (Luthans et al., 2007, p. 550). The sum of these attitudinal and cognitive capacities acts as a central construct that is positively related to attitudes, behaviors, and positive work results. Specifically, and among others, it is positively related to performance and well-being at work (Imran & Shahnawaz, 2020), job satisfaction (Alshebami, 2021), organizational commitment (Nguyen & Ngo, 2020), or innovative behavior (Ghafoor & Haar, 2021), and negatively with turnover intentions (Arora & Dhiman, 2020) or stress (Demir, 2018).

Secondly, and in relation to PsyCap's relationship with innovative work behavior, PsyCap's agency stimulates intentionality in action, providing a sense of control and a motivated effort (Luthans et al., 2015), directed toward goals. Thus, and according to Bandura (2018), agency is the ability of individuals to make decisions and control behaviors through intentional activity, directed at goals or objectives. In this sense, and as a motivational construct, Psycap promotes a series of attitudes and behaviors, including innovative work behavior, based on the synergistic performance of its four capacities in the following way: (1) self-efficacy acts as the employee's own self-confidence as a generator of ideas, with the ability to obtain both internal and external support to implement them; (2) optimism helps with a positive expectation of the future and an explanatory style, adapted to the circumstances in the two stages of innovative work behavior; (3) hope acts with the agency as a motivational mechanism and with the search for alternative paths if setbacks arise to achieve innovative goals and, lastly; (4) resilience makes it easier for employees to generate and implement ideas in difficult or stressful circumstances, due to the capacity to adapt in adverse circumstances (Chan, 2015). In short, innovative work behavior would be favored in employees with a high PsyCap, due to an agency and motivational capacity oriented toward future goals that improve the processes, products or services that are developed in the organizations.

5.2.3 Consideration of future consequences as a moderator

Based on the concept of future time perspective (Kastenbaum, 1961), Strathman et al. (1994) developed a construct that captures a particular aspect of temporality, the degree of consideration of the future consequences derived from present behaviors (CFC). Thus, this expectation refers to "the extent to which individuals consider the distant possible outcomes of their behaviors in the present and the extent to which they are influenced by these possible outcomes" (Strathman et al., 1994, p. 743). The consideration of the future consequences has

been considered a relatively stable and measurable personal characteristic, although various factors could influence its variability over time (Toepoel, 2010). The CFC scale developed by Strathman et al. (1994) measures a construct that captures the tendency of people to project themselves into the future from the present moment, in order to achieve the desired goals. This scale – considered unidimensional by its authors – gradually gave way to different studies (Joireman et al., 2008; Petrocelli, 2003; Rappange, 2009) that considered that a solution of multiple underlying factors is more appropriate.

In general, a two-factor model is the most accepted, composed of a combination of two temporal views: CFC-future (CFC-F) and CFC-immediate (CFC-I). Thus, individuals with high scores on the CFC-future subscale consider future results and forego short-term rewards, in contrast to high scores on the CFC-immediate subscale being associated with less consideration of future results and the preference for immediate benefits. Thus, and depending on a greater personal preference for future or present interests, individuals will adopt behaviors that will benefit one of them, sacrificing the other. In this sense, dividing the scale would make it possible to distinguish between two predictors, depending on the type of behavior involved (Bruderer, 2015). CFC-future is positively related to self-control (Joireman et al., 2008), health behaviors (Rappange et al., 2009), optimism and positive affect (Geers et al., 2010), self-efficacy (Charlton et al., 2011), transformational leadership behaviors and leader effectiveness (Zhang et al., 2014), or job performance (Graso & Probst, 2012), among others. The CFC-immediate subscale is related to higher probabilities of smoking (Adams, 2012), greater hostility and impulsivity (Joireman et al., 2003), or credit debt behaviors (Joireman et al., 2010). These findings provide empirical support for the distinction between the two CFC subscales. On the other hand, focusing the present study on future orientation, and according to the results of the research by Joireman et al. (2006), having a high CFC-future orientation will produce more positive behavior when the individual believes that there are long-term beneficial results – due to receiving more consideration from the organization – as would be the case with innovation. In addition, this subscale of the future goal-oriented CFC construct – or CFC-future – in the pursuit of a desired outcome could be related to PsyCap's agency capacity. PsyCap's intentionality in action and sense of control, coupled with a high bias toward future outcomes derived from present behaviors, could impact individual attitudes and behaviors. Employees need additional cognitive effort to generate ideas to improve processes, products, or services, as well as to challenge the status quo and overcome resistance to proposed new initiatives (Kwon & Kim, 2020). In addition, innovative work behavior process needs an adequate time frame to generate, promote,

discuss, and experiment with ideas (Jansen et al., 2009). Thus, employees with high CFC-future would be more likely to sacrifice interests in the present and take on short-term costs for future benefit (Zhang et al., 2014). Ultimately, employees with high CFC-future, due to personal willingness for future interests from which they can benefit, and from the intentional activity of their own PsyCap, will be able to overcome resistance to innovation more easily. With this in mind, the following hypothesis is put forward:

H1: CFC-future will moderate the relationship between employee PsyCap and innovative work behavior: the stronger the CFC-future, the stronger the relationship between PsyCap and innovative work behavior.

5.2.4 Psychological capital development interventions

Luthans, Youssef & Avolio (2007) conceptualized PsyCap as a malleable state-like psychological resource and empirically demonstrated that it can be developed. Numerous studies have confirmed this, based on the Psychological Capital Intervention (PCI) model (Luthans et al., 2007), implemented through interventions in person or via the web (Luthans et al., 2008). These interventions are designed to develop the four PsyCap capacities jointly and synergistically, so that they are reinforced and complemented in learning sessions based on a series of activities (Luthans et al., 2015). A high percentage of professionals and/or academics have replicated the PCI model, and most of the studies carried out report an increase in PsyCap – to a greater or lesser extent – in addition to a durability of the intervention effects between 2 weeks and 6 months (Salanova & Ortega-Maldonado, 2019). Furthermore, the versatility of this type of micro-intervention in time and form (1 or 2 sessions between 1 and 4 hours long) provides good adaptation and profitability for organizations. Although PCI interventions are designed with the aim of increasing the level of PsyCap, some research has also reported benefits in performance, satisfaction, happiness, and work engagement, as reflected in the review by Salanova and Ortega-Maldonado (2019). However, to our knowledge, there is no research exploring the development of an intervention in PsyCap and its impact on innovative work behavior. The present investigation intends to fill this gap in literature and verify whether the effect of a PCI intervention, directed at innovative work behavior of the employees, increases the levels of both variables. In this sense, the essence of the original PCI design by Luthans et al. (2006) was preserved, but the approach was modified to direct it toward the achievement of goals and objectives that favored the generation and implementation of ideas at work, that is, innovative work behavior (point 6.c describes in detail the intervention process addressing innovative work

behavior). Finally, and thanks to the positive state of mind and the synergy of the four capacities of PsyCap, it has been related to the most self-determined motivational states (e.g., autonomous work motivation), as well as to high energy levels and strong identification with work (i.e., work engagement). These motivational attitudes (autonomous work motivation and work engagement) would foster interest in adopting discretionary behaviors at work, including the innovative work behavior. In this sense, both autonomous work motivation and work engagement constructs have been confirmed as mediators in the relationship between PsyCap and innovative work behavior (Bayona, 2019; Blasco-Giner et al., 2023), so it was decided to measure the effect of the intervention on both variables. This will make it possible to check if the levels of the participants have changed after the intervention. Finally, the influence of the CFC-future levels (at T1 or PRE) in the analyses of study 2 will be controlled if study 1 confirms hypothesis 1. Consequently, it is expected that:

H2: Participants' levels of PsyCap will increase after the intervention (POST) compared to their baseline levels (PRE) and compared to the control group, after controlling for the effects of CFC-future.

H3: Participants' levels of innovative work behavior will increase after the intervention (POST) compared to their baseline levels (PRE) and compared to the control group, after controlling for the effects of CFC-future.

H4: Participants' levels of autonomous work motivation will increase after the intervention (POST) compared to their baseline levels (PRE) and compared to the control group, after controlling for the effects of CFC-future.

H5: Participants' levels of work engagement will increase after the intervention (POST) compared to their baseline levels (PRE) and compared to the control group, after controlling for the effects of CFC-future.

H6: Participants' levels of PsyCap (H6a), innovative work behavior (H6b), autonomous work motivation (H6c) and work engagement (H6d) will remain higher at Follow-Up (FUP), compared to PRE-intervention, after controlling for the effects of CFC-future.

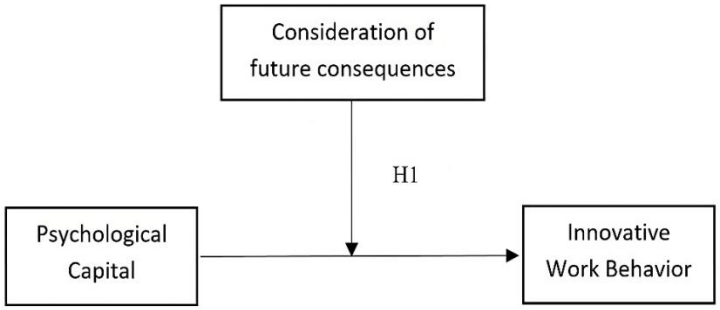
Two studies have been carried out to verify the proposed hypotheses. The objective of study 1 is to verify if the relationship between the PsyCap and innovative behavior of the employees is moderated by the CFC-future, something that has not been studied to date. The objective of study 2 is to examine whether, through the application of a PCI directed to

innovative work behavior, the levels of the PsyCap, innovative work behavior, autonomous work motivation, and work engagement of the participants have increased.

5.3 Study 1: Method

The first study has a cross-sectional design and is expected to verify that the CFC-F moderates the relationship between the PsyCap and the IWB of the employees. The model for Study 1 is shown in Figure 1.

Figure 1: Research model.



5.3.1 Participants and procedure

This study was carried out on a sample of 205 Spanish employees who were invited to participate in the study via various social networks, using the Qualtrics online survey platform and the Prolific survey website for professional and scientific studies. The questionnaire, which took approximately 10 minutes to complete, was addressed to active employees via a link. A total of 152 usable questionnaires were returned (response rate = 74.1%). Out of the total number of participants, 85 (56%) were female. The average age of all participants was 36.6 years (SD = 9.7). Of the total sample, 81% worked full-time, and 52.6% worked full-time on site. All participants provided the requested data after reading the informed consent form guaranteeing confidentiality and voluntarily agreeing to participate in this study.

5.3.2 Measures

Psychological capital (PsyCap) was measured using the short Spanish 12-items version of the Psychological Capital Questionnaire (PCQ-12) (Avey, Avolio et al., 2011). This questionnaire, distributed by Mind Garden, Inc., contains four items to measure hope, three items to measure self-efficacy, three items to measure resilience, and two items to

measure optimism[4]. Examples of items for each subscale are: optimism "I'm optimistic about what will happen to me in the future as it pertains to work"; hope "I can think of many ways to reach my current work goals"; resilience "I usually take stressful things at work in stride". Items were measured on a six-point Likert scale ranging from 1 "strongly disagree" to 6 "strongly agree".

Innovative work behavior (IWB) was assessed using a 9-item scale, developed by Janssen (2000) and used in its Spanish version (González et al., 2020). The IWB includes three different subscales: generation of ideas, promotion of ideas and realization of ideas. Respondents were asked to rate how often they adopt a series of innovative behaviors in their work. Sample items include: realization "How often do you evaluate the utility of innovative ideas?"; generation "How often do you generate original solutions for problems?"; promotion "How often do you mobilize support for innovative ideas?". The items were measured on a five-point Likert-type scale ranging from 1 "rarely" to 5 "often".

Consideration of future consequences (CFC) was measured using the 3-item CFC-Future subscale (CFC-F), based on an ultra-short version CFC-6 developed by Vilar et al. (2020). The translation into Spanish was done by Vásquez-Echeverría (2018), from the original CFC-14 questionnaire by Joireman et al. (2012). The items used in this subscale are: "I consider how things may be in the future, and I try to influence those things with my behavior, day by day", "When I make a decision, I think about how it will affect me in the future" and, "In general, my behavior is influenced by the consequences it will have in the future". The items were measured on a seven-point Likert-type scale ranging from 1 "I do not identify at all" to 7 "I totally identify".

5.3.3 Data analysis

The present study was designed to test a series of hypotheses of relationship and moderation among three variables. The data were analyzed as follows: i) descriptive analyses and internal consistencies (Cronbach's alpha) were performed and correlations were analyzed to see the relationship between the variables studied, using IBM SPSS Statistics 22.0; ii) the problem of common method bias was examined using Harman's single-factor test; iii) a confirmatory factor analysis (CFA) with the maximum likelihood estimation method of the AMOS 21 statistical software (Arbuckle, 2016) was conducted to examine the distinctiveness

[4] We contacted Mind Garden to acquire the license and use the questionnaire in Spanish. We requested the number of questionnaires and the time of use. Free for research.

of the three variables in the proposed model; and iv) the model 1 of the macro script "PROCESS" version 3.5.3, developed by Hayes (2017) (SPSS companion program) was used to examine the moderating role of CFC-F in the relationship between PsyCap and IWB, based on the bias-corrected percentile bootstrap method (10000 samples).

5.4 Study 1: Results

5.4.1 Descriptive Analyses

The means, standard deviations, and correlations between the study variables and internal consistencies (Cronbach's alpha) are shown in Table 1. Since the three variables were measured at the same time by the same source, we checked whether the matrix is affected by a common variance bias, in which case all variables would be grouped into a single factor, using Harman's one-factor test (Podsakoff et al., 2003). The Harman's one-factor test showed that there are no problems of common method bias in the data of this study, since the total variance extracted by a factor is 36.57%, which is below the recommended threshold of 50%. Consequently, common method bias did not significantly distort the results of this study.

Table 1. Means, Standard Deviations, and Correlations.

Variables	Mean	SD	1	2	3
1. PsyCap	4.58	0.65	**0.86**		
2. IWB	3.34	0.67	0.63**	**0.89**	
3. CFC-F	4.87	1.16	0.42**	0.53**	**0.82**

Note: N = 152. CFC-F = Consideration Futures Consequences-Future; IWB = Innovative Work Behavior; PsyCap = Psychological Capital. Cronbach's Alphas are reported in bold on the diagonal. **p < .01

5.4.2 Confirmatory Factor Analysis

Initially, a Confirmatory Factor Analysis (CFA) was performed using the maximum likelihood estimation method of the AMOS 21.0 statistical software (Arbuckle, 2016) to examine the distinctiveness of the variables in the proposed model (i.e., psychological capital, innovative work behavior, and consideration of future consequences). As shown in Table 2, the results indicated that our three-factor model has a better fit than the more parsimonious alternative models. These alternative models are derived from all possible combinations of the variables examined, plus a one-factor model. In the first, IWB and CFC-F load on a single factor ($\Delta\chi2$ (0 gl) = 5.248). In the second model, PsyCap and CFC-F load on a single factor ($\Delta\chi2$ (0 gl) = 8.361). In the third model, PsyCap and IWB load on a single factor ($\Delta\chi2$ (0 gl)

= 90.839). Finally, the hypothesized three-factor model was compared with a common single-factor model (Δχ2 (-1 gl) = 69.712). Thus, the results indicated that the three-factor model fit the data well, according to the recommended criteria (Hu and Bentler, 1999), and was better than any of the alternative models. Therefore, the three-factor model was retained.

Table 2. Fit indices for Confirmatory Factor Analysis.

Model	χ^2	df	$\Delta\chi^2$	Δdf	CFI	SRMR	RMSEA	AIC
Hypothesized three-factor model	397.94	237			0.90	0.085	0.06	571.93
Two-factor model:								
Combining IWB and CFC-F	403.18	238	5.25	1	0.91	0.080	0.07	575.18
Combining PsyCap and CFC-F	406.30	238	8.36	1	0.90	0.089	0.07	578.30
Combining PsyCap and IWB	488.78	238	90.84	1	0.86	0.097	0.08	660.78
One-factor model	467.65	236	69.71	-1	0.87	0.089	0.08	643.65

Note: N = 152. CFC-F = Consideration Futures Consequences-Future; IWB = Innovative Work Behavior; PsyCap = Psychological Capital; df. = degree of freedom; Δχ2; χ2 difference tests between the three-factor model and alternative models; CFI = Comparative Fit Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Square Residual.

5.4.3 Hypothesis Testing

Hypothesis 1 was tested, applying the macro script "PROCESS" version 3.5.3, developed by Hayes (2017), and using a total of 10,000 bootstrap samples (95% CI). As we observed in Table 3, the results showed the confirmation of hypothesis 1 by verifying that the interaction of PsyCap and CFC-F plays an important role in IWB [β = 0.125, 95% CI = (0.023, 0.227)]. Furthermore, the conditional effect on the CFC-F values was calculated at three levels, as can be seen in Table 4: a high one with a higher standard deviation (+1.16), the mean value, and a low one with a lower standard deviation (-1.16). The results showed that at high [effect = 0.612, CI 95%: (0.443, 0.781)], medium [effect = 0.468, CI 95%: (0.339, 0.597)] and low [effect = 0.324, 95% CI 95%: (0.143, 0.504)] CFC-F levels, the conditional indirect effect between PsyCap and IWB was significant, with the biggest effect at high CFC-F levels, as shown in Figure 2. These results support Hypothesis 1. Due to the approach in literature regarding the possibility of a reciprocal relationship between IWB and PsyCap (Bak et al., 2022), we decided to perform an additional analysis by testing an alternative moderation model. (i.e., IWB - PsyCap, and CFC-F as moderator). The results did not support this alternative model, due to lack of moderation [effect = 0.093, 95% CI: (-0.015, 0.202)].

Table 3. Results of CFC-F moderation.

	β	SE	t	p	LLCI	ULCI
Moderated mediation analysis						
Outcome variable: IWB						
PsyCap	0.47***	0.06	7.16	0.00	0.34	0.60
CFC-F	0.18***	0.04	4.82	0.00	0.11	0.26
PsyCap x CFC-F	0.12**	0.05	2.41	0.02	0.02	0.23

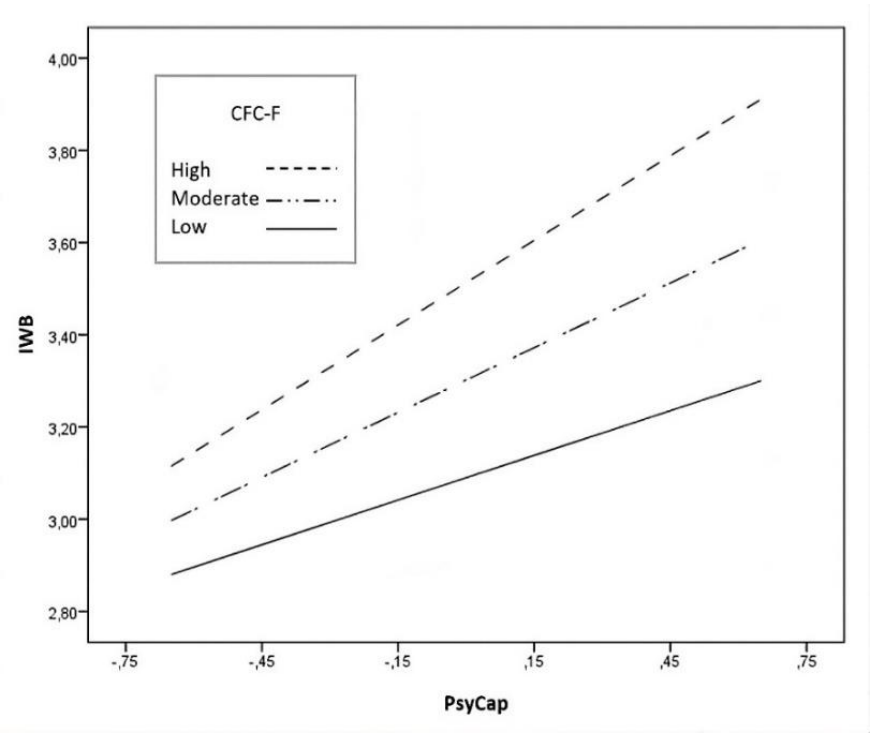
Notes: N=152. CFC-F = Consideration Futures Consequences-Future; IWB = Innovative Work Behavior; PsyCap = Psychological Capital. Bootstrap size = 10000, bootstrap confidence interval = 95%. LL, low limit; CI, confidence interval; UL, upper limit. **P<0.01, ***P<0.001.

Table 4. Results of the conditional effects analysis.

CFC-F	Effect	Boot SE	Boot LLCI	Boot ULCI
−1 SD (−1.16)	0.32	0.09	0.14	0.50
Mean	0.47	0.06	0.34	0.60
+1 SD (+1.16)	0.61	0.09	0.44	0.78

Notes: N=152. Bootstrap size = 10000, bootstrap confidence interval = 95%. SD, standard deviation; LL, low limit; CI, confidence interval; UL, upper limit.

Figure 2. The moderation effect of CFC-F on PsyCap to IWB.



5.5 Study 1: Discussion

The first study contributes to expanding the literature relating PsyCap to the employees' IWB, confirming the moderating role of CFC-F in the relationship between PsyCap and the employees' IWB (hypothesis 1), and demonstrating that, when the perception of CFC-F by employees is high, the positive relationship between PsyCap and IWB is stronger.

5.6 Study 2: Method

The second study focuses on the PCI intervention, from which its impact on PsyCap, IWB, AWM and WE will be verified in a study with a quasi-experimental design. In this study 2, it is expected that, from the measurement after a PCI intervention (POST), the levels of PsyCap (hypothesis 2), IWB (hypothesis 3), AWM (hypothesis 4), and WE (hypothesis 5) will increase compared to their reference levels (PRE). In addition, it is expected that the PsyCap (H6a), IWB (H6b), AWM (H6c), and WE (H6d) levels of the participants will continue to be higher for the follow-up measure (FUP), compared to the reference measure. (PRE). In addition, it will be included in this study 2 as the CFC-F covariate, since in study 1 it has been shown to have a significant moderating effect.

5.6.1 Participants

This study 2 has been carried out on Spanish employees from different organizations and occupations, who were invited to participate in the study via various social networks. The number of enrolled participants amounted to 205 people although, in the end, the complete study was carried out with 31 participants (response rate = 15.12%). To better assess the effects of the intervention, the final 31 participants were randomly divided into two groups: the treatment group (15 participants) who received the intervention, and the control group (16 participants) who only completed the questionnaires. The Qualtrics online survey platform was used to collect the data. All participants provided the requested data after reading the informed consent form, guaranteeing confidentiality and voluntarily agreeing to participate in this study. Of the 31 participants, 19 (61.3%) were women. 27 participants (87.1%) worked full-time, and 20 participants (64.5%) worked full-time face-to-face. The mean age was 43.8 years (SD = 7.96).

5.6.2 Procedure

All participants were contacted by email one week before the start of the training action and received the initial evaluation questionnaire, established for data analysis as PRE or T1. The training action was developed through the ZOOM web platform, with two sessions of 1 hour each. Expository and participatory activities were carried out to promote the elements that make up psychological capital and develop innovative behavior. The program lasted 3 weeks: in the first and third week, the online workshops took place, while during the second week, a 20-minute follow-up task was carried out individually to reinforce and practice the PsyCap contents, learned during the session (behaviors and cognitions). This task was completed in a form, sent by email through Google Forms and by means of which the responses were received by the research team.

5.6.2.1 Description of the PsyCap development intervention

To develop each of the components of psychological capital, Luthans et al. (2007) developed the PCI training. Later, it was adapted for application over the web in two sessions of 45 minutes each (Luthans et al., 2008). In the present study, the model was slightly modified to include the development of innovative work behavior (IWB).

5.6.2.1.1 First session: Developing IWB through hope and self-efficacy.

In this first session, the facilitator exposes the dimensions of self-efficacy and hope through the presentation of a PowerPoint and short videos as audiovisual supports. Participants are then asked individually to generate, in the space of 5 minutes, multiple challenging and valuable goals related to possible innovations they could implement in their work. In this first phase, it is specified that no limits are imposed on the participants' imagination, to enhance the generation of ideas. A posteriori, they are asked to choose one of the proposed goals and define it using the SMART method (Bjerke & Renger, 2017). This method manages to land a goal, so that it becomes achievable. Next, the participants generate different pathways to achieve their innovative goals and begin to break their goals down into subgoals, thus making the goals more easily achievable. Subsequently, to develop self-efficacy, they are asked about the resources they have at their disposal to achieve the subgoals and goals. Said goals and subgoals are linked to the two stages of innovative behavior, the generation of ideas and the implementation of ideas. After putting it in writing, they are asked about the obstacles that may prevent them from achieving their goal and plan strategies about how to overcome them. In a grouplike manner (small groups of 3 people),

personal goals and subgoals are shared. Each participant receives comments from the rest, possible paths, obstacles, resources, and alternative strategies to achieve the goal. Afterwards, the whole group presents goals and subgoals, and group feedback is given. After sharing with the whole group, a collective visualization technique is carried out, recreating the goal that each one wants to achieve by going through the two stages of IWB, based on the resources, paths, and own strategies, and acquired through the group discussion.

5.6.2.1.2 Home task: Individual visualization technique.

Visualization is a technique that consists of connecting mental images with positive emotions, thus modifying negative thoughts. The main objective of the technique is to recreate one's own sensations by accomplishing the innovative objectives that you wanted to achieve in the previous session, and increase personal self-efficacy. Subsequently, the participants answer a series of questions such as: i) What did you feel when visualizing your ideas implemented in the organization?; or ii) how would the organization make you feel if the collaborators were heard and their ideas were valued? The task was performed by the 15 participants of the experimental group.

5.6.2.1.3 Second session: Developing IWB through optimism and resilience.

In this second session, the positive capacities of optimism and resilience are discussed. Both theoretical concepts are presented through a PowerPoint, and the ABCDE method is explained (Seligman, 2006). This method is used to modify the explanatory style, thus developing optimism and identification of positive and realistic results. Participants are asked to write down an occasion at work when they proposed an idea that was rejected. Using the cognitive reframing of adverse events through the ABCDE model, the participants replace their explanatory style with a more optimistic style. Second, and to build resilience, participants are asked about the resources they will use to achieve their goals. Once the participants have made the list with their personal resources, these are shared and new resources are identified. Finally, a collective visualization technique is put into practice, recreating the individual goal from the own resources and those acquired during the intervention.

5.6.3 Program effectiveness evaluation

To check the effectiveness of the intervention in the development of PsyCap and IWB, three measurements were made. These measurements were taken from questionnaires that were completed by the two groups at three measurement points in time: i) PRE (T1) one

week before the intervention; ii) POST (T2) two weeks after the intervention to assess the effects of the intervention; and iii) Follow-up (T3) three months after the end of the intervention to assess whether the positive effects are sustained over time.

5.6.4 Measures

In study 2, the same measures are used as in study 1 (i.e., PsyCap, CFC-F and IWB), further to the added variables WE and AWM. To verify the effect of the CFC-F covariate, its measurement was performed exclusively at T1. The measures of the added variables are the following:

Work Engagement (WE) was collected with the short version of the Utrecht Work Engagement Scale (UWES) in Spanish (Schaufeli et al., 2002). The 9 item-scale was composed of three dimensions: vigor, dedication, and absorption. Sample items include: vigor "In my work, I feel I have plenty of energy"; dedication "My work is challenging"; and absorption "Time flies when I am working". All items were measured on a seven-point Likert scale type ranging from 1 "never" to 7 "always".

Autonomous Work Motivation (AWM) was measured using a 5-item scale for the two dimensions of intrinsic motivation and integrated motivation from the Multidimensional Work Motivation Scale (MWMS) of Battistelli et al. (2017). This measure is a Spanish version of the original MWMS of Gagné et al. (2015). Sample items include: intrinsic motivation "I try hard because I enjoy this work very much"; and integrated motivation "I strive because I am fully fulfilled in this work". Participants answered on a seven-point Likert type scale ranging from 1 "not at all" to 7 "completely".

5.6.5 Data analysis

To test the hypotheses of study 2 and examine the effects of the intervention program, the data were analyzed as follows: i) descriptive analyses were performed and correlations were analyzed to see the relationship between the variables studied; ii) the initial equivalence between the treatment group and the control group in the variables studied from an analysis of variance (ANOVA); iii) analyses of covariance (ANCOVA) with a repeated measures design were performed to analyze the differences between the inter-subjects factor (experimental group and control) and within-subjects (times: T1-T2), after controlling the effects of CFC-F covariate; and iv) t-tests were performed for related samples to verify the differences in the experimental group between T1 and T2 and between T1 and T3 in the study

variables, checking the size of the effect with Cohen's d (Cohen, 1988). All data analyses were performed using IBM SPSS Statistics 22.0 software.

5.7 Study 2: Results

5.7.1 Descriptive Statistics

The means, standard deviations, correlations, and reliability scales (Cronbach's α) between the variables of study 2 are presented in Table 5.

5.7.2 Equivalence

To make sure that the randomization of the groups results in equivalent groups, an ANOVA test was performed. The equivalence between the two groups was evaluated in the study variables at T1 (AWM, CFC-F, IWB, PsyCap and WE). The analyses showed that the two groups were statistically equivalent, as no significant differences were observed in the study variables AWM [F (1,30) = 3.579, p = .069], CFC-F [F (1,30) = .080, p = .780], IWB [F (1,30) = 2.052, p = .163], PsyCap [F (1,30) = .836, p = .368], and WE [F (1,30) = 1.619, p = .213]. Consequently, the equivalence of the group before the intervention is supported.

Table 5. Means, Standard Deviations, Correlations, and Cronbach's Alphas.

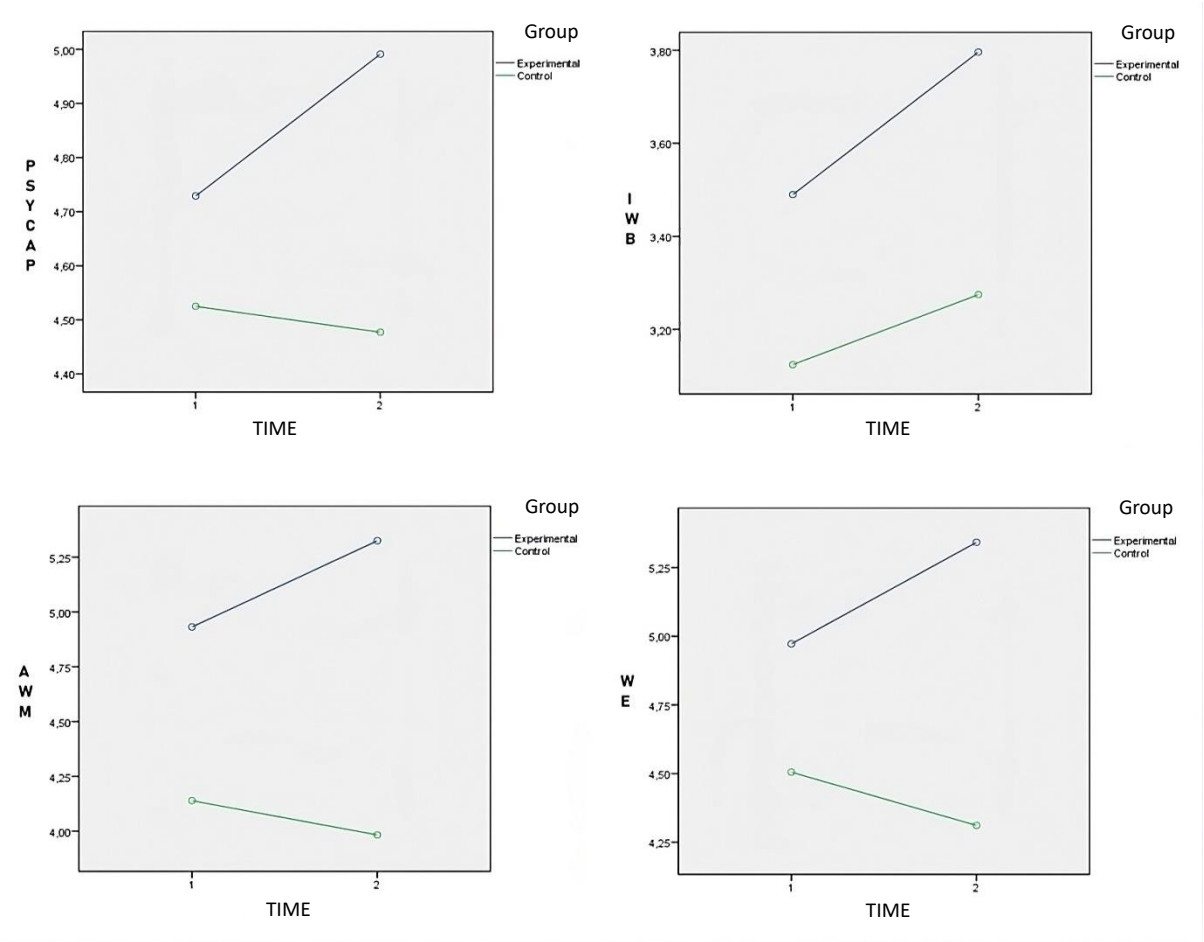
Variables	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1. PsyCap T1	4.62	0.77	**0.92**												
2. PsyCap T2	4.72	0.79	0.81**	**0.93**											
3. PsyCap T3	4.67	0.89	0.71**	0.78**	**0.95**										
4. IWB T1	3.30	0.83	0.70**	0.55**	0.47**	**0.92**									
5. IWB T2	3.53	0.69	0.68**	0.77**	0.54**	0.72**	**0.89**								
6. IWB T3	3.43	0.63	0.57**	0.60**	0.59**	0.72**	0.77**	**0.87**							
7. WE T1	4.73	1.12	0.68**	0.66**	0.52**	0.44*	0.59**	0.46**	**0.86**						
8. WE T2	4.81	1.25	0.61**	0.70**	0.63**	0.38*	0.67**	0.63**	0.83**	**0.84**					
9. WE T3	4.94	1.22	0.57**	0.65**	0.58**	0.35	0.64**	0.57**	0.88**	0.92**	**0.88**				
10. AWM T1	4.52	1.30	0.58**	0.61**	0.55**	0.55**	0.60**	0.59**	0.73**	0.72**	0.74**	**0.92**			
11. AWM T2	4.63	1.37	0.57**	0.68**	0.58**	0.53**	0.71**	0.73**	0.69**	0.79**	0.79**	0.84**	**0.93**		
12. AWM T3	4.83	1.33	0.40*	0.53**	0.47**	0.39*	0.58**	0.61**	0.63**	0.72**	0.79**	0.83**	0.91**	**0.95**	
13. CFC-F T1	4.98	1.24	0.65**	0.50**	0.50**	0.66**	0.53**	0.50**	0.35	0.34	0.21	0.43*	0.33	0.27	**0.85**

Note: N = 31. PsyCap = Psychological Capital; IWB = Innovative Work Behavior; WE = Work Engagement; AWM = Autonomous Motivation; CFC-F = Consideration Futures Consequences-Future. Cronbach's Alphas are reported in bold on the diagonal. *p < .05, **p < .01

5.7.3 Intervention effectiveness

Firstly, and to examine the effects of the intervention, an analysis of covariance (ANCOVA) with a repeated measures design was performed. As can be seen in Figure 3, the results indicated that the treatment group participants had higher levels of PsyCap, AWM, and WE at T2 compared to T1 (within subjects), and also compared to the control group (inter-subjects), PsyCap [F (1,28) = 3.45, p < 0.1, ηp2 = .110], AWM [F (1,28) = 4.46, p < .05, ηp2 = .138], and WE [F (1,28) = 5.57, p < .05, ηp2 = .166]. However, this did not happen with the IWB [F (1,28) = .57, p > 0.1, ηp2 = .020].

Figure 3. Efficacy of the PCI intervention (pre-intervention = T1 and post-intervention =T2) for both groups (experimental and control) in PsyCap, IWB, AWM and WE.



Secondly, and to verify the differences between the times of the experimental group, t-tests were carried out for related samples. The times T1 - T2 and T1 - T3 were compared in the variables studied. In this sense, it can be observed (see table 6) that, for the four variables, the levels at T2 are higher than at T1. The same occurs at T3, where they are higher than at

T1. However, that does not mean that all results are statistically significant. Thus, between T1 and T2, they are significant for the variable PsyCap [t (14) = −2.76 p < .05, d_{Cohen} = 0.35], AWM [t (14) = −2.14 p < .05, d_{Cohen} = 0.28], and WE [t (14) = −2.37 p < .05, d_{Cohen} = 0.36], demonstrating an increase in PsyCap, AWM, and WE two weeks after the intervention (T2). These effects were maintained over time (T3) for AWM [t (14) = −1.96 p < 0.1, d_{Cohen} = 0.20], and WE [t (14) = −2.18 p < .05, d_{Cohen} = 0.29], but for PsyCap the levels practically returned to T1 levels three months after the intervention. In all statistically significant cases, the effect size due to the PCI intervention was intermediate (>0.2) (Cohen, 1988). These results suggest that the intervention had a positive impact on the development of PsyCap, AWM, and WE of the participants, however, the effects were only maintained for AWM and WE three months after completing it. On the other hand, the IWB levels after the intervention, although they increased, were not statistically significant in the participants.

Table 6. Means and t-test in PsyCap and IWB in the experimental group.

Variables		Mean	SD	t-value	df	p-value
1. PsyCap	T1	4.75	0.36	-2.76	14	.015
	T2	5.01				
	T1	4.75	0.75	-0.20	14	.845
	T3	4.79				
2. IWB	T1	3.52	0.66	-1.73	14	.106
	T2	3.81				
	T1	3.52	0.58	-1.14	14	.273
	T3	3.69				
3. AWM	T1	4.96	0.70	-2.14	14	.050
	T2	5.35				
	T1	4.96	0.55	-1.96	14	.071
	T3	5.24				
4. WE	T1	4.99	0.60	-2.37	14	.033
	T2	5.36				
	T1	4.99	0.52	-2.18	14	.047
	T3	5.29				

Note: N = 31; IWB = Innovative Work Behavior; PsyCap = Psychological Capital; M = mean; SD = Standard Deviation; df = degrees of freedom; p-value, significance level; T1 = pre-intervention time; T2 = post-intervention time; T3 = follow-up time.

5.8 Study 2: Discussion

The results of study 2 provide evidence about the development of PsyCap levels through online PCI training, being consistent with previous studies (Carter & Youssef-Morgan, 2022; Luthans et al., 2008). In this sense, the treatment group increased the levels of PsyCap with respect to the control group between T1 and T2, thus confirming hypothesis 2. The novel design of the present PCI intervention, aimed at increasing the IWB of the participants, did not offer the expected results, and the treatment group did not increase IWB levels between T1 and T2 compared to the control group, so hypothesis 3 was not confirmed.

On the other hand, the treatment group increased the levels of AWM and WE between T1 and T2 compared to the control group, thus confirming hypotheses 4 and 5. Finally, the levels of the PsyCap and IWB variables at T3 did not remain elevated in the treatment group (not confirming hypotheses 6a and 6b), although the levels of the AWM and WE variables did (confirming hypotheses 6c and 6d). In all analyses, the effects of the CFC-F variable were controlled.

5.9 General Discussion

The present investigation had the objective of contributing to scientific literature by studying the factors that influence innovative behavior of employees through a cross-sectional study (study 1) and the application of an online intervention with a longitudinal quasi-experimental design (study 2). The individual factor PsyCap has been studied as a variable that favors innovative work behavior (Alshebami, 2021; Blasco-Giner et al., 2023), therefore this study did not intend to analyze this relationship, but rather explore the role of the CFC-future variable to fill a gap in literature. Therefore, it examined; 1) the moderating role of the CFC-future variable in the relationship between the PsyCap and innovative behavior of employees; and 2) the effects of a PsyCap development PCI intervention targeting innovative work behavior on the PsyCap, innovative work behavior, autonomous work motivation, and work engagement variables, after verifying the effects of the CFC-future variable. The results support the moderation of the CFC-future variable in the relationship between the PsyCap and innovative work behavior (H1), and the increase in the levels of PsyCap (H2), autonomous work motivation (H4), and work engagement (H5) of the participants after the intervention, compared to baseline levels and to the control group, after verifying the effects of CFC-future. In addition, participants' autonomous work motivation (H6c) and work engagement (H6d) levels were found to be higher at follow-up, compared to baseline levels, after verifying the effects of CFC-future. Results did not support the increase of participants' innovative work behavior (H3) levels after the intervention, compared to baseline levels and to the control group, after verifying the effects of CFC-future. Neither did they support hypotheses H6a and H6b, or an increase in participants' PsyCap and innovative work behavior levels at follow-up, compared to baseline levels, after verifying the effects of CFC-future.

In the first place, and in accordance with previous literature (Blasco-Giner et al., 2023), study 1 confirmed the relationship between the PsyCap and the employee's innovative work behavior (although it was not hypothesized), in addition to confirming the positive and significant moderation of the CFC-future variable between PsyCap and innovative work

behavior, since this relationship is essential for the moderating effect. This shows that the agency and motivational capacity of the four PsyCap capacities act synergistically to favor the generation and implementation of ideas in organizations. Thus, the CFC-future variable is revealed as an individual disposition that strengthens the relationship between PsyCap and innovative work behavior. In this sense, CFC-future acts as a moderating variable, interacting with PsyCap to overcome resistance to innovation and facilitate behaviors derived from it, due to a preference for future interests at work from which the employee can benefit. In this sense, employees with a larger CFC-future dimension will make more efforts to achieve the innovative objectives that are proposed, as long as it is beneficial for them. Thus, having employees with high levels of CFC-future could provide a competitive advantage for teams and organizations that value innovation. Our research is the first to verify the moderating effect of CFC-future on the relationship between the PsyCap and the employee's innovative work behavior, with positive and statistically significant results.

Second, study 2 confirmed the effectiveness of the IWB-targeted PCI intervention in increasing PsyCap, autonomous work motivation, and work engagement. However, despite being directed at innovative goals, the participants did not increase their innovative work behavior at T2. Regarding the sustainability of the effects, the increase of PsyCap at T2 had practically returned to the initial levels three months after the intervention (T3 or Follow-up), a result in line with literature on PCI and the integrative review by Salanova & Ortega-Maldonado (2019). To achieve the sustainability of PsyCap levels, the authors of this review propose the professional-personal transfer of the resources developed in training through follow-up tasks. In this way, awareness of the positive resources acquired increases. On the other hand, the levels of autonomous work motivation and work engagement increased after the intervention (T2 or POST) and, in addition, they remained high three months after its completion (T3 or Follow-up). This seems to indicate that, although the PCI intervention directed at innovative work behavior does not increase innovative work behavior levels, it does increase attitudes and behaviors that favor it, such as autonomous work motivation and work engagement, both identified in previous studies as mediators in the relationship between PsyCap and innovative work behavior (Blasco-Giner et al., 2023; Verhagen et al., 2016). Thus, this result (the non-significant increase in innovative work behavior levels after the intervention) – contrary to what was expected – could be due to the fact that, in the discussion groups of the sessions, the participants generated novel ideas and ways to implement them from examples of own business ideas, such as opening a greengrocer or a restaurant. In this context, the participants felt they were entrepreneurs of a business, and not so much

employees in an organization. Thus, the variables that obtained higher levels after the intervention were autonomous work motivation and work engagement. The first, or autonomous work motivation, would be the type of motivation, referring to a person who behaves with a full sense of will and choice (Gillet et al., 2013) and engages in personally significant and satisfying actions (Battistelli et al., 2013). The second, or work engagement, is characterized by a high level of energy and a strong identification with work, generated from the vigor, dedication, and absorption dimensions (Schaufeli & Bakker, 2010). In this sense, it can be argued that the choice of personally significant objectives and a strong identification with future business could have led to an increase in the levels of the participants in both variables. These variables (autonomous work motivation and work engagement) are not so exclusive to the organizational context and, on the other hand, the novel processes or products, provided by innovation, might not be so (perhaps due to ignorance) in a new business in which entrepreneurs become a part. In addition, various studies have confirmed the relationship between business entrepreneurs and work engagement (e.g., Asumeng & Anokye, 2019) and autonomous work motivation (e.g., Murtagh et al., 2016), and the increase in work engagement level and variables related to motivation after interventions in PCI and positive resources (Griffith, 2010; Salanova & Ortega-Maldonado, 2019; Wingerden et al., 2016). Consequently, and to increase the innovative work behavior levels after the intervention, two options are proposed: 1) improve the design of a PCI intervention aimed at increasing the innovative work behavior levels of the participants; or 2) direct the sessions toward an organizational context.

In short, both the individual factor PsyCap and consideration of future consequences (specifically the CFC-future dimension) are consolidated as resources that facilitate innovative behavior of employees, being consistent with the COR theory (Hobfoll et al., 2018), which suggests that the individuals try to obtain, accumulate, conserve, and protect their resources to obtain favorable results, adopting certain behaviors at work – such as innovative work behavior – when they are highly motivated (Bayona Goycochea, 2019). PCI interventions aimed at increasing innovative work behavior levels appear promising due to the increase, although not statistically significant, in innovative work behavior levels of participants in the control group after the intervention. The design of these interventions should be improved in future studies to achieve a positive and significant impact on innovative work behavior variable.

5.9.1 Practical Implications

Hopefully, this research will help teams and organizations to improve innovative work behavior of their employees, investing in means that increase their individual resources such as PsyCap and CFC-future that can favor it. Next, practices are suggested to improve the levels of the variables involved.

In the first case, PsyCap is a malleable trait that can be developed and is undoubtedly attractive to organizations, even more so taking into account the high return on investment that its development presents through PCI intervention sessions (Luthans et al. al., 2015). Managers and HR professionals can easily integrate PsyCap development into employees. From one- to three-hour long training sessions, participants collectively develop self-efficacy, hope, optimism, and resilience, as PsyCap has a synergistic effect (Luthans et al., 2008). By increasing this positive resource, they can better cope with the future changes and challenges that innovative work behavior demands (Hsu & Chen, 2017). In addition, this type of intervention improves the positive psychological functioning of employees, impacting on well-being and performance at work (Luthans et al., 2015), in addition to impacting on autonomous work motivation and work engagement, as confirmed by this study. It is advised that this type of intervention be specific and culturally oriented, depending on the location where it is carried out (Gupta et al., 2002). Finally, it is worth noting that the training should be accompanied by a qualitative and/or quantitative follow-up by management in order to influence or modify certain aspects, based on the success of its results.

In the second case, the CFC-future is a personal characteristic assimilated to a trait, and consequently much less malleable than PsyCap. However, various authors have supported the possibility of modification, depending on the context (Demarque et al., 2010; Rappange et al., 2009). In this sense, organizations can implement a culture in favor of innovative work behavior, enhancing the perception of employees as innovators and recognizing those who generate and implement ideas, even establishing forums to share new proposals and incorporate them into work (Yuan & Woodman, 2010). This innovative culture – promoted by management – could increase the CFC-future levels of employees in the long term changing these future expectations. In this sense, it would enhance the ability of employees to deliver efforts in the present with a view to obtaining benefits in the future, thus improving their work and the performance of the organization.

In short, these practices would improve and increase the number of employee resources (Hobfoll et al., 2018), being able to effectively face the challenges caused by innovation. This should be part of long-term human resources strategies and programs (Battistelli, 2014), so that employees perceive it as a value in continuous development, aimed at increasing the competitiveness of the organization.

5.9.2 Limitations and Future Direction

Finally, the present investigation has certain limitations, and further studies are suggested to improve the understanding of the relationships between the variables studied.

In the first place, in both studies, data collection was carried out from a sample, captured through social networks, which could suppose a limitation to the generalization of the results, especially due to the multitude of jobs and work functions of the participants. Future studies could be carried out in organizations of a specific sector, in addition to checking whether certain particularities, functions or positions influence the results, and examining possible differences. Second, the samples in both studies were small and culturally similar, so the results cannot be generalized to other cultures without additional testing. Future investigations should expand the number of participants and the geographical locations where they are carried out, thus being able to contrast the results of our investigation. Third, in study 1, obtaining self-report measures, taken at a single measurement point, could lead to bias due to the common variance method. To avoid this, the confidentiality of the participants was guaranteed, following the recommendation of Podsakoff et al. (2003), and a Harman factor test was performed, although the possibility of error is not ruled out. Future research could obtain data in different time periods and from multiple sources, configuring multilevel analysis designs to better understand the dynamics of factors influencing innovative behavior of employee (Battistelli, 2014). Fourth, in study 1, the data obtained cross-sectionally do not make it possible to establish the direction of causality (Bono & McNamara, 2011). We decided to minimize this limitation by performing further analysis to test the IWB-PsyCap reciprocal relationship in an alternative model. The results did not support this alternative model. However, this analysis does not validate the causal relationship derived from other alternative directions in the model. Future studies could use longitudinal and experimental methods for a better understanding of the dynamic relationships between the variables studied. In this sense, the influence of innovative behavior result variable of the employees could be studied, in their own PsyCap, which could generate a positive profit spiral due to a reciprocal relationship between both variables. Fifth, in study

2, it is possible that the duration and number of sessions (2 sessions of 1 hour each) were not sufficient to develop innovative work behavior. Although PCI interventions were developed for short-term implementation, adaptation targeting innovative behavior may have certain limitations. In future studies, it is recommended to increase the number and duration of the sessions, in addition to longer follow-up (e.g., 6 or 12 months) of the results to see the sustainability of the effects over time.

Despite the limitations, our results show that the PsyCap and innovative work behavior variables are positively related and that the moderation of CFC-future increases this relationship. In addition, the PCI intervention directed at innovative work behavior does not develop innovative behavior, but it does increase the levels of PsyCap, autonomous work motivation and work engagement, variables that favor innovative behavior of the employees. Some strengths also appear in study 2. For example, measurement at three points in time, 6 weeks after T1, and 3 months after the end of the intervention, helps to mitigate the bias due to the common variance method (Podsakoff et al., 2003). Also, the use of a control group at T1 and T2 helps to establish the causal relationship between the variables. Additionally, the training was carried out uniformly and by a single person, which helps improve reliability.

Finally, it is proposed, for future studies, to examine other contingent and/or contextual variables, not studied in this research, which could improve the relationship between PsyCap and innovative work behavior.

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CHAPTER 6

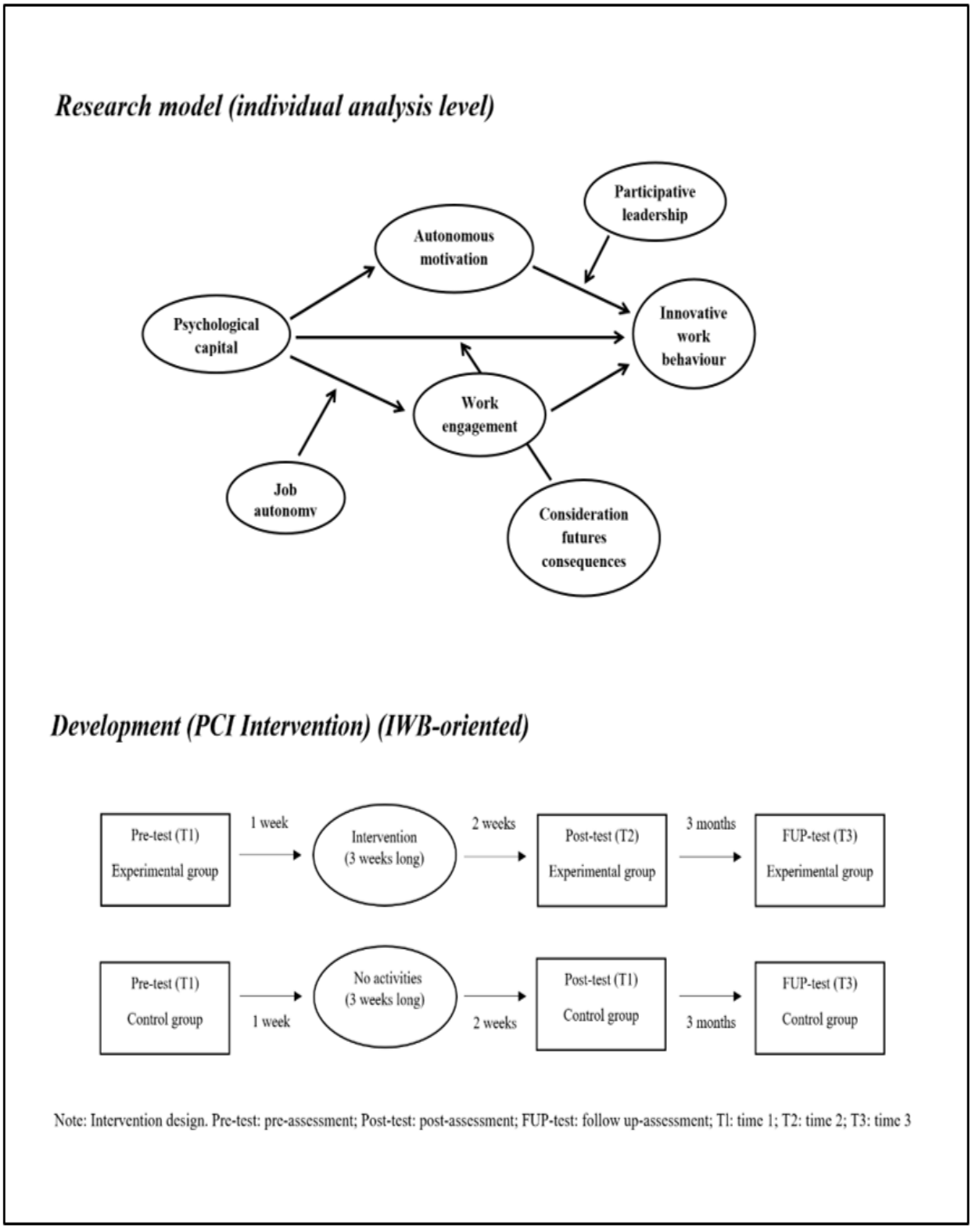
GENERAL DISCUSSION

The general objective of the present doctoral research has been to contribute to the growing literature on how the motivational construct PsyCap favors the emergence of individual innovation in organizational contexts, specifically the employee's IWB, providing empirical and theoretical evidence. To achieve this general objective, four specific objectives were proposed, aimed at expanding the scientific knowledge, reflected in a systematic review (chapter 2) and three empirical studies (chapters 3, 4 and 5). Firstly, and based on the systematic review (chapter 2), an analysis of the state of the literature on the relationship between employees' PsyCap and their IWB in the organizational context was carried out. Based on the results of this review, the objectives of the following chapters (3, 4 and 5) were established and materialized in three empirical studies. These studies were conducted with employees from multiple organizational settings, located in Spain, and combined quantitative methodologies and quasi-experimental longitudinal studies. Finally, different statistical procedures were used (confirmatory factor analysis and repeated-measures ANCOVA, among others) to confirm or invalidate the established hypotheses and reach the conclusions of each study. Below, the most representative aspects, findings, and contributions of each research are presented according to the stated objectives, synthesized from the theoretical and practical implications, limitations, and suggestions for future studies. The main contributions are presented in Figure 1. Finally, a general conclusion is added as a closing of this thesis.

6.1 Theoretical implications

The present research meets the stated objectives by offering a series of theoretical implications, related to the factors that favor the appearance of employee IWB and the impact of a PCI intervention aimed at increasing the levels of PsyCap and IWB of employees, contributing in this way to expand scientific literature. The theoretical implications related to each proposed objective are presented below.

Fig 1 Integrated research model and intervention design.



6.1.1 Theoretical implications of objective 1: Investigate how the PsyCap favors the IWB of the employees.

The first objective was carried out by confirming the significant role of the PsyCap construct in employees' IWB. In addition to the results, obtained by the 39 publications that constitute the systematic literature review in chapter 2, the empirical findings of chapters 3, 4, and 5 once again confirm this relationship. Based on the review in Chapter 2, PsyCap has been studied mostly as an antecedent of IWB, and as a mediator between a variable and IWB. Few studies have analyzed PsyCap as a moderator between an antecedent variable and IWB. In this sense, and even empirically confirming the importance of PsyCap in the emergence of IWB, the need for further research into the relationship between both constructs is highlighted. Furthermore, in chapters 3, 4, and 5, the relationship between employees' PsyCap and their IWB is empirically confirmed, since the relationship is positive and statistically significant in all of them, both directly and indirectly through the mediating variables work engagement and job autonomy. Thus, the PsyCap construct and its agentic nature improve employee motivation, increasing the probability of success in the proposed objectives (Luthans et al., 2011) by activating personal resources to generate and implement ideas at work (Wojtczuk-Turek, 2012). Consequently, the first objective is materialized in chapters 2, 3, 4, and 5, theoretically and empirically confirming the relationship between PsyCap and the employee's IWB, and referencing the mediators and moderators that favor said relationship.

6.1.2 Theoretical implications of objective 2: Analyze the instruments used to measure employees' PsyCap and IWB.

To address the second objective, the literature review in Chapter 2 offers an examination of the instruments used to measure the employee's PsyCap and IWB, based on articles in which both psychological constructs have been studied. First of all, chapter 2 explains the difference between the IWB and a large number of proxies – such as creativity, creative performance, creative behavior, etc. – that confuse academics and professionals in the field of innovation and human resources. Therefore, it is important to exactly understand the purpose and scope of the measurement, since the use of an inappropriate tool can lead to a result that does not correspond to the desired one. Regarding the tools most commonly used to measure the IWB, the Scott and Bruce scale (1994) and the Janssen scale (2000) are the ones that have been used the most in our review. Similarly, the most widely used tools to

measure PsyCap were the PCQ-24 (Luthans et al., 2007) and its reduced-scale PCQ-12 (Avey et al., 2011). Finally, although these tools consist of different phases (IWB) and psychological capacities (PsyCap), most authors (Janssen, 2000; Luthans et al., 2007) advise performing the measurement in an additive or unidimensional way. This would be a consequence of the strong correlations between the phases and/or associated behaviors of IWB and the synergistic effect between the four components of PsyCap (self-efficacy, optimism, hope, and resilience). The fulfillment of this objective provided us with the appropriate instruments to carry out the empirical studies of chapters 3, 4, and 5. This second objective is then delimited to chapter 2 of this thesis.

6.1.3 Theoretical implications of objective 3: Increase knowledge of the factors that are internal and external to the individual and mediate or moderate the relationship between PsyCap and employees' IWB.

Regarding the fulfillment of the third objective, this was developed in chapters 3, 4, and 5 of the thesis. After reviewing the literature in Chapter 2, a number of factors were identified that favor the relationship between PsyCap and employees' IWB, playing the roles of mediators, moderators, or antecedents in said relationship (e.g., job satisfaction, organizational culture, transformational leadership, respectively). Based on these findings, and considering a significant number of meta-analyses and relevant publications (e.g., Anderson et al., 2014; Battistelli, 2014; Kwon & Kim, 2020; Luthans et al., 2007), a series of theoretically supported variables were proposed to favor the relationship between PsyCap and IWB. In this sense, Chapter 3 confirms the relationship between PsyCap and IWB through autonomous motivation. Based on the theoretical framework of SDT (Ryan & Deci, 2017), the results confirm that, thanks to PsyCap and its beneficial positive mental state, the most self-determined motivational states are manifested and, consequently, the performance of discretionary behaviors such as innovation (Bien Saeed et al., 2019). The same study provides evidence of the moderating effect of participative leadership on the relationship between autonomous motivation and IWB, which shows that this relationship will be stronger with greater participative leadership. Under the SET theory (Blau, 2017), a leader who involves his followers in decision-making will see an increase in his IWB as a result, due to the employees' need to compensate for the leader's participative behaviors. In Chapter 4, the mediation of work engagement in the relationship between PsyCap and IWB of employees is confirmed. This finding, in line with the results of Verhagen et al. (2016), represents a response to Kwon and Kim's (2020) demand to increase studies, related to the relationship between work engagement and IWB, and the incorporation of the latter variable into the JD-

R theoretical framework (Bakker et al., 2023). The same study provides evidence of the moderating effect of job autonomy on the relationship between PsyCap and work engagement. This relationship will be stronger with higher perceived levels of job autonomy. Under the JD-R theory, increasing job autonomy would enhance the ability to obtain new resources, promoting the motivational component of PsyCap, and contributing to a greater relationship with work engagement (Syahnaz, 2019). Finally, Chapter 5 (specifically in Study 1) confirms the hypothesis of moderation of the consideration of future consequences in the relationship between PsyCap and the employee's IWB. This could be due to the sacrifices they are willing to make in the present to meet the challenge of innovation, due to the boost they obtain from positively considering an innovative future. Thus, greater consideration of future consequences would provide a stronger relationship between PsyCap and employees' IWB. When addressing objective 3, the aim was to expand knowledge about the factors that are internal and external to the employee and favor the relationship between PsyCap and IWB, thus proposing a series of hypotheses that were confirmed in chapters 3, 4, and 5.

6.1.4 Theoretical implications of objective 4: Investigate whether a positive psychological intervention aimed at developing PsyCap or PCI can impact participants' IWB levels.

Chapter 5 (specifically study 2) was carried out to achieve objective 4, designing a PCI intervention that improved participants' IWB levels. The study examined and confirmed the impact of the intervention on the levels of PsyCap, IWB, autonomous motivation at work, and work engagement. However, despite the fact that the PCI intervention was aimed at innovative objectives, participants did not increase their levels of IWB after the intervention in a statistically significant way. This indicates that, although the PCI intervention, aimed at IWB, does not increase IWB levels, it does increase attitudes and behaviors that favor it, according to the results of chapters 3 and 4 – autonomous motivation at work and work engagement – and in the PsyCap of the participants. Furthermore, the results on the durability of the effects indicated that the levels of all outcome variables remained higher three months after completing the program, although only autonomous motivation at work and work engagement did so in a statistically significant manner. Thus, this chapter 5 contributes to literature on IWB, as it is the first study to explore the impact of a PCI intervention on participants' IWB levels. Although the impact was not statistically significant, there was a positive impact on IWB levels, something to take into account in future research. In conclusion, objective 4 of this thesis was fulfilled in study 2 of chapter 5.

All the theoretical implications of the present doctoral research are particularly relevant for several reasons. Firstly, because they provide empirical evidence of the different relationships between the variables studied in relation to employees' IWB. All of them are positive and significant, confirming the important role they play in employee innovation. Secondly, because they provide a methodological implication regarding the tools that measure the employee's PsyCap and IWB, analyzing a relevant number of them and pointing out the additive or unidimensional use of all items, although both variables are composed of several dimensions. And, finally, because they provide evidence of the effectiveness of a two-hour online PCI intervention to increase PsyCap, autonomous motivation at work, and employee work engagement.

6.2 Practical implications

The latest report of the global innovation index 2022 declares North America and Europe to be the most innovative regions worldwide. However, India, Kenya, the Republic of Moldova, and Vietnam have been making important achievements in innovation over a period of 12 years, exceeding expectations in relation to their level of economic development (WIPO, 2022). According to the literature review in Chapter 2 of this thesis, 90% of the studies included that analyze the relationship between PsyCap and employee IWB were carried out in non-Western contexts, which denotes the growing interest of emerging countries to increase innovation in organizations in order to achieve a competitive advantage worldwide (Dorenbosch et al., 2005). This provides relevance to this doctoral research, not only at a theoretical and academic level, but also at a practical and functional level in work teams and organizations that seek to improve their innovative behavior. In this sense, it offers human resources professionals: i) a series of practical resources to improve the employee's IWB and PsyCap; ii) methodological suggestions for the measurement of both variables by HR or organizational psychology professionals.

Firstly, and in terms of resources to improve the employee's IWB and PsyCap, a series of training and intervention programs are presented to increase employees' personal resources. To promote the generation and implementation of ideas, creativity training based on TRIZ (Theory of Inventive Problem Solving) is proposed, which enhances the cognitive and affective dimensions (Birdi et al., 2012), thus improving the employee's innovation. Another type of training that is attractive to organizations due to the high return on investment is psychological capital intervention (PCI), which develops the employee's PsyCap (Luthans et al., 2007). Through training sessions (online or in-person) lasting one to

three hours, participants jointly develop self-efficacy, hope, optimism, and resilience, due to PsyCap's synergistic effect (Luthans et al., 2008). By increasing this positive resource, employees can better cope with the future changes and challenges that IWB requires (Hsu & Chen, 2017), in addition to improving well-being, work performance (Luthans et al., 2015), and variables such as autonomous motivation at work and work engagement, confirmed by this doctoral research. It should be noted that this type of positive intervention must be carried out by professionals to avoid the possible U-invert effect (Grant & Schwartz, 2011) that leads to unwanted consequences. Also, and due to its impact on the employee's IWB, programs that promote participative leadership are recommended, thus improving cohesion, cooperation, and participation in decision-making among team members. This brings a level of confidence to the team that enhances the individual innovation of its members to be able, among other things, to express their opinions without fear of ridicule, error, or punishment. Regarding working conditions, organizations can promote the autonomy of employees when it comes to scheduling their work and determining for themselves the procedures to follow for the successful execution of their tasks. This independence and flexibility bring along positive effects, as long as certain factors that may or may not determine the appearance of desired results are balanced (Kubicek et al., 2017). Lastly, and at the organizational level, companies can foster a culture that supports innovation, disseminating it through activities that project it as a shared value, and informally recognizing innovative employees or "champions" who emerge in the organization (Howell et al., 2005), and collaborate in its promotion. In addition, companies should maintain excellent relationships and positioning in social networks, thus ensuring high visibility and updates on new trends in the sector that could provide solutions or innovative ideas to explore (Ngan, 2015).

Secondly, it is advised that, for adequate monitoring of the different employee results by the organization's management, all training and intervention programs implemented should be accompanied by qualitative and/or quantitative monitoring in order to know, influence, or modify certain training aspects based on the results obtained. In this sense, and regarding the methodological suggestions for measuring the PsyCap and IWB variables, the following is proposed: Regarding the PsyCap variable, the use of the PCQ-24 and PCQ-12 questionnaires is recommended, because both are the most frequently used in literature, although they are protected by copyright. Its acquisition for both scientific and professional purposes can be made at www.mindgarden.com. However, the following tools are presented free of copyright and with robust internal consistency: i) the CPC-12 tool or Compound PsyCap Scale, developed in German by Lorenz et al. (2016) and validated in several

languages; and ii) the CPC-12R tool (Dudasova et al., 2021), a revision of the previous one, with better psychometric characteristics than the original. Regarding the IWB variable, the tools developed by the authors Janssen, (2000), Kleysen & Street (2001), or Scott and Bruce (1994) are suggested, in addition to the one that is appropriate for the customer service group – SIB – of Hu et al. (2009). All of them have sufficient empirical support so that HR or organizational psychology professionals can trust the results of their measurements, taking into account the limitations of statistical research.

6.3 Limitations

The limitations considered in the different studies, carried out in this doctoral research, are presented in three sections.

Firstly, and with respect to the limitations of the systematic literature review in chapter 2, it is considered that: i) greater flexibility in the established inclusion criteria could have provided particularly relevant studies; ii) most of the studies included were conducted in non-Western countries, preventing the generalization of the results; iii) none of the articles included present longitudinal and/or experimental studies that establish the causal order of the relationships studied; and iv) none of the articles included present studies of a qualitative nature, which would provide more complete information. Furthermore, and with respect to the tools mentioned to measure employees' PsyCap and IWB, the criterion of focusing exclusively on the articles that are part of the review has limited the list of tools that have ultimately been included in the research.

Secondly, and regarding the limitations of the empirical studies of chapters 3, 4, and 5 (study 1), it is observed that: i) the data collection was obtained through self-report measures at a single measurement point in time, so the results may be influenced by the bias of the common method (Podsakoff et al., 2003); ii) the design of the studies was cross-sectional in nature, which limits causality between the research variables (Bono & McNamara, 2011); iii) the limited size and variety of professions of the study participants implies limited generalization of the results, and iv) the results at the individual level of analysis limit the understanding of the results obtained. To minimize limitations, participant anonymity and confidentiality were ensured, additional analyses were performed to test the possibility of reciprocal relationships in alternative models, and Harman's single-factor tests were performed. However, the possibility of error is never completely ruled out.

Third, and finally, regarding the limitations of the quasi-experimental study in chapter 5 (study 2), it is noted that: i) data collection was obtained through self-report measures, so the results may be influenced by single-source biases, lack of objectivity of responses, or social desirability (Podsakoff et al., 2003); ii) short interventions, such as the one carried out (2 sessions of 1 hour each), have certain limitations in terms of desired results compared to more extensive interventions. As in previous studies, to minimize limitations, the anonymity and confidentiality of the participants were ensured, and individual follow-up tasks were proposed to reinforce and practice the assimilated content.

6.4 Future investigations

In this section, and after the findings of the studies carried out in this thesis, it is recommended for future research:

a) to carry out longitudinal and/or experimental studies to establish the directionality and causal order of the relationships between the variables that will be analyzed in future studies. So, for example, one could examine how the IWB of employees influences their PsyCap over time, and whether this relationship could be beneficial both for the organization and innovation of their employees, and for their own psychological well-being;

b) to replicate the studies to generalize the findings in different cultural contexts (Hofstede, 2011);

c) to perform qualitative studies to examine the variables proposed in this doctoral research that can provide more complete information;

d) to make inclusion criteria more flexible in future systematic reviews to increase results;

e) to perform further research on the IWB scales and their proxies, based on comparative psychometric analyzes to explore the relationships, similarities, and overlaps between constructs, and the extent to which they represent truly different phenomena (Potočnik & Anderson, 2016);

f) to carry out multilevel studies to understand psychological processes in organizations, obtaining data from various sources, such as supervisors, colleagues, interviews, or through "participant observation" (e.g., Battistelli, 2014);

g) to increase the number and duration of sessions in the interventions, in addition to longer monitoring (e.g., 6 or 12 months) of the results to see the sustainability effects over time; and finally

h) to identify other factors that favor the employee's IWB, to shed some light on the development of innovation in organizations (Axtell et al., 2000).

6.5 Conclusions

At the beginning of the 21st century, when the term innovation is proclaimed in all the media as the key to not succumb in the business world, many managers and presidents of corporations decide to turn to it to obtain a competitive advantage in an increasingly fierce and globalized market. In this situation, promoting employee innovation emerges as the antidote to challenge the "status quo" of organizations, where the challenge of innovating is to break down the walls of immobility, specifically of "things have always been done this way here". In this context, the present doctoral research aims to contribute to the field of organizational psychology, an expansion of empirical knowledge regarding the factors that facilitate employee innovation, and consequently provide resources and tools to the human capital that is part of organizations to face the challenges of a social and economic environment that is volatile, uncertain, complex, and ambiguous (VUCA). In short, the systematic review and the three empirical studies carried out offer an overview of the relationship between the constructs of behavioral psychology in organizations – PsyCap and employee IWB –, and other factors that favor it, in addition to enabling the reader, delving into the scientific literature of both constructs based on the references added at the end of each chapter. Therefore, in the current moment where continuous changes transform the business world, a strategy aimed at innovation is the best option for survival. The world belongs to people who innovate, so...act and innovate!!!

6.6 References

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APPENDIX

Carlos Blasco Giner

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Instrument: ***Psychological Capital (PsyCap) Questionnaire (PCQ)***

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