Personal resources at work -

Investigating the role of Psychological Capital on different levels

Persönliche Ressourcen am Arbeitsplatz -

Untersuchung der Rolle Psychologischen Kapitals auf verschiedenen Ebenen

Inaugural-Dissertation

zur Erlangung des Doktorgrades der Philosophie

an der Ludwig-Maximilians-Universität München

vorgelegt von

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München, 2020

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Tag der mündlichen Prüfung: 12. Dezember 2019

Danksagung

Was für ein schöner Moment - fast ein bisschen so wie das Ankommen am Berggipfel. Durchatmen. Innehalten. Umschauen. Staunen. Ein langer Weg liegt hinter mir, auf dem ich das unglaubliche Glück hatte, von verschiedenen Menschen begleitet und unterstützt zu werden. Ohne sie wäre ich jetzt nicht hier. Einigen davon möchte ich an dieser Stelle besonders danken.

Zunächst gilt ein großer Dank meinem Doktorvater Dieter Frey. Dieter, ich danke dir für dein Vertrauen, den inspirierenden und stimulierenden Austausch und das Gefühl, immer auf dich zählen zu können, wenn ich dich gebraucht habe. Für Raum und Sicherheit.

Danken möchte ich auch dem kompletten Team vom Center for Leadership and People Management. Für das füreinander da sein, das gegenseitig Rücken freihalten, das Verständnis und die Kultur. Danke an meine drei Betreuerinnen (Katharina, Silja und Angela) in den verschiedenen Phasen der Promotion. Insbesondere dir, Angela – danke für die Begleitung auf dem letzten und härtesten Stück. Für deinen scharfen Verstand und kritischen Blick, dein Fachwissen, für das (mich) Fordern gleichsam wie den Optimismus und die Zuversicht, besonders in den Momenten, in denen es mir davon fehlte. Ein besonderer Dank geht natürlich auch an die Doc-WG (Karolina, Martin und Lisa). Was wäre dieser Weg nur ohne euch gewesen? Danke, dass ihr in den Momenten der Hochs und Tiefs so nah wart, dass ihr da wart. Danke für unser Frolleg*innen-sein.

Ein tiefer Dank gilt meiner Familie, ohne die, dieser Weg auf so vielen verschiedenen Ebenen nicht möglich gewesen wäre. Danken möchte ich in diesem Zuge auch meiner besten Freundin Isabelle, die im Grunde mehr Familie als Freundin ist. Und mich in Momenten des Zweifelns immer wieder daran erinnert hat, dass ich selbst Gestalterin auf meinem Weg bin - *Sinn hat man nicht per se, Sinn gibt man.* Danke.

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Deutsche Zusammenfassung

Allgemeine Einleitung

Seit 20 Jahren hat die Positive Psychologie in Forschung und Praxis Einzug gehalten. Sie ist eine Strömung in der Psychologie, die einen Betrag dazu leisten möchte, dass „Menschen ihre Stärken erkennen und einsetzen, positive Gefühle erleben und zu einer positiven Gesellschaft beitragen“ (Blickhan, 2018, S. 25). Folglich ist sie die Wissenschaft dessen, was „Individuen, Organisationen und Gesellschaften dazu befähigt, sich bestmöglich zu entwickeln und ‚aufzublühen‘“ und untersucht Stärken, Ressourcen und Potentiale (Brohm-Badry, Peifer, Greve, & Berend, 2018, S. 1). Ein sehr etabliertes Konzept der Positiven Psychologie ist das Psychologische Kapital (kurz: PsyCap). PsyCap ist ein sogenanntes „Konstrukt höherer Ordnung“, das heißt, es beinhaltet mehrere Komponenten. Zu diesen Komponenten zählen: Selbstwirksamkeit, Hoffnung, Optimismus und Resilienz (Luthans, Youssef, & Avolio, 2007). *Selbstwirksamkeit* bezeichnet die Überzeugung mit den eigenen Fähigkeiten gesetzte Ziele erreichen zu können. Unter *Hoffnung* wird der unbedingte Wille verstanden, seine Ziele zu erreichen und wenn nötig hierfür neue Wege zu finden. *Optimismus* umfasst neben einer positiven Grundhaltung auch den Glauben daran, selbst einen Beitrag zum eigenen Erfolg leisten zu können. *Resilienz* wird als Widerstandsfähigkeit bei Problemen und nach Rückschlägen verstanden (Luthans et al., 2007). Mittlerweile haben viele Studien den positiven Zusammenhang von PsyCap mit verschiedenen Einstellungen und Verhaltensweisen aufgezeigt, wie z. B. in der Meta-Analyse von Avey, Reichard, Luthans und Mhatre (2011). Der besondere Reiz von PsyCap für Forschung und Praxis liegt in der aufgezeigten Trainierbarkeit des Konstrukts (Luthans, Avey & Patera, 2008; Luthans, Avey, Avolio & Peterson, 2010).

Die vorliegende Dissertation knüpft an die bisherige Forschung an und beleuchtet PsyCap aus verschiedenen Blickwinkeln in unterschiedlichen Kontexten.

Der erste Teil der Arbeit befasst sich mit individuellem PsyCap im Kontext von Wissenschaft. In einer Feldstudie wird getestet, inwieweit PsyCap mit der Leistung von Wissenschaftler*innen zusammenhängt. Darauf aufbauend wird in einer quasi-experimentellen Studie die Trainierbarkeit von PsyCap untersucht.

Der zweite Teil der Arbeit untersucht PsyCap auf Teamebene. In einer Mehrebenen-Studie wird der Frage nachgegangen, inwieweit Team PsyCap (als Wahrnehmung des vom Team gezeigten PsyCaps) das Ausmaß an emotionaler Erschöpfung der einzelnen Teammitglieder vorhersagt und inwiefern diese Beziehung durch günstiges Führungsverhalten verstärkt werden kann.

Teil 1: Untersuchung und Entwicklung von Psychologischem Kapital im wissenschaftlichen Arbeitskontext

[Engl. Titel: Investigating and developing Psychological Capital in the context of academia]

Die Arbeitsbedingungen in der Wissenschaft sind keine leichten. Nahezu ausschließlich befristete Verträge, eine große Abhängigkeit von Fördermitteln, vergleichsweise niedriger Lohn bei hoher Arbeitslast, hoher Leistungs- und Konkurrenzdruck bei gleichzeitig hohem Frustrationspotenzial (z. B. im Review-Prozess beim Einreichen von Artikeln) – all das stellen typische Charakteristika der Arbeit in der Wissenschaft dar (Kinman, 2008; van Ameijde, Nelson, Billsberry, & van Meurs, 2009; Winefield & Jarrett, 2001). Und dennoch gibt es Menschen, die trotz dieser schwierigen Bedingungen fähig sind, Höchstleistungen zu erbringen. Das legt die Frage nahe: Was haben diese, was andere nicht oder zumindest nicht im gleichen

Ausmaß haben? Die bisherige Forschung hat sich der Frage, welche Faktoren Leistung in der Wissenschaft bedingen, bereits seit geraumer Zeit anzunähern versucht. Bei genauerer Betrachtung wird allerdings deutlich, dass sich viele Studien auf relativ stabile, teilweise unveränderbare Merkmale konzentrieren (z. B. Aguinis, Ji, & Joo, 2018; Sallee, 2011; Snell, Sorensen, Rodriguez, & Kuanliang, 2009). Neben der Identifizierung relevanter stabiler Merkmale ist es jedoch auch wichtig, veränderbare Merkmale zu identifizieren. Schließlich können diese gezielt trainiert und damit gefördert werden, z. B. in Personalentwicklungsprogrammen. PsyCap hat sich bereits als positive Ressource z. B. im Umgang mit Stress sowie als Prädiktor für Leistungsfähigkeit erwiesen (z. B. Avey et al., 2011; Avey, Luthans, & Jensen, 2009; Baron, Franklin, & Hmieleski, 2016). Zudem zeigen erste Studien, dass PsyCap trainierbar ist (z. B. Luthans et al., 2008; Luthans et al., 2010). Während PsyCap in Abhängigkeit vom jeweiligen Arbeitskontext unterschiedlich starke Effekte zu zeigen scheint (Avey et al., 2011), gibt es bislang noch keine Studie, welche die Rolle von PsyCap für die Leistung in der Wissenschaft sowie dessen Trainierbarkeit untersucht.

Die vorliegende Untersuchung zielt folglich darauf ab, ein besseres Verständnis von der Relevanz und Entwickelbarkeit von PsyCap in der Wissenschaft zu ermöglichen. In einer Felduntersuchung soll der Zusammenhang zwischen PsyCap und In-Role Performance (gemäß Aufgabendefinition geforderte Leistung) sowie Extra-Role Performance (freiwilliges Arbeitsengagement über die formalen Aufgabenanforderungen hinaus) genauer beleuchtet werden. Dabei wird angenommen, dass sowohl PsyCap als Ganzes sowie seine Komponenten einen Zusammenhang mit der geforderten wissenschaftlichen Leistung sowie dem freiwilligen Arbeitsengagement aufweist. In einem zweiten Schritt soll in einer quasi-experimentellen Untersuchung im Vergleich sowohl mit einer aktiven Kontrollgruppe als auch mit einer passiven

Kontrollgruppe die Trainierbarkeit von PsyCap und dessen Komponenten im Wissenschaftskontext aufgezeigt werden.

Die vorliegende Arbeit liefert damit Hinweise auf die Relevanz von PsyCap sowie dessen Trainierbarkeit im wissenschaftlichen Kontext. Methodisch soll zur Aufklärung der Wirkweise von PsyCap beigetragen werden, indem wir nicht nur das Gesamtkonstrukt betrachten, sondern auch die Komponenten im Einzelnen. Praktisch kann dieses Wissen zudem im Rahmen von Personalentwicklung genutzt werden.

An Studie 1 nahmen insgesamt $N = 116$ wissenschaftliche Mitarbeiter*innen unterschiedlicher Fachdisziplinen im Rahmen einer Online-Befragung mit zwei Messzeitpunkten (T1[1] und T2) mit einem Abstand von fünf bis sieben Monaten teil. Ergebnisse der Regressionsanalysen (unter Kontrolle von Alter und Geschlecht) zeigten, dass PsyCap sowohl mit In-Role als auch mit Extra-Role Performance zusammenhängen. Bei der Betrachtung der einzelnen Komponenten zeigte sich, dass Selbstwirksamkeit mit In-Role Performance, Resilienz hingegen mit Extra-Role Performance zusammenhängt. Demnach scheinen diese zwei Komponenten besonders wichtig für die verschiedenen Leistungsfacetten im Arbeitskontext Wissenschaft zu sein. Zu diskutieren gilt es hier, was dieses Ergebnis für die Forschung von PsyCap als Ganzes bedeutet, da sich bei Betrachtung der Komponenten nur einzelne Komponenten (Selbstwirksamkeit und Resilienz) als leistungsrelevant zeigten. Es ist denkbar, dass sich je nach Kontext oder Anforderung unterschiedliche Muster von PsyCap und dessen Komponenten zeigen.

Studie 2 umfasste ein quasi-experimentelles Design mit zwei Messzeitpunkten (vor und nach der Intervention). Im Rahmen eines Personalentwicklungsprogramms einer großen

[1] T1 bezeichnet den ersten Messzeitpunkt, T2 den zweiten Messzeitpunkt.

Deutschen Universität nahmen Wissenschaftler*innen entweder an einem Training zu PsyCap teil (Experimentalgruppe, *n* = 30), einem Selbstpräsentationstraining (aktive Kontrollgruppe, *n* = 22) oder sie erhielten keinerlei Intervention zwischen beiden Messzeitpunkten (passive Kontrollgruppe, *n* = 17). Die Ergebnisse zeigten Unterschiede zwischen der Experimental- und der passiven Kontrollgruppe hinsichtlich PsyCap im Gesamten sowie der drei Komponenten (Selbstwirksamkeit, Resilienz und Hoffnung). Zwischen Experimental- und der aktiven Kontrollgruppe zeigten sich jedoch keine Unterschiede. In der aktiven Kontrollgruppe zeigten sich ebenfalls wie bei der Experimentalgruppe Trainingseffekte für Gesamt PsyCap und Selbstwirksamkeit. Diese Befunde legen die Bedeutsamkeit des Vergleichs mit verschiedenen Kontrollgruppen nahe, zeigten aber auch erneut, dass PsyCap trainierbar ist. Zukünftige Studien könnten zusätzlich die kurz- und langfristigen Auswirkungen eines PsyCap-Trainings auf verschiedene Ergebnisvariablen unmittelbar mit dem Training in Zusammenhang bringen, beispielsweise könnte vor dem Training, nach dem Training und zu einem späteren Zeitpunkt bei Experimental- und Kontrollgruppen Leistungs- oder auch gesundheitsbezogene Variablen erfasst werden.

Die Ergebnisse beider Studien deuten auf den Mehrwert der Implementierung eines Trainings zu PsyCap im universitären Kontext hin. Weiterhin legen sie für die zukünftige Beforschung von PsyCap die genauere Betrachtung der Komponenten im Kontext von Leistung und Training nahe.

Teil 2: Psychologisches Kapital auf Teamebene im Kontext von Burnout unter Berücksichtigung der von der Führungskraft vermittelten Vision

[Engl. Titel: Team-level Psychological Capital and its interaction with visionary leader behavior in the context of burnout]

Burnout als die psychische Reaktion auf chronischen Arbeitsstress (Qiao & Schaufeli, 2011) ist ein weitverbreitetes Phänomen, welches auf organisationaler Ebene zu erheblichen Kosten führt (Hassard, Teoh, Visockaite, Dewe, & Cox, 2017). Die Bekämpfung von möglichen Ursachen ist daher in den Fokus der Unternehmen gerückt. Eine Möglichkeit, die Ursachen von Burnout zu betrachten, bietet das Arbeitsanforderungs-Arbeitsressourcen Modell (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). In diesem Modell wird zwischen verschiedenen Ressourcen – persönlichen wie arbeitsbezogenen – sowie Arbeitsanforderungen unterschieden und ihre Beziehung zu Burnout aufgezeigt. PsyCap stellt eine persönliche Ressource dar und hat bereits günstige Effekte auf gesundheitsbezogene Variablen im Allgemeinen (Avey, Luthans, Smith, & Palmer, 2010; Avey et al., 2009; Roche, Haar, & Luthans, 2014) sowie auch auf Burnout (Cheung, Tang, & Tang, 2011; Leon-Perez, Antino, & Leon-Rubio, 2016) gezeigt. Die bisherige Forschung fokussierte hierbei primär auf die Untersuchung von individuellem PsyCap, also die Wahrnehmung des eigenen, individuellen Niveaus an PsyCap. In jüngerer Zeit forderten Forscher*innen darüber hinaus zunehmend, Ressourcen auch auf Teamebene zu untersuchen (z. B. Review Luthans & Youssef-Morgan, 2017). Für Team PsyCap (sprich der gemeinsamen Wahrnehmung der Teammitglieder von der Ausprägung von PsyCap innerhalb des Teams) konnten bereits Studien zeigen, dass dieses einen positiven Zusammenhang mit Leistung aufweist (Dawkins, Martin, Scott, Sanderson, & Schüz, 2018; Heled, Somech, & Waters, 2016; Mathe-Soulek, Scott-Halsell, Kim, & Krawczyk, 2014). Auch erste Studien, die den

Zusammenhang einzelner Komponenten von PsyCap auf Teamebene mit Burnout herstellen (kollektive Selbstwirksamkeit, vgl. Avanzi, Schuh, Fraccaroli, & van Dick, 2015; Consiglio, Borgogni, Alessandri, & Schaufeli, 2013), stärken die Annahme, dass PsyCap auch auf Teamebene bedeutsam ist. Insgesamt wurde Team PsyCap allerdings noch nie im Zusammenhang mit gesundheitsbezogenen Größen untersucht.

In der Forschung wird darauf hingewiesen, dass es Rahmenbedingungen gibt, unter denen PsyCap besonders gut wirkt (z. B. Klarheit hinsichtlich der Anforderungen im Job; Newman, Ucbasaran, Zhu, & Hirst, 2014). Führung kann im Rahmen des Job-Anforderungs-Ressourcen Modells als Ressource gesehen werden (Schaufeli & Taris, 2014). Wir nehmen an, dass insbesondere durch die gezeigte Vision Führungskräfte ein klares Bild vom Team in der Zukunft vermitteln, welches Team Ressourcen wie PsyCap und dessen Wirkung fördern kann.

Folglich wird zum einen angenommen, dass das Ausmaß von wahrgenommenem PsyCap auf Teamebene die individuell empfundene emotionale Erschöpfung (als eine wesentliche Komponente von Burnout) reduziert. Zum anderen gehen wir davon aus, dass die Höhe der gezeigten Vision der Führungskraft den negativen Zusammenhang zwischen Team PsyCap und Burnout moderiert.

Die vorliegende Studie trägt damit zum besseren Verständnis der Beziehung zwischen Team PsyCap und Burnout bei. Dabei folgen wir den Aufrufen nach Forschung zu PsyCap auf Teamebene, welche sowohl die Testung von PsyCap auf verschiedenen Ebenen (Luthans & Youssef-Morgan, 2017) sowie explizit die Testung der Rolle von PsyCap auf Teamebene für individuelle Ergebnisvariablen (Dawkins, Martin, Scott, & Sanderson, 2015) fordern. Aus praktischer Sicht könnte die Betrachtung von PsyCap auf Teamebene zu effektiveren Präventionsmaßnahmen, die sich explizit auch an das Arbeitsteam richten, führen. Darüber

hinaus leisten wir einen Beitrag zum besseren Verständnis des Zusammenspiels zwischen persönlichen und arbeitsbezogenen Ressourcen im Rahmen des Anforderungs-Ressourcen Modells, welches in der Literatur diskutiert wird (Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009). Praktisch kann das Wissen über die unterstützende Wirkung von der gezeigten Vision der Führungskraft auf die Beziehung zwischen Team PsyCap und Burnout beispielsweise im Rahmen von Führungskräfteentwicklungsprogrammen genutzt werden.

Insgesamt $N = 168$ Personen, genestet in $N = 53$ Teams aus unterschiedlichen Arbeitskontexten, nahmen im Rahmen dieser Studie an der Online-Befragung teil. Ergebnisse der Mehrebenenanalysen zeigten einen negativen Zusammenhang zwischen wahrgenommenem PsyCap auf Teamebene mit einer Subkomponente des Burnouts, der individuellen emotionalen Erschöpfung. Das heißt, dass bei hoch eingeschätztem Team PsyCap, die emotionale Erschöpfung geringer ausfiel. Außerdem zeigte sich, dass wenn Teammitglieder ein stark visionäres Führungsverhalten ihrer Führungskraft wahrnahmen, die Beziehung zwischen Team PsyCap und Erschöpfung verstärkt wurde.

Weitere Studien, insbesondere mit einer längsschnittlichen Betrachtung, könnten diese Ergebnisse und deren Interpretierbarkeit weiter stärken und ferner dazu dienen, Führung nicht ausschließlich als statische Bedingung, sondern als Prozess untersuchen zu können.

Insgesamt weisen die Ergebnisse dieser Studie auf die Bedeutung von Team PsyCap als Ressource im Kontext von Burnout hin, welche durch die Führungskraft positiv beeinflusst werden kann.

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Part I: Investigating and developing Psychological Capital in the context of academia

1. Abstract

Academia is a very challenging work environment characterized by high performance pressure and tough competition. The following paper investigates Psychological Capital (PsyCap) and its components self-efficacy, hope, optimism, and resilience as a personal resource in the context of academia in two consecutive studies. In Study 1, we examined if scientific staff members' PsyCap is related to their in- and extra-role performance. Participants (N = 116) took part in an online survey with two measurement points (time lag: five to seven months). Results of the regression analyses confirmed a relation of overall PsyCap to both performance dimensions. When looking at the components separately, self-efficacy was significantly related to in-role performance and resilience to extra-role performance. Study 2 aimed at training PsyCap in a quasi-experimental setting with an experimental (n = 30), an active (n = 22), and a passive control group (n = 17) and two measurement points (pretest-posttest). Whereas results of multivariate analyses of covariance showed no differences between experimental and the active control group there were differences between the experimental and the passive control group regarding overall PsyCap. Looking at specific components of PsyCap, besides both components that had been shown to be of special importance for employees in academia in Study 1 (self-efficacy and resilience) hope showed significant differences (experimental vs. passive control group). In conclusion, especially self-efficacy and resilience seem to play a role for performance in academia and can be developed.

Keywords: academia, research performance, psychological capital (PsyCap), intervention

2. General introduction

Challenging circumstances represent the daily life of scientists. Possible causes for adverse work conditions in academia can be setbacks such as rejected articles, tough competition, high publication pressure, reductions in funding and temporary contracts, comparatively low salary, working long hours and heavy workload (van Ameijde, Nelson, Billsberry, & van Meurs, 2009; Kinman, 2008; Winefield & Jarrett, 2001). Successfully coping with these adversities is crucial for performance and perseverance and consequently, for success in academia. But which factors predict who will be successful and who will not? Ryazanova and McNamara (2016) summarize that the literature on research performance mainly investigates two sides - institutional and individual factors. However, when looking more closely at individual-level factors, the vast majority of studies have examined rather unchangeable variables, such as demographics (e.g., Aguinis, Ji, & Joo, 2018, Dubbelt, Rispens, & Demerouti, 2016; Sallee, 2011; Snell, Sorensen, Rodriguez, & Kuanliang, 2009). Accordingly, Ringelhan, Wollersheim, Welpe, Fiedler, and Spörrle (2013) notice a lack of research when it comes to psychological predictors of research performance. Indeed, to the best of our knowledge, only few studies have looked at individual psychological factors, especially those which are open for development (e.g., networking behavior; Spurk, Kauffeld, Barthauer, & Heinemann, 2015). Thus, although identifying relevant institutional or trait personal characteristics in academia surely is important, shedding light on the role of malleable personal resources for research performance is an important extension to present research. But which personal resources are essential when it comes to research performance and which resources are open to development through training programs in the context of academia?

Psychological Capital (PsyCap) is a set of personal resources which has gained a lot of attention, recently. Luthans, Youssef, and Avolio (2007) define PsyCap as a higher order construct consisting of the four components: self-efficacy, optimism, hope, and resilience. According to the authors it is characterized by:

"(1) having confidence *(self-efficacy)* to take on and put in the necessary effort to succeed at challenging tasks; (2) making a positive attribution *(optimism)* about succeeding now and in the future; (3) persevering toward goals and, when necessary, redirecting paths to goals *(hope)* in order to succeed; and (4) when beset by problems and adversity, sustaining and bouncing back and even beyond *(resiliency)* to attain success." (p. 3)

PsyCap has proven to be relevant for employees' attitudinal, behavioral, and performance-related outcomes in different occupational contexts (e.g., meta-analysis, Avey, Reichard, Luthans, & Mhatre, 2011). Also, first research hints to the fact that PsyCap seems to be open for development (e.g., Luthans, Avey, & Patera, 2008; Luthans, Avey, Avolio & Peterson 2010). However, the positive effects of PsyCap seem to depend on the occupational context (Avey, Reichard et al., 2011; Avey, 2014). To date, studies examining PsyCap in the field of higher education are still scarce (Datu, King, & Valdez, 2018), especially those focusing on scientific staff members. This is somehow surprising because in order to deal with the array of challenging job demands described above, PsyCap should be especially beneficial for scientific staff members. In line with this reasoning, some studies hint to the relevance of PsyCap (or some of its components) in the context of academia (e.g., Blackburn, Bieber, Lawrence, & Trautvetter, 1991; Nielsen, Newman, Smyth, Hirst, & Heilemann, 2017; Vasil, 1992, 1996). Drawing on these initial findings and in order to gain a more comprehensive understanding of the functioning of PsyCap in academia, we performed two studies on PsyCap in academia. More specifically, in

Study 1, building on research on PsyCap and performance in other occupational fields, we tested the relationship between scientific staff members' PsyCap and different indicators of their work performance (in- and exra-role performance). In a second step, by administering a quasi-experimental design, Study 2 addressed the question of how PsyCap (and its components) can be trained in the context of academia.

Overall, we contribute to the literature in three ways. First, we add to research on performance in academia by examining PsyCap as a personal resource which is open for development (e.g., Luthans, Avey, & Patera, 2008; Luthans et al., 2010). Due to its trainability, PsyCap interventions could be integrated in personnel development programs in academia and consequently add to better coping strategies in the face of challenging work conditions.

Second, by investigating PsyCap in the field of academia, we answer the call to examine PsyCap in different work contexts since its importance has been shown to vary depending on the specific work type (Avey, Reichard et al., 2011).

Third, we contribute methodologically to existing research by not only looking at overall PsyCap but also separately at its components. We argue that besides its overall impact it is worthwhile to also take a closer look the components of PsyCap as their relative importance for scientists as well as their trainability may vary.

3. Theoretical background (Study 1)

3.1 The role of PsyCap in academia

As noted above, academia is a specific and especially challenging work environment characterized by a highly educated population, high performance pressure and tough competition (Oliveira, Curado, & Henriques, 2019). The relevance to investigate this specific context has

already been noted by various authors (Braun, Peus, Weisweiler, & Frey, 2013; Kinman, 2008; 2019; Mazzola, Walker, Shockley, & Spector, 2011). Also, differences between academia and other occupational fields have been found for different aspects such as occupational stress (Tytherleigh, Webb, Cooper, & Ricketts, 2005; Winefield et al., 2003) or quality of working life (Fontinha, Easton, & Van Laar, 2019). In order to deal with these challenging circumstances - which surely constitute a crucial precondition of work performance - personal resources are required (Gooty, Gavin, Johnson, Franzier, & Snow, 2009; Johnson, Willis, & Evans, 2018). Personal resources are defined as positive self-evaluations that refer to individuals' sense of their ability to control and impact their environment successfully (Hobfoll, Johnson, Ennis, & Jackson, 2003). PsyCap as a personal resource (e.g., Grover, Teo, Pick, Roche, & Newton, 2018) has been shown to be related to performance in various occupational fields (cf. meta-analysis Avey, Reichard et al., 2011; Abbas, Raja, Darr, & Bouckenooghe, 2014; Bouckenooghe, Zafar, & Raja, 2015; Carter & Youssef-Morgan, 2019). Although not investigated, yet, we argue that PsyCap as a meaningful higher order construct in the context of work performance should also be of special importance in the context of performance in academia.

In the literature, research performance covers different aspects such as research output, teaching or other service activities (Edgar & Geare, 2013) and consequently it is measured in various ways (review by De Witte & López-Torres, 2017). This is why researchers criticize that performance indicators are rather unclear or one-sided (e.g., Altbach, 2015; Ramsden, 1994). Following this reasoning, in her framework on research performance, Bazeley (2010) emphasizes that not only the engagement of the individual with regard to his or her own tasks is important but also collegial engagement (i.e., sharing knowledge and expertise). Hence, there are formal and rather obvious tasks when it comes to performance in academia as well as informal

ones. In this study, in order to gain a comprehensive picture of performance in academia, we concentrate on two performance dimensions in academia: in-role and extra-role performance. Both performance facets have generally been shown to be distinct (e.g., Van Dyne & LePine, 1998; Williams & Anderson, 1991). Whilst in-role performance encompasses all formally required behaviors (i.e., dissemination, attaining external funds) extra-role performance goes beyond that and contains behaviors such as helping colleagues or making innovative suggestions in order to improve standard procedures (Van Dyne & LePine, 1998). In-role (i.e., research performance) as well as extra-role performance (i.e., Organizational Citiznship Behavior, OCB) have both been related to PsyCap in other occupational fields (e.g., Avey, Reichard et al., 2011; Gooty et al., 2009; Norman, Avey, Nimnicht, & Pigeon, 2010) which highlights the importance of focusing on both aspects of performance when it comes to academia.

Hypothesis 1) Overall PsyCap will show a positive relationship with research performance.

Hypothesis 2) Overall PsyCap will show a positive relationship with OCB.

Beyond the overall functioning of PsyCap, we take a closer look at the role of its components for performance in academia. In the following section, we therefore delineate the functioning of the components self-efficacy, hope, optimism, and resilience for scientific staff members' (in-role and extra-role) performance in more detail.

Luthans, Youssef et al. (2007) describe people high in *self-efficacy* with five main characteristics. According to the authors, people high in self-efficacy: "set high goals for themselves and self-select into difficult tasks, they welcome and thrive on challenge, are highly self-motivated, invest the necessary effort to accomplish their goals, and finally, when faced with obstacles, they persevere" (p. 38). All of these processes are crucial preconditions for showing

high job performance. In line with this reasoning, the relation between self-efficacy and performance has been demonstrated in literature (e.g., meta-analysis by Stajkovic & Luthans, 1998). Accordingly, in the context of academia, Blackburn et al. (1991) examined factors influencing research performance (i.e., publications, presentations, and conversations about research with colleagues). They showed that - besides self-competence - self-efficacy significantly accounted for the explained variance. Additionally, a more recent study by Vrugt and Koenis (2002) investigated the extent to which perceived self-efficacy, personal goals, and upward comparison predicted scientific productivity of scientific staff members. Their results showed that a high perception of self-efficacy contributed to scientific productivity. These results hint to the fact that self-efficacy may be especially important when it comes to in-role performance. If the area or the overall aim of the task is clear (e.g., the publication of an article) this will initiate processes in individuals high in self-efficacy - such as setting high goals (Luthans, Youssef et al., 2007; Stajkovic & Luthans, 1998; Zimmerman & Martinez-Pons, 1990) - that will favor higher performance.

When it comes to people high in *hope*, they are described to show "greater goal-directed energy and are more likely to exhibit the capacity to develop alternative pathways to accomplish their goals" (Luthans, Avey, Clapp-Smith, & Li, 2008 in Newman, Ucbasaran, Zhu, & Hirst, 2014, p. 122). This description highlights that hope may play an important role when it comes to creative thinking. Scientific creativity, for example shown by the originality of the scientific work or its novelty, has been regarded as a key driver for scientific success and progress (Bazeley, 2010; Heinze, Shapira, Rogers, & Senker, 2009). Research "requires a high level of interpretive and analytic capacity in the researcher, and a mind open to new and different ways of seeing things" (Bazeley, 2010, p. 898). Consequently, to be successful in task-related areas in

research, scientists need to be hopeful. Let us get back to the example of publishing an article: In case of rejection, scientists constantly need to develop alternative ways, whether in the argumentation line or the scope. Only if they are able to adjust and stay persistent they will show high performance. Also, hope already has been shown to be related to in-role performance in other occupational fields (Peterson & Byron, 2008, Peterson, Gerhardt, & Rode, 2006). This is why we propose that when focusing on the specific role of hope it should be especially important when it comes to in-role performance in academia.

Individuals high in optimism, according to Luthans, Youssef et al. (2007), are more likely to "embrace the changes, see the opportunities that the future holds, and focus on capitalizing on those opportunities" (p. 97). This means that optimistic individuals are able to make the best out of their situation and possible opportunities. Some studies already have shown a general impact of optimism on in-role as well as extra-role performance in different occupational fields (e.g., Begley, Lee, & Czajka 2000; Kluemper, Little, & DeGroot, 2009). When it comes to the role of optimism in academia, Barkhuizen, Rothmann, and Van De Vijver (2014) highlighted its relevance for performance. Authors explain the relation between optimism and in-role performance (i.e., work engagement) with the fact that optimists should focus more clearly on job resources rather than job demands (Barkhuizen et al., 2014; Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009). Following this line of reasoning, optimism may be especially important when it comes to in-role performance.

Finally, with regard to resilience Luthans, Youssef et al. (2007) stated that highly resilient people possess "the ability to bounce back despite severe problems" (p. 111). Therefore, people high in resilience are able to deal with difficult circumstances and tend to be better at adapting when experiencing changes of their environment (Luthans, Vogelgesang, & Lester, 2006). With

respect to the context of academia, Johnson et al. (2018) showed the relevance of resilience for health-related outcomes. Although all PsyCap components somehow share a goal-relatedness in the description of each component (Luthans, Youssef et al., 2007) resilience seems to differ in a way. Resilience rather focuses on how to deal with difficult circumstances or setbacks. Therefore, it has been discussed for its role in performance. However, we propose that - going beyond the conceptualization of performance as the achievement of formally defined work goals - resilience may be important with respect to extra-role performance. For example, by showing a better handling of setbacks, highly resilient individuals may still be able to help colleagues.

To sum it up, the PsyCap components may differ with regard to their relationship to both performance dimensions. In order to get a more comprehensive understanding we therefore aim at shedding light on the question of how the PsyCap components will relate to both in-role and extra-role performance.

Research question 1: How will the PsyCap components (i.e., self-efficacy, hope, optimism, and resilience) be related to both in-role performance (i.e., research performance) and extra-role performance (i.e., OCB)?

4. Method (Study 1)

4.1 Participants and procedure

Participants were scientific staff members of various academic fields (natural sciences, social sciences, and medicine) at a large German university who took part in at least one of different courses of a personnel development program. In the end of each semester participants were invited to take part in an online survey in which they could win an amazon voucher. Overall, the survey was e-mailed to N = 943 participants of which N = 273 completed the first

questionnaire. After five to seven months (either the end of summer or winter term) these participants were invited to take part at a second questionnaire. Again, as incentive they could win an amazon voucher but also receive a personal profile which was based on their questionnaire data. Overall, $N = 185$ (drop-out rate from T1[1] to T2: 32.23 %) scientific staff members took part at the second measurement point. Data was matched using a 6-digit random identification code. Furthermore, it was only included if participants had taken part at both measurement points as well as filled out all items of the relevant study constructs completely. This procedure resulted in a final sample of $N = 116$ (overall drop-out rate from T1 to final sample: 57.51 %). Overall, $n = 15$ held a position as professor, $n = 56$ as post-doc, and $n = 45$ as doctoral candidate. Participants mean age was 35.12 ($SD = 7.62$) years with a range between 23 and 62 years. Overall, 46.60 % of the participants were male.

4.2 Measures and variables

For all reported measures we used validated German translations. Table 1 shows the means, standard deviations, and intercorrelations of all study variables.

***PsyCap*.** To measure PsyCap we used the German version of the 12-item short scale of the original 24-item Psychological Capital Questionnaire (PCQ, Luthans, Avolio, Avey, & Norman, 2007). Permission to use the PCQ in English and German version was obtained through the www.mindgarden.com permissions process. The PCQ-12 has been used in a number of previous studies (e.g., Avey, Avolio, & Luthans, 2011; Norman, Avolio, & Luthans, 2010) and additionally has been cross-nationally evaluated (Wernsing, 2014). It contains three items to measure efficacy, four items to measure hope, three items to measure resilience, and two items to measure optimism. Sample items include: “I feel confident presenting information to a group of

[1] T1 refers tot he first measurement point, T2 refers to the second measurement point.

colleagues" (self-efficacy), "If I should find myself in a jam at work, I could think of many ways to get out of it" (hope), "I usually take stressful things at work in stride" (resilience), and "I always look on the bright side of things regarding my job" (optimism). Responses were based on a 6-point scale ranging from 1 = *totally disagree* to 6 = *totally agree*. Cronbach's alpha was .62 for self-efficacy, .60 for resilience, .71 for hope, .76 for optimism, and .85. for overall PsyCap. As studies using the PCQ-12 tend to report overall PsyCap reliabilities (e.g., Combs, Milosevic, Jeung, & Griffith, 2012; Luthans, Avey et al., 2008; Norman, Avey et al., 2010; Woolley, Caza, & Levy, 2011) it is difficult to compare and explain these low reliabilities. However, studies which used the original 24-item instrument reported similar values (e.g., for resilience, see Culbertson, Fullager, & Millis, 2010).

In order to further test the psychometric properties of the instrument we conducted confirmatory factor analyses (CFA) using the lavaan package in R. (Version 3.3.2). Taking theoretical and empirical evidence into account (Avey, Reichard et al., 2011; Luthans & Youssef-Morgan, 2017), we tested PsyCap including a higher-order factor. We looked at absolute fit indices such as χ^2/df ratio as well as comparative fit indices such as Root Mean Square Error of Approximation (RMSEA), Comparative Fit Index (CFI), Standardized Root Mean Square Residual (SRMR). Good fitting models should have a CFI of close to .90 or greater, a RMSEA of equal or less than .06 and a SRMR value close to .08 (Hu & Bentler, 1999). Results showed an acceptable overall model fit of the proposed higher-order model ($\chi^2 = 92.861$, $df = 50$, $p < .000$, CFI = .893, RMSEA = .086, SRMR = .073). Furthermore, χ^2 difference tests revealed a significantly better model fit for the proposed four-factor model compared to the best fitting two-factor model with hope, resilience, and optimism merged to one factor ($\Delta \chi^2 = 15.626$, $\Delta df = 2$, $p < .001$) and one-factor model with all items loading on one common factor ($\Delta \chi^2 =$

37.017, Δ *df* = 4, *p* <.001). However, when comparing the proposed model to the best fitting three-factor solution with hope and resilience merged to one factor the proposed model only tended to show a better model fit but failed to reach significance ($\Delta \chi^2 = 0.229$, Δ *df* = 1, *p* = n.s.) and revealed only slightly superior fit indices ($\chi^2 = 93.090$, *df* = 51, *p* < .000, CFI = .895, RMSEA = .084, SRMR = .073). One explanation for this could be the small sample size and the rather low reliabilities described above (John & Soto, 2007). Nevertheless, as the overall model fit of the proposed four-factor model was acceptable and the distinction between the four factors according to the original conceptualization by Luthans, Avolio et al. (2007) already has shown to reveal meaningful results in former research we decided to rely on this well-established four-factor model (Luthans, Avolio, et al., 2007; Luthans & Youssef-Morgan, 2017; Wernsing, 2014).

In- and extra-role performance. In- and extra-role performance was measured with a German questionnaire by Staufenbiel and Hartz (2000, self-assessment form) which has already been successfully used in previous research (e.g., Binnewies, Sonnentag, & Mojza, 2009; Van Dick, R., Grojean, Christ, & Wieseke, 2006). We chose to select only the positively worded items in order to achieve better psychometric properties and to prevent psychometric problems such as artificial factors (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

Thus, in-role performance was measured with the four positive worded items of the in-role performance scale. An example item is “I fulfill responsibilities specified in my job description”. Because this scale is usually used to measure general performance, participants were instructed to think specifically about their research performance. Cronbach’s alpha was .88.

In order to assess extra-role performance, participants were asked to fill out the 15 positive worded items of the OCB measure. Sample items are “I help orienting new colleagues”

(altruism), “I make innovative suggestions to improve the overall quality of the department.” (civic virtue), “I am always very punctual” (conscientiousness). All items were rated on a 7-point-likert-scale ranging from 1 = *does not apply at all* to 7 = *fully applies*. Cronbach’s alpha for overall OCB was .82.

In addition to self-assessed performance scales participants were invited to voluntarily indicate more objective indicators of research performance, namely the number of granted third party funding and the number of peer reviewed articles within the last three years.

Control variables. As control variables we included gender and age. Research already has shown the importance of both demographic control variables in the context of research performance (e.g., Hedjazi & Behravan, 2011; Ringelhan et al., 2013; Wollersheim, Lenz, Welpe, & Spörrle, 2015). Additionally, age has been shown to be relevant for PsyCap (e.g., Avey, 2014), and both gender and age have been discussed and included as control variables in previous PsyCap studies (e.g., Luthans, Avey, & Patera, 2008).

Table 1. *Means, standard deviations, correlations and cronbach's α of the study variables.*

		M	*SD*	1	2	3	4	5	6	7	8	9
1	Gender (T1) [a]	1.47	.50									
2	Age (T1)	35.12	7.62	.05								
3	PsyCap (T1) [b]	4.76	.56	.07	.09	(.85)						
4	Self-Efficacy (T1) [b]	4.94	.66	.13	.21*	.69**	(.62)					
5	Hope (T1) [b]	4.67	.64	-.01	.02	.88**	.43**	(.71)				
6	Resilience (T1) [b]	4.89	.65	.02	.02	.80**	.44**	.64**	(.60)			
7	Optimism (T1) [b]	4.48	.98	.10	.04	.78**	.36**	.62**	.47**	(.76)		
8	RP (T2) [c]	6.16	.72	-.02	-.06	.41**	.33**	.38**	.27**	.31**	(.88)	
9	OCB (T2) [c]	5.59	.63	-.01	.14	.42**	.29**	.36**	.41**	.28**	.32**	(.82)

Note. $N = 116$; RP = Research Performance; Cronbach´s α is reported in parentheses; [a] Gender (1 = female, 2 = male); [b] Variables were measured on a 6-point scale; [c] Variables were measured on a 7-point scale; ** $p < .01$, * $p < .05$. (two-tailed test)

5. Results (Study 1)

5.1 Hypotheses testing

To test our hypotheses, we applied hierarchical linear regression analysis using IBM SPSS Version 24. In all analyses we included PsyCap (T1) as a predictor and age and gender as control variables.

In hypothesis 1, we predicted that overall PsyCap would show a positive relationship with research performance. Results revealed a significant relationship between overall PsyCap as a predictor and research performance as an outcome (ß = .424, p = .000). Thus, hypothesis 1 was supported[2]. In hypothesis 2, we predicted that overall PsyCap would show a positive relationship with OCB. Results revealed a significant relationship between overall PsyCap as a predictor and OCB as an outcome (ß = .418, p = .000). Consequently, hypothesis 2 found support as well[2].

Our research question addressed the question of how the PsyCap components (i.e., self-efficacy, hope, optimism and resilience) would be related to in-role performance (i.e., research performance) and extra-role performance (i.e., OCB). Therefore, we integrated them simultaneously two regression analyses predicting research performance and OCB, respectively. When looking at the components of PsyCap separately, only self-efficacy (ß = .230, p = .026) significantly predicted research performance, whereas resilience (ß = -.022, p = .849), hope (ß = .234, p = .071) and optimism (ß = .103, p = .357) did not. Furthermore, with regard to OCB, only resilience (ß = .283, p = .015) was a significant predictor while self-efficacy (ß = .087, p = .392), hope (ß = .106, p = .409) and optimism (ß = .048, p = .669) were not.

[2] Following the recommendations by Becker et al. (2016), we also conducted our analysis without control variables, obtaining the same pattern of results.

5.2 Additional analyses

In order to take a closer look at more objective indicators of research performance, we conducted additional analyses with a subsample focusing on peer-reviewed journals ($N = 109$) and granted third party funds ($N = 115$). Again, the component self-efficacy revealed to be (marginally) predictive of both indicators of in-role research performance (i.e., number of peer reviewed journal articles (ß = .172, $p = .096$) and granted third party funds (ß = .274, $p = .009$). By contrast, overall PsyCap showed a more mixed pattern of results for the number of peer reviewed journal articles (ß = .093, $p = .287$) and granted third party funds (ß = .215, $p = .016$).

6. Discussion (Study 1)

In Study 1, we investigated whether PsyCap is positively related overall to in-role and extra-role performance in academia. Our results supported a positive relationship with both performance dimensions. Hence, PsyCap seems to be a relevant personal resource in the context of academia concerning different facets of performance. Furthermore, going beyond the role of overall PsyCap, we were interested in the question of the role of the different PsyCap components (i.e., self-efficacy, hope, optimism, and resilience) for both performance dimensions. Our findings revealed that the positive relationship between PsyCap and performance is mainly driven by the components self-efficacy and resilience. More specifically, self-efficacy was related to in-role performance. This implies that scientific staff members who belief in their competencies and skills are able to perform better with regard to required tasks. Additional analyses concerning objective research performance criteria (i.e., attained external funding and peer reviewed journal article) supported this finding by showing (marginally) significant results for overall PsyCap and self-efficacy. This corroborates prior research in this field (e.g.,

Blackburn et al., 1991; Vrugt & Koenis, 2002). Contrary to self-efficacy, resilience was related to extra-role performance (i.e., OCB), that is performance which is not formally required. Hence, scientific staff members who are resilient seem to possess a high amount of resources to perform extra-role performance (e.g., helping colleagues) in addition to other formally required in-role performance tasks. There is preliminary evidence for the relevance of resilience for scientific staff members with the focus on health-related outcomes (Johnson et al., 2018). Going beyond these first results, our study shows that resilience matters for extra-role performance as well.

The fact that the two components hope and optimism were not related to performance contradicts prior research in other occupational fields that demonstrated that optimism and hope affect performance (e.g., Begley et al., 2000; Kluemper et al., 2009; Peterson & Byron, 2008, Peterson et al., 2006). At first appearance, the results therefore seem contra-intuitive. As stated in the beginning of this study, due to their goal-relatedness it would be plausible that both components matter (at least for in-role performance). These results underline the fact that the occupational context may matter and some components may be more relevant than others depending on the occupational context. As to academia, scientific staff members are confronted with high pressure and also carry out a specific kind of work. For example, their accomplishments and output (e.g., publications) result from their knowledge which they need to be confident with in order to convince others. Given the overall importance of PsyCap for performance and the distinct role of the PsyCap components, shedding light on the trainability of PsyCap with a special focus on its components is of special importance. This is why in Study 2, we took a closer look at a PsyCap intervention in the context of academia.

7. Theoretical background (Study 2)

7.1 The development of PsyCap

As highlighted in Study 1, PsyCap is assumed to play a central role for predicting performance in academia. Thus, the question of how PsyCap can be trained in academia is crucial. So far, only a handful of studies already have looked at the development of PsyCap in general (e.g., Luthans, Avey, & Patera, 2008; Luthans et al., 2010). In the following section, by giving a brief overview over previous research we describe the training approach we took in Study 2 in order to derive implications on the trainability of PsyCap and its components in academia.

In a first preliminary study by Luthans, Avey, Avolio, Norman, and Combs (2006) and the following book (Luthans, Youssef et al. 2007) the authors developed the so-called PsyCap intervention (PCI). The PCI aims at a development of all PsyCap components. For the development of hope, personal-valuable goals divided into sub-goals should be prepared as well as pathways and obstacle planning implemented. After this task participants should gather in small groups. The improvement of self-efficacy should be reached by experiencing success, feedback and modeling by others. This awareness of how these obstacles could be overcome is proposed to build confidence and support the development of positive expectancies which in turn is expected to result in higher optimism. Finally, resilience aimed to be increased by building awareness of personal assets in the form of talents, skills, and resources. Building on this preliminary work and in order to test the effectiveness of the PCI, Luthans, Avey, and Patera (2008) used a pretest-posttest control group experimental design. Participants (a heterogeneous sample of working adults from different industries) were randomly assigned to an online PsyCap intervention (treatment group) or a decision-making exercise (active control group). Their results

showed that PsyCap indeed was open for development. Subsequently, Luthans et al. (2010) applied this design and conducted conventional face-to-face trainings. This study in a sample of managers again showed that PsyCap was open for development and also that an enhancement of PsyCap was related to an improvement in participants' performance (see also a study by Luthans, Luthans, & Avey, 2014 that could replicate the trainability of academic and life PsyCap in sample of business students). Building on these initial results, Zhang, Li, Ma, Hu, and Jiang (2014) published a similar training approach with a passive control group a sample from China. These authors took a closer look at the components of PsyCap and showed that besides the improvement of overall PsyCap, hope showed differences in a pretest-posttest comparison. All other components, however, did not change in the experimental condition. In line with these findings, a study by Zhang et al. (2014) also suggests that not all components of PsyCap may be open for development to the same degree. Given the results of these two last studies who took a closer look at the components of PsyCap, the question arises if all subcomponents can be developed to the same extent. Also, whilst the first studies cited used active control groups only two studies used passive control groups (Dello Russo & Stoykova, 2015; Zhang et al., 2014) which impedes the comparability of study results.

Thus, building on this previous research, our Study 2 aimed at extending research on the PCI by conducting a study in the context of academia. We hereby compared an experimental group with both an active and a passive control group and took a closer look at the pretest-posttest comparisons for overall PsyCap. Consequently, we assume:

Hypothesis 1) There will be an increase of overall PsyCap in the experimental group compared to the active control group *(1a)* as well as the passive control group *(1b)*.

Again, as in Study 1, we were interested in the components of PsyCap and consequently raised the question if self-efficacy, hope, optimism, and resilience are open for development to the same degree. So, we propose the following research question:

Research question 1: Will the components of PsyCap (i.e., self-efficacy, hope, optimism and resilience) be all increased in the experimental group in comparison to the active as well as to the passive control group?

8. Method (Study 2)

8.1 Participants and study design

Study 2 used a quasi-experimental setting with a pretest-posttest design.

Similarly to Study 1, participants were scientific staff members of different academic fields (natural sciences, social sciences, and medicine) at a large German university as well as a research institution who took part in a personnel development program. Participants in the experimental group took part in a PsyCap training (EG, $n = 47$). Participants in the control groups were either participants of a self-presentation training ($n = 50$) and consequently served as an active control group (CG1) or participants who received the questionnaires at the end of the semester with no training in between thereby serving as passive control group (CG2, $n = 175$). Although never combined in one study, examples for similar control group designs can be found in PsyCap literature Dello Russo & Stoykova, 2015; Zhang et al., 2014).

To be included in the final sample, participants needed to take part at both pre- and posttest and had to fill out both questionnaires completely. This resulted in a final sample of EG ($n = 30$), CG1 ($n = 22$), CG2 ($n = 17$).

Participants mean age was 30.60 ($SD = 5.19$) years and the majority was female 65.20 %.

8.2 Procedure

Each group received an online questionnaire one week in advance to the training (pretest). Right after the 5-6 hour training the EG and the CG1 received the second questionnaire (posttest). The CG2 received the pretest questionnaire and the posttest questionnaire via E-Mail (time lag was also one week).

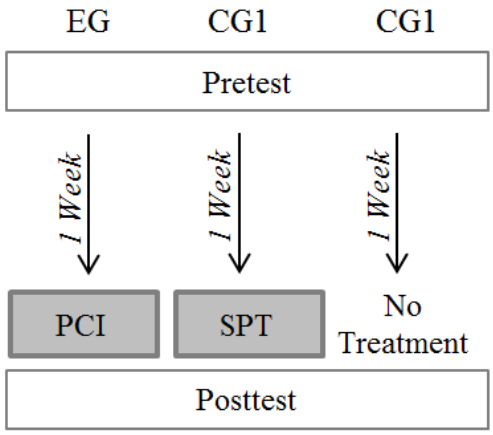

Figure 1. Procedure for the different groups. *Note*. EG = Experimental group; CG1 = Control group 1 (active); CG2 = control group 2 (passive); PCI = PsyCap Intervention; SPT = Self-presentation training

The intervention of the PsyCap training followed the PCI guidelines described by Luthans et al. (2010) and was based on an earlier work (Schnell, 2017) in which the training concept already had been successfully evaluated using a pretest-posttest-follow up-test control group design in a German consulting firm.

The first part of the training aimed at increasing participants' self-efficacy and hope. Hence, the first training part included watching and discussing a video of a positive role model, personal goal setting using the SMART-methodology, breaking down large goals, anticipating obstacles in reaching personal goals as well as a discussion and feedback on personal goals. The second part of the training aimed at increasing participants' resilience and optimism. Participants were instructed to draw a line with all experienced "ups" and "downs" during their "work-life-

line" and describe those briefly. Afterwards participants should concentrate on one specific "down" and write down their employed coping strategies. Again, a pairwise reflection followed with the instruction to collect all resources together which were used in that specific situation. Finally, participants were instructed to look at their SMART goals again and think about which of the resources they could use for goal achievement.

The self-presentation condition had a similar length compared to the PsyCap training but provided tips on self-presentation and contained practical exercises in which participants had to present themselves to the other participants. There were no conceptual overlaps between the self-presentation and the PsyCap training.

8.3 Measures and variables

Table 1 shows the means, standard deviations, and intercorrelations of all study variables.

***PsyCap*.** To measure PsyCap we used the same German translation of the 12-item short scale of the original 24-item Psychological Capital Questionnaire (PCQ,) which was used in Study 1. Cronbach's alphas were similar to those of Study 1. For self-efficacy was $\alpha_{T1} = .79$ and $\alpha_{T2} = .81$, for resilience it was $\alpha_{T1} = .69$ and $\alpha_{T2} = .65$, for hope it was $\alpha_{T1} = .79$ and $\alpha_{T2} = .82$, for optimism it was $\alpha_{T1} = .66$ and $\alpha_{T2} = .67$, and for overall PsyCap it was $\alpha_{T1} = .89$ and $\alpha_{T2} = .86$.

As in Study 1, psychometric properties were tested by using CFAs. Again, we tested the proposed higher order four factor structure which resulted in an acceptable model fit at T1 ($\chi^2 = 84.045$, $df = 50$, $p < .002$, CFI = .904, RMSEA = .099, SRMR = .075) as well as at T2 ($\chi^2 = 83.248$, $df = 50$, $p < .002$, CFI = .901, RMSEA = .098, SRMR = .076). Consequently, we performed χ^2 difference tests for this model in comparison to the best fitting three, two and the single-factor models for T1 and T2, respectively. Results are displayed in Table 2 and 3.

Similarly to Study 1, although showing reasonable overall model fit, the higher order four-factor model did significantly fit the data better than some of the alternative models (especially those with hope and resilience merged to one factor). Again, for conceptual reasons we sticked to the four-factor model and will discuss this issue in the discussion section.

Control variables. As in Study 1, gender an age were included as control variables.

Table 1. *Means, standard deviations, correlations and cronbach's α of the study variables.*

		M	*SD*	1	2	3	4	5	6	7	8	9	10	11	12
1	Gender (T1) [a]	1.38	.57												
2	Age (T1) [b]	30.60	5.19	-.01											
3	PsyCap (T1) [c]	4.40	.72	.24*	.14	(.89)									
4	PsyCap (T2) [c]	4.63	.59	.11	.19	.79**	(.86)								
5	Self-efficacy (T1) [c]	4.34	1.04	.33**	.13	.78**	.56**	(.79)							
6	Self-efficacy (T2) [c]	4.64	.83	.25*	.18	.59**	.65**	.71**	(.81)						
7	Hope (T1) [c]	4.32	.79	.11	.09	.87**	.64**	.47**	.34**	(.79)					
8	Hope (T2) [c]	4.61	.71	-.09	.18	.59**	.85**	.26*	.30*	.54**	(.82)				
9	Resilience (T1) [c]	4.67	.74	.20	.14	.83**	.68**	.50**	.37**	.69**	.58**	(.69)			
10	Resilience (T2) [c]	4.71	.67	.05	.19	.69**	.80**	.45**	.32**	.58**	.66**	.73**	(.65)		
11	Optimism (T1) [c]	4.25	.96	.13	.09	.82**	.78**	.50**	.52**	.70**	.64**	.60**	.54**	(.66)	
12	Optimism (T2) [c]	4.53	.89	.17	-.01	.56**	.76**	.27*	.34**	.54**	.58**	.41**	.53**	.71**	(.67)

Note. $N = 69$; Cronbach´s α is reported in parentheses; [a] Gender (1 = female, 2 = male); [b] $N = 68$; [c]Variables were measured on a 6-point scale; ** $p < .01$, * $p < .05$. (two-tailed test)

Table 2. *Comparison of measurement models PsyCap T1*

Model	Factors	χ^2	*df*	*p*	$\Delta\ \chi^2$	$\Delta\ df$	*p*	RMSEA	CFI	SRMR
HM1	HOM 4-factors (E, H, R, O)	84.045	50	.002				.099	.904	.075
AM1	HOM 3-factors (E, HO, R)	82.882	51	.003	1.163	1	n.s.	.095	.910	.073
AM2	HOM 2-factors (HRO, E)	86.227	52	.002	2.182	2	n.s.	.098	.904	.074
AM3	SFM 1-factor (EOHR)	127.371	54	.000	43.326	4	<.001	.140	.794	.090

Note. *N* = 69; HM = Hypothesized model; AM = Alternative model; HOM = Higher order model; SFM = Single factor model; E = Efficacy, H = Hope, R = Resilience, O = Optimism, *df* = degrees of freedom, RMSEA = Root Mean Square Error of Approximation, CFI = Comparative Fit Index, TLI = Tucker-Lewis Index, SRMR = Standardized Root Mean Square Residual.

Table 3. *Comparison of measurement models PsyCap T2*

Model	Factors	χ^2	*df*	*p*	$\Delta\ \chi^2$	$\Delta\ df$	*p*	RMSEA	CFI	SRMR
HM1	HOM 4-factors (E, H, R, O)	83.248	50	.002				.098	.901	.076
AM1	HOM 3-factors (E, HO, R)	92.166	51	.000	8.918	1	<.005	.108	.877	.079
AM2	HOM 2-factors (HRO, E)	93.381	52	.000	10.133	2	<.005	.107	.876	.080
AM3	SFM 1-factor (EOHR)	154.880	54	.000	71.632	4	<.001	.165	.698	.120

Note. *N* = 69; HM = Hypothesized model; AM = Alternative model; HOM = Higher order model; SFM = Single factor model; E = Efficacy, H = Hope, R = Resilience, O = Optimism, *df* = degrees of freedom, RMSEA = Root Mean Square Error of Approximation, CFI = Comparative Fit Index, TLI = Tucker-Lewis Index, SRMR = Standardized Root Mean Square Residual.

9. Results (Study 2)

9.1 Hypotheses testing

Prior to our analyses, we conducted a Multivariate analysis of variance (MANOVA) using IBM SPSS Version 24 to investigate possible group differences with regard to the level of PsyCap at T1. This set of analyses revealed that especially the passive control group differed from the experimental as well as the active control group in a way that their level of PsyCap was significantly higher. Reasons for these differences will be discussed in the discussion section.

To test our hypotheses, we applied a MANCOVA including the experimental and the two control groups as independent variables, the difference between PsyCap and its components (T2-T1) as dependent and age and gender as control variables. In our first hypothesis we expected a higher increase of overall PsyCap in the experimental group (EG) compared to a) the active control group (CG1) and b) the passive control group (CG2) (see Table 4 for an overview of all results). As expected, there was a significant difference between the EG and the CG2 (p = .000). However, there were no differences between the EG and CG1 (p = .353). Hence, hypothesis 1b was supported, while hypothesis 1a could not be supported[3].

In our research question, we wanted to further investigate if the PsyCap components of PsyCap (i.e., self-efficacy, hope, optimism, and resilience) would be all increased in the EG in comparison to the CG1 as well as to the CG2. Our analyses reveald a significant improvement when comparing EG with CG2 with respect to self-efficacy (p = .005), resilience (p = .006), and hope (p = .022). However, there was no significant improvement for optimism (p = .386). Furthermore, there were no significant differences between the EG and the CG1 for none of the

[3] Following the recommendations by Becker et al. (2016), we also conducted our analysis without control variables, obtaining the same pattern of results.

components: self-efficacy (p = .456), resilience (p = .173), optimism (p = .983), and hope (p =.159). Figures 2-6 show the comparisons for PsyCap and its components from T1 to T2 between all groups. This means that not all components could be developed in the same way. Furthermore, in the CG1 overall PsyCap as and self-efficacy were increased as well, which is why there were no differences between EG and CG1.

Table 4. *Results of the Mancova of PsyCap and its components between all groups.*

	Condition	PsyCap	Self-efficacy	Resilience	Hope	Optimism
EG	CG1					
	CG2	***	**	**	*	
CG1	EG					
	CG2	**	***			
CG2	EG	***	**	**	*	
	CG1	**	***			

Note. N = 68; EG = Experimental group (PsyCap training); CG1 = Control group 1 (Active control group); CG2 = Control group 2 (Passive control group); *** $p < .001$, ** $p < .01$, * $p < .05$.

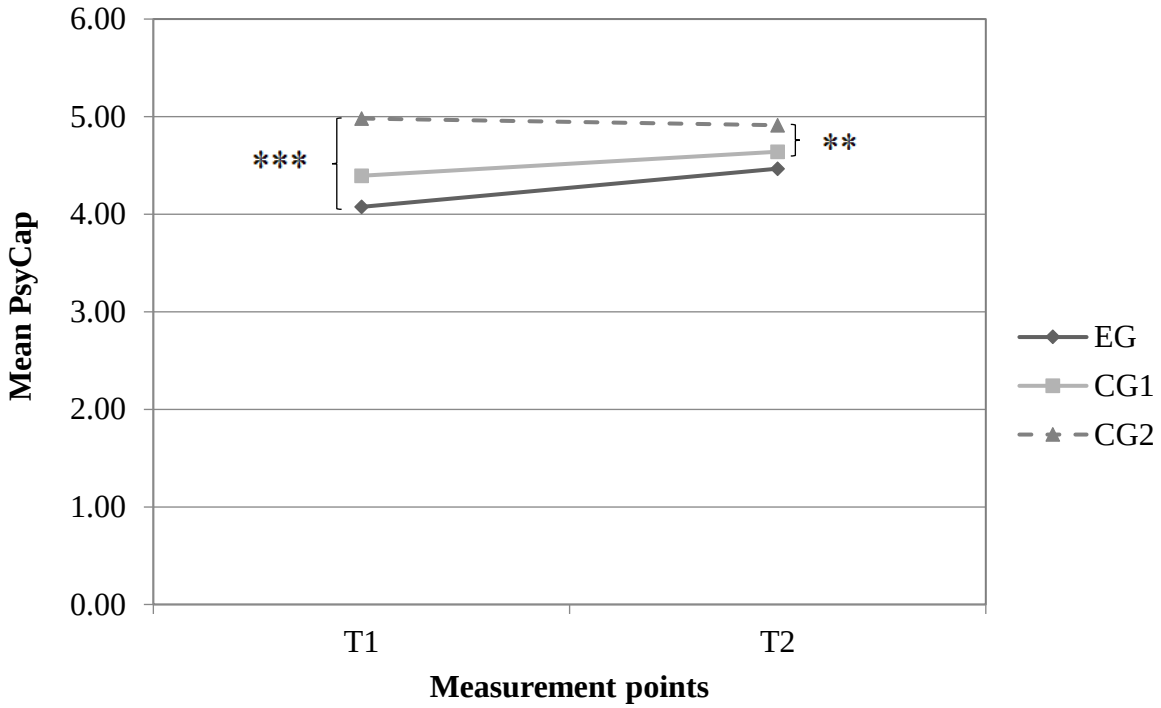

Figure 2. Increases of overall PsyCap from T1 to T2 between all groups.

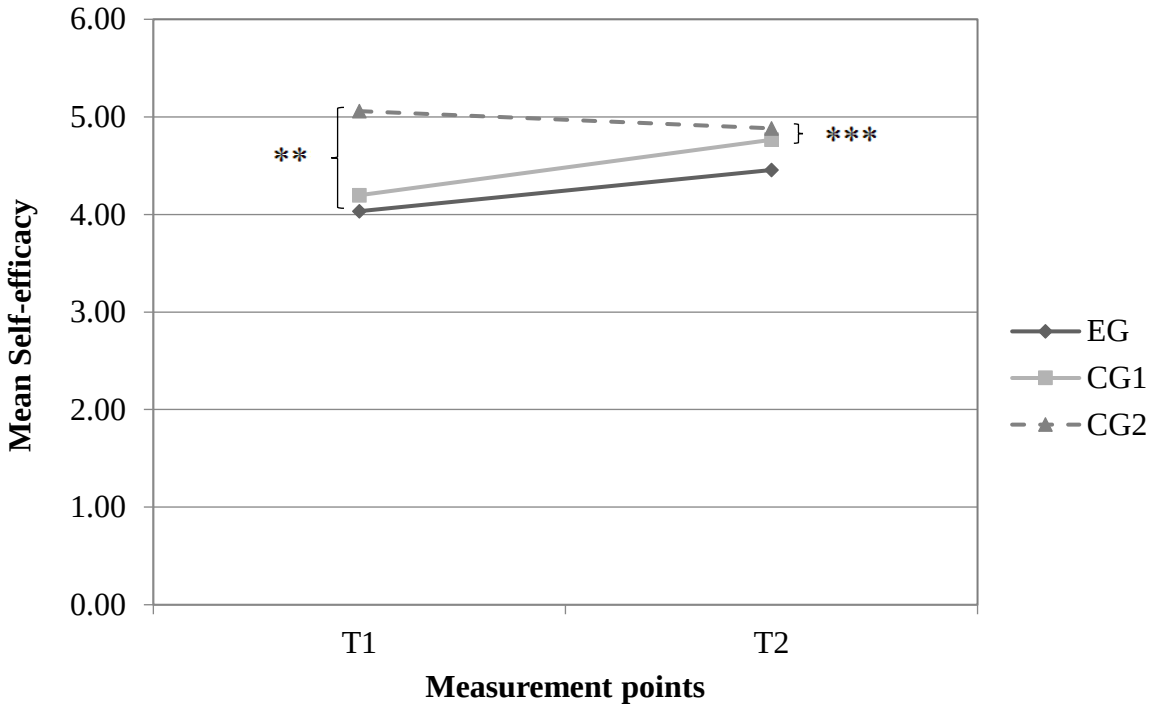

Figure 3. Increases of Self-efficacy from T1 to T2 between all groups.

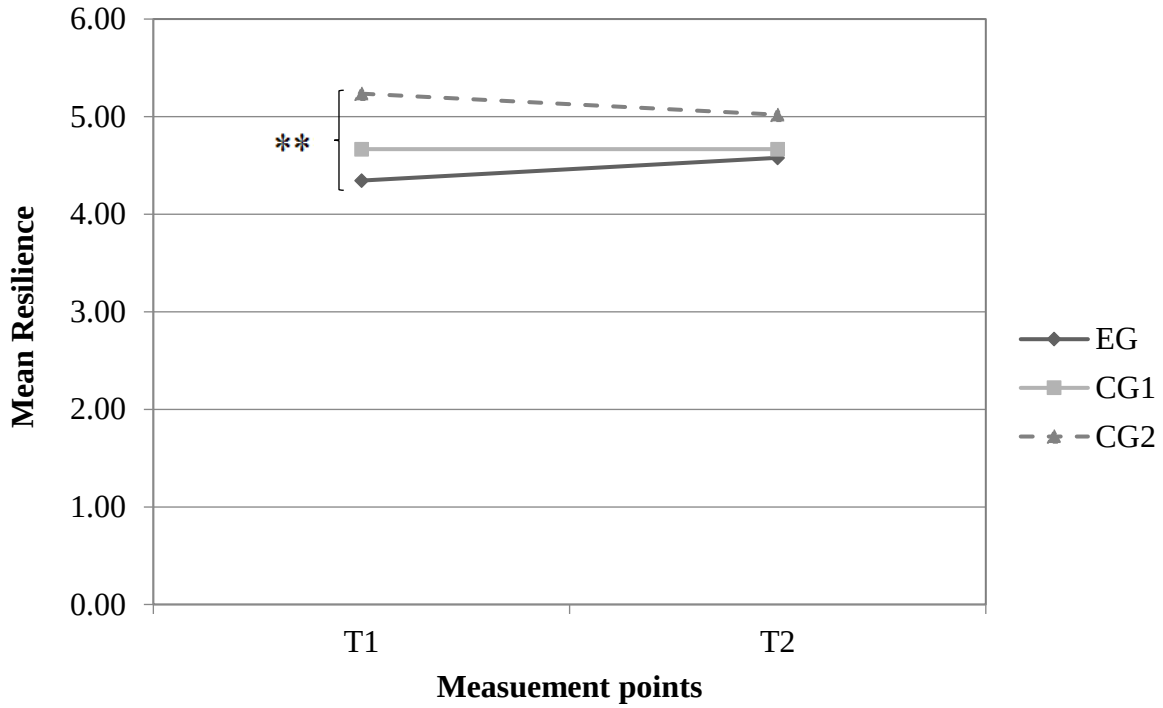

Figure 4. Increases of Resilience from T1 to T2 between all groups.

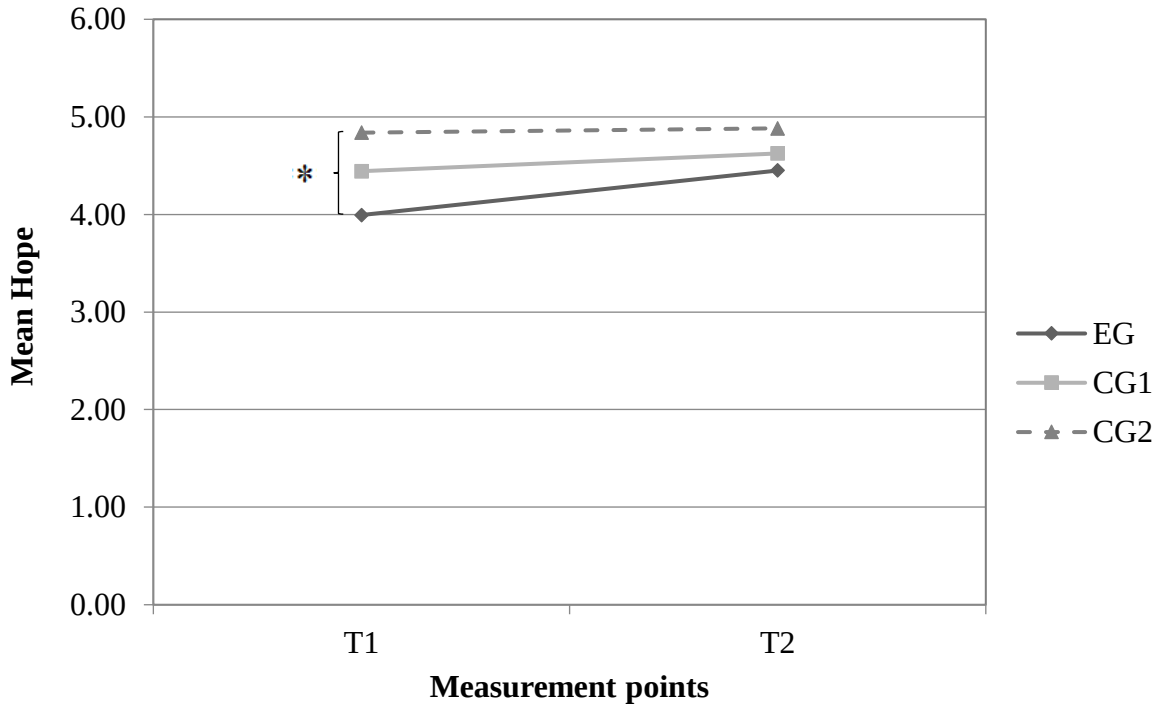

Figure 5. Increases of Hope from T1 to T2 between all groups.

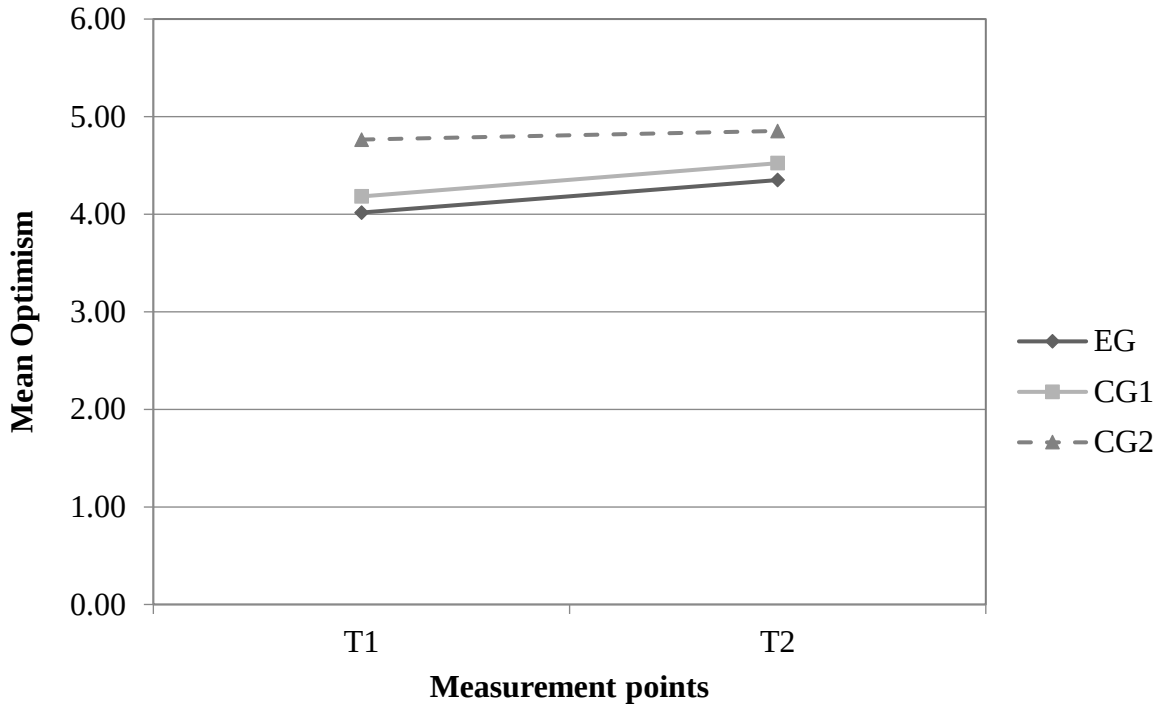

Figure 6. Increases of Optimism from T1 to T2 between all groups.

10. Discussion (Study 2)

In Study 2, we assumed that a PsyCap training would predict an increase of overall PsyCap in the EG in comparison to an active and a passive control group. Our hypothesis was partly supported. In the experimental condition, we demonstrated an increase of overall PsyCap in the experimental group (EG) compared to the passive control group which received no treatment (CG2). This result supports preliminary evidence that PsyCap is open for development (Luthans, Avey, & Patera, 2008, Luthans et al., 2010; 2014; Dello Russo & Stoykova, 2015; Zhang et al., 2014).

At the same time, our findings are limited as there was no difference between the EG and the active control group focusing on self-presentation skills (CG1). Furthermore, there was an unexpected difference between the two control groups (PsyCap in CG1 was significantly

compared to CG2). This highlights the fact that other interventions (besides the PCI) seem to be able to increase PsyCap as well. This is in line with the literature in two ways. First, a recent meta-analysis (Lupsa, Vîrga, Maricuțoiu, & Rusu, 2019) reports other interventions increasing PsyCap such as an intervention relying on the Job-Demand-Resource model (Van Wingerden, Derks, & Bakker, 2017) and a mindfulness-based intervention (Rinkoff, 2017). Furthermore, Luthans et al. (2014) also suggest including additional strategies drawn from Positive Psychology to enhance PsyCap, for instance, gratitude expressions. This is could be a reason why a training addressing a seemingly unrelated topic such as self-presentation also was able to foster participants' PsyCap.

Finally, our research question aimed at the exploration of the trainability of the different PsyCap components (i.e., self-efficacy, hope, optimism, and resilience) in comparison to both control groups. This additional examination revealed that there was an increase in three out of four components (i.e., self-efficacy, hope, and resilience) when comparing EG and CG2. However, no differences were found for overall PsyCap when the EG was compared to the CG1. Furthermore, when comparing both control groups, CG1 showed an improvement with respect to self-efficacy compared to CG2. Hence, the self-presentation training seems to be able to increase especially self-efficacy.

11. General discussion

According to our findings, overall PsyCap matters in the field of academia for in-role performance as well as for extra-role performance (Study 1) and it is open for development (Study 2). In Study 1, we further explored the role of the four components of PsyCap (i.e., self-efficacy, hope, optimism, and resilience). We showed that self-efficacy was explicitly relevant

for in-role performance, whereas resilience was relevant for extra-role performance in academia. We thereby contribute to the literature in two ways. First, we showed that PsyCap and its components are relevant in the field of academia and thereby answered the call to examine PsyCap in different work contexts (Avey, Reichard et al., 2011). Second, methodologically, our findings contribute to the literature by looking at the components of PsyCap separately shedding light on different patterns that may occur. In Study 2, by taking a training approach, we again took a closer look at the PsyCap components and revealed that the PCI (when comparing EG with CG2) predicted an increase in self-efficacy, resilience, and hope in academia. However, optimism was not increased. Hence, due to its trainability, PsyCap interventions could be integrated in personnel development programs in academia bringing along important practical implications.

11.1 Limitations and implications for future research

In the following section, we will discuss the limitations of both studies and give implications for future researchers.

In Study 1, the first limitation refers to the measurement of performance via self-report data. This way of measuring performance has been critically discussed in the literature (Farh & Dobbins, 1989; Heidemeier & Moser, 2009) and has been shown to reveal different results compared to objective performance measures (Pransky et al., 2006). Although additional analyses with more objective data (i.e., number of peer reviewed journal articles and attained external funding) reported by a subsample revealed similar patterns, future research should try to obtain more objective performance measures (see e.g., Braun et al., 2013 for an example objective performance measurement in academia).

Second, with respect to Study 1, we cannot completely rule out common method bias (Podsakoff et al., 2003). To reduce the risk of common method variance we separated predictor and outcome variable by applying to two measurement points with a time-lag of five to seven months. Furthermore, within the survey, participants were instructed that there are no right or wrong answers in order to reduce social desirability (Podsakoff et al., 2003).

Furthermore, although our results highlight the importance of PsyCap in the field of academia, this work cannot give comparisons to other occupational fields. Further studies are therefore needed to compare different occupational fields simultaneously. Given the different pattern of results for the components of PsyCap, these comparisons should also provide a detailed view on the different PsyCap components and their role for performance dimensions.

In Study 2, comparison of the baseline values of PsyCap revealed significant differences between the groups. In order to ensure comparability, we used a common statistical approach to partial out the differing initial score by using the gain scores (post score minus pre score) and the calculation of MANCOVAS between the groups (Wright, 2006). Nevertheless, we want to give a brief explanation for these differences. Since all trainings were part of a personnel development program we applied a quasi-experimental design. This means that participants were not randomly assigned to one of the groups but they could select whether to take part in the PsyCap or self-presentation training. Participants of the passive control group (CG2) showed the highest PsyCap values followed by the active control group (CG1) and then the experimental group (EG). Presumably, these results can be explained by self-selection mechanisms. For example, participants with rather low values of PsyCap presumably felt addressed by the description of the PsyCap training. One obvious solution for this issue in future research would be a random assignment of participants to different groups. Due to practical constraints, another way could be

to adapt the description of the PsyCap training in such a way that people with more diverse scores of PsyCap feel addressed by it.

Finally, there is another limitation concerning the comparability of the control groups. PsyCap as well as self-efficacy were increased not only within the EG (i.e., PCI) but also within the CG1 (i.e., self-presentation training). Although an effect of the CG1 was not expected, it seems not surprising. In order to select an appropriate training for the control group, we wanted to prevent any goal-related content. However, we did not take into consideration that it did include aspects of mastery experience as well as feedback which are reported to increase self-efficacy (e.g., Luthans, Avey et al., 2006). Therefore, future research should select training content even more unspecific for PsyCap such as decision-making processes (Luthans, Avey, & Patera, 2008; Luthans et al., 2010).

11.2 Theoretical and practical implications

The results of our two studies make several contributions to research and practice. First, by examining PsyCap in the field of academia we add to research on PsyCap in different work contexts. As delineated above, the PsyCap components showed distinct patterns. While self-efficacy only showed a significant relationship to in-role performance, resilience was related to extra-role performance. Neither optimism nor hope were related to any performance dimension. This could indicate that depending on the work context or work type different mechanisms are effective - either in the direction that generally some components are less important than others or that the underlying mechanisms which connect the components vary depending on the work context. Luthans and colleagues (2007) propose that “even though hope, resilience, optimism, and self-efficacy may have conceptual independence and discriminant validity, they may also make a unique theoretical and measurable contribution to a higher order, core construct of

PsyCap" (pp. 549–550). Our results raise the question which mechanism lead to discriminant validity and which connect the four components to this higher order construct. In our theory section we proposed for instance goal-directedness to account especially for three of the four components (i.e., self-efficacy, hope, and optimism). The relation between self-efficacy and in-role performance partly supports this proposition. As to resilience, we proposed that resilience focuses more strongly on the process of dealing with a certain situation than with a certain goal. We hope this notion will guide future researchers in the direction to gain a more comprehensive understanding of PsyCap and its underlying mechanisms.

From a practical point of view, there are two main implications. First, due to its impact on performance as well as its trainability it would make sense to integrate PsyCap interventions in personnel development programs in academia. Thereby, scientific staff members could gain better coping strategies in the face of challenging work conditions. Building on our results of Study 1, these trainings in academia should especially focus on fostering the two components of self-efficacy and resilience importance for both research performance and OCB, respectively.

Second, our results bring along important implications for the personal selection process. Given that PsyCap is an important personal resource fostering success in academia, this fact should be made transparent. For instance, a person who wants to start a PhD-program should be informed not only about the challenging environment but also about the importance of his or her level of PsyCap (or especially self-efficacy and resilience) as a personal resource. In the same vein, this knowledge could be used in coaching processes in academia.

11.3 Conclusion

This study showed that PsyCap not only is a relevant personal resource in academia but can be developed in this context as well. Further investigation of its components is needed to explore the underlying mechanisms of this higher order construct.

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Part II: Team-level Psychological Capital and its interaction with visionary leader behavior in the context of burnout

1. Abstract

Burnout is a problem affecting individuals as well as whole organizations. Whereas previous research already took a closer look at individual characteristics as risk or protective factors for burnout, relatively little is known about the role of team characteristics and perceptions. Building on the Job-Demand-Resource (JDR) model (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001) this study focuses on team PsyCap (i.e., "the team' shared positive appraisal of their circumstances and probability for success under those circumstances based on their combined motivated effort and perseverance", Peterson & Zhang, 2011, p. 134) as a team-level personal resource and its role for individual team members' burnout. Further, we aim to clarify circumstances that may facilitate the functioning of team PsyCap by taking a closer look at the interplay between team PsyCap and visionary leader behavior as a contextual job resource. Overall, $N = 168$ employees nested in $N = 53$ teams took part in this multi-level study. Hierarchical linear modeling (HLM) showed that team PsyCap was negatively related to team members' individual-level exhaustion. Furthermore, employees' individual-level perception of their leader's vision moderated the relationship between team PsyCap and individual exhaustion in such a way that the relationship was stronger when perceived visionary leader's vision was high. Our results indicate that integrating resources on different levels may help to further understand the complexity of organizational functioning. The present results thereby support the development of a more comprehensive theoretical models as well as prevention programs.

Keywords: Team Psychological Capital (PsyCap), Job-Demand-Resource (JDR) model, visionary leader behavior, burnout

2. Introduction

Work-related stress reactions cause substantial costs. A recent economic review revealed that in total work-related stress reactions cost industrial countries US$221.13 million to $187 billion per year (Hassard, Teoh, Visockaite, Dewe, & Cox, 2017). Particularly, burnout (i.e., a "psychological response to chronic work stress that is typically characterized by feelings of exhaustion", Qiao & Schaufeli, 2011, p. 88) plays an important role when it comes to different indicators of organizational performance (Taris, 2006). Organizations are thus striving to understand and prevent sources of employees' burnout. To explain the emergence of burnout and to derive recommendations for its prevention, scholars increasingly build on the framework of the Job-Demand-Resource (JDR) model (Demerouti et al., 2001; Schaufeli, 2017; Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2007). According to this model, employee well-being results from the interplay between positive resources and negative job demands (such as workload, Schaufeli & Taris, 2014). Positive resources thereby refer to personal as well as job resources. Whereas job resources constitute contextual resources at work (such as support, autonomy, Schaufeli & Taris, 2014), personal resources refer to beneficial personal characteristics. A comprehensive concept of personal resources constitutes the concept of Psychological Capital (PsyCap) which encompasses five personal characteristics:

"(1) having confidence *(self-efficacy)* to take on and put in the necessary effort to succeed at challenging tasks; (2) making a positive attribution *(optimism)* about succeeding now and in the future; (3) persevering toward goals and, when necessary, redirecting paths to goals *(hope)* in order to succeed; and (4) when beset by problems and adversity, sustaining and bouncing back and even beyond *(resiliency)* to attain success." (Luthans, Youssef, & Avolio, 2007, p. 3).

PsyCap has been shown to be a meaningful set of personal characteristics in the context of organizational health outcomes in general (Avey, Luthans, Smith, & Palmer, 2010; Avey, Luthans, & Jensen, 2009; Roche, Haar, & Luthans, 2014) and burnout in particular (Cheung, Tang, & Tang, 2011; Laschinger, & Fida, 2014; Leon-Perez, Antino, & Leon-Rubio, 2016). On the individual-level, a key mechanism explaining the protective role of PsyCap can be seen in its association to goal-related attitudes and strategies (Luthans & Youssef-Morgan, 2017). Pines (1993) identifies burnout-causing aspects of work to be those that prevent people from achieving their goals and expectations. Thus, people who suffer from burnout might be lacking strategies to successfully set and stick to their goals even when confronted with difficulties. By contrast, people who are high in PsyCap confidently set goals in their work area (self-efficacy), energetically pursue their work goals (hope), can get through difficult times at work because they have experienced and overcome difficulty before (resilience) and are optimistic about what will happen to them in the future as it pertains to work (optimism) (Luthans et al., 2007). Besides this individual-level, research increasingly emphasizes the need to take multiple levels into account when it comes to determinants in the JDR framework (e.g., Bakker & Demerouti, 2017, 2018). Accordingly, many personal resources may not only function on the individual but also on the team-level. In line with this reasoning, PsyCap has been argued to operate on the team-level (Clapp-Smith ,Vogelgesang, & Avey, 2009; Dawkins, Martin, Scott, & Sanderson, 2015) as an "agreement among team members in regard to the team's shared (team-referent) PsyCap" (Dawkins et al., 2015, p. 931), Consequently, team members not only perceive themselves as self-efficient, optimistic, hopeful or resilient but have a shared picture in mind about these resources within the team which they belong to. In some initial studies, this shared picture of team resources already has been shown to affect work-related outcomes such as performance

(Dawkins, Martin, Scott, Sanderson, & Schüz, 2018; Heled, Somech, & Waters, 2016; Mathe-Soulek, Scott-Halsell, Kim, & Krawczyk, 2014; Peterson & Zhang, 2011), team and job satisfaction (Dawkins et al., 2018; Heled et al., 2016; West, Patera, & Carsten 2009). However, until now, research has left the beneficial potential of team PsyCap for health-related outcomes underexplored. Thus, drawing on former research on the relation of individual PsyCap and burnout as well as emerging studies on the relevance of team PsyCap (e.g., Cheung et al., 2011; Consiglio, Borgogni, Alessandri, & Schaufeli, 2013; Dawkins et al., 2018; Heled et al., 2016), our study focuses on the relation between team PsyCap and burnout. We argue that analogously to its functioning on the individual-level, team PsyCap will also facilitate goal-related attitudes and behavior on the team-level thereby reducing individuals' experience of burnout. More specifically, we focus on employees' exhaustion which is considered as one core dimension of burnout (Demerouti, Bakker, Vardakou, & Kantas, 2003) and has shown the clearest pattern with work outcomes (such as performance, Taris, 2006).

Furthermore, research has pointed out that there are boundary conditions under which PsyCap might work even better. For instance, in their review, Newman, Ucbasaran, Zhu, and Hirst (2014) conclude PsyCap might be "more effective when employees are provided with greater clarity as to what is expected of them in their job" (p. 132). Moreover, with regard to team PsyCap they conclude that a greater consensus and shared understanding between team members might lead to a better ability to channel group efficacy towards goal setting and achievement. We therefore take a closer look on the perception of visionary leader behavior as a beneficial leadership behavior addressed to the team. We propose that by articulating a vision, leaders articulate a positive picture and goals for the future thereby providing direction to the team (Bass & Riggio, 2006). Building on former research that already revealed an interaction

between personal and job resources (Xanthopoulou et al., 2007; Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009) we argue that visionary leader behavior can be seen as a contextual job resource that channels team PsyCap. Thereby it supports the positive effects of team PsyCap on employees' burnout perception.

With the current research we aim to address the construct of team PsyCap as a team-level personal resource and its role for individual team members' burnout. Furthermore, building on the JDR-model, we aim to clarify circumstances that may facilitate the functioning of team PsyCap. More specifically, we take a closer look at the interplay between team PsyCap as a higher order personal resource concept and visionary leader behavior as a contextual job resource.

We contribute to the literature in two ways. First, we shed light on the relationship between team PsyCap and burnout. To the best of our knowledge, this study is the first which takes a comprehensive view on the relationship between team PsyCap and employees' burnout. By doing so, we answer the calls for testing PsyCap as a collective construct (e.g., review by Luthans & Youssef-Morgan, 2017) and determine the cross-level effect of collective PsyCap on individual-level outcomes (see review by Dawkins et al., 2015). Moreover, from a practical view, the exploration of team PsyCap and burnout could guide the way for more effective prevention programs addressing the team in addition to individual employees.

Secondly, by including visionary leader behavior as a possible contextual job resource we further contribute to exploring the relationship between personal and job resources as defined in the JDR-framework which is still discussed in literature (Xanthopoulou et al., 2009). The relevance of an interactive effect between team PsyCap and visionary leader behavior as proposed in our study becomes apparent in the area of leader development since it shows how

leaders can support work teams with their visionary leader behavior. Also, we propose that integrating resources on different levels may help to further understand the complexity of organizational functioning and therefore to develop more comprehensive theoretical models.

3. Theoretical background

3.1 Team PsyCap and Exhaustion

Team PsyCap is defined as "the team's shared positive appraisal of their circumstances and probability for success under those circumstances based on their combined motivated effort and perseverance" (Peterson & Zhang, 2011, p. 134). It therefore refers to the team-level (team-referent) perception of its self-efficacy, hope, optimism, and resilience. As mentioned above, this shared appraisal can be captured as a team resource and has already been related to important work outcomes (e.g., Dawkins et al., 2018; Heled et al., 2016; Mathe-Soulek et al., 2014). A mechanism explaining the emergence of team PsyCap is social contagion (Dawkins et al., 2015; Meindl, 1995 in Clapp-Smith et al., 2009). Dawkins et al. (2015) illustrate this process with the example of goal planning: "when team members are actively engaged in goal-oriented discussions, they have the opportunity to exchange beliefs and, in turn, share perceptions regarding the best ways in which the team can achieve its stated goals" (p. 930). Hence, the team influences how individuals deal with situations at work. In general, teams have been shown to have major impact on individual team members' attitudes, moods, and behavior of individuals (George, 1990). Even though research on burnout usually has taken an individual-level approach some initial results hint to the fact that burnout should partly be affected by team-level characteristics (e.g., Bakker, Emmerik, & Euwema, 2005; Consiglio et al., 2013). Furthermore, first studies have already revealed a positive relation between collective-self-efficacy - as a

component of team PsyCap - and burnout (Avanzi, Schuh, Fraccaroli, & van Dick, 2015; Consiglio, Borgogni, Alessandri, & Schaufeli, 2013). Hence, there is preliminary evidence for the role of team PsyCap in the context of burnout. Drawing on this initial research as well as research on the role of individual PsyCap in the context of burnout (Cheung et al., 2011; Laschinger, & Fida, 2014; Leon-Perez et al., 2016) we propose a negative relation between team PsyCap and employees' perception of burnout.

As mentioned above, in this study we focused on exhaustion which is defined as a "consequence of intensive physical, affective, and cognitive strain, i.e., as a long term consequence of prolonged exposure to certain job demands" (Demerouti et al., 2003, p. 14).

Consequently, we expect the following:

Hypothesis 1: Team PsyCap perception negatively predicts team members' individual-level exhaustion.

3.2 Visionary leader behavior as a moderator on the relation between team PsyCap and Exhaustion

Job resources are defined as "those physical, psychological, social, or organizational aspects of the job that are either/or functional in achieving work goals, reduce job demands and the associated physiological and psychological costs or stimulate personal growth, learning, and development." (Bakker & Demerouti, 2007, p. 312). More specifically, leaders are an "inherent part of employees' social context at work" (Hildenbrand, Sacramento, & Binnewies, 2018, p. 33) and they create a climate which is shared among all team members (Chen, Kirkman, Kanfer, Allen, & Rosen, 2007). Building on the definition of job resources we regard leadership - and more specifically visionary leader behavior as a sub dimension of their transformational leadership style (TFL) - as a structural, contextual resource (Hildenbrand et al., 2016).

TFL acts as an overall pattern of behaviors targeting at the entire work unit (Cho & Dansereau, 2010; Liao & Chuang, 2007). Besides visionary leader behavior, TFL comprises different leadership behaviors such as providing an appropriate role-model, fostering the acceptance of group goals, high performance expectations, providing individualized support, and intellectual stimulation (Podsakoff, MacKenzie, Moorman, & Fetter, 1990). We propose that visionary leader behavior as a subdimension of TFL should be explicitly relevant for teams and thus in the context of team PsyCap. Visionary leader behavior is defined as "the behavior on the part of the leader aimed at identifying new opportunities for his or her unit/division/company, and developing, articulating, and inspiring others with his or her vision of the future" (Podsakoff et al., 1990, p.112). Through communicating a vision, leaders paint an attractive picture of the future for the whole team (Podsakoff et al., 1990). Leaders hereby set goals that may support the team's planning of further steps and thereby channel the team's interaction and resources. Given that goal planning is central process underlying the functioning of team PsyCap we propose that leaders' vision should foster support the beneficial role of team PsyCap in the context of burnout. In line with this reasoning, visionary leader behavior has been shown to be relevant in the context of burnout (Densten, 2005) in general as well as it has been shown to moderate the relationship between team PsyCap and performance (Peterson & Zhang, 2011). Also, going in line with our reasoning, TFL in general has been shown to be related to the density of the team's communication network and the team's consensus or agreement on climate perceptions (Zohar & Tenne-Gazit, 2008).

Drawing on the fact that job resources already have been shown to be able to amplify beneficial effects of personal resources (Xanthopoulou et al., 2007) and the role of TFL and especially visionary leader behavior in the context of channeling team communication and

perception (Berson, Halevy, Shamir, & Erez, 2015; Haslam & Platow, 2001), we propose the following:

Hypothesis 2: Employees' individual-level perception of their leader's vision will moderate the relationship between team PsyCap and individual exhaustion in such a way that the relationship is stronger when perceived visionary leader behavior is high.

4. Method

4.1 Participants and procedure

The study's sample was recruited through personal and professional contacts of the authors (see Zacher & Wilden, 2014) and in the course of a master thesis. For the student-recruited data we took recommendations from Demerouti and Rispens (2014) into account. Initially, one contact person was contacted by the researchers and asked if he or she and at least two other team members would like to participate in an online survey. As an incentive they could win one out of two amazon vouchers worth 150 Euro each. If the person agreed to participate in the study an E-Mail was sent containing all relevant information including the link to the survey and the request to forward it to at least two team members. Furthermore, concerning data recruitment in the course of the master thesis, the student contacted a company's supervisor who distributed all relevant information to 27 potential teams in the company. Each team received a specific team number in order to be able to match their data. Overall, 158 Mails were distributed by the researchers and then forwarded by the contact person. Altogether, $N = 194$ participants responded to the survey. In order to prevent careless responses in online surveys we used the

self-reported single item (SRSI) indicator as recommended by Ward and Meade (2018)[1]. $N = 5$ persons were excluded due to this item. Additionally, only teams consisting of at least two team members were included in the final sample. Consequently, $N = 21$ participants had to be excluded due to inappropriate team size. The final sample consisted of $N = 168$ participants of which 56.50 % were female with a mean age = 32.52 ($SD = 9.71$). They were matched into $N = 53$ teams with an aggregated mean team size of 8.56 which ranged from three to 18 team members.

4.2 Measures and variables

Participants could select whether to fill out the questionnaire in English or German. For all reported measures we used the original English scale and validated German translations. Responses of all presented scales were based on a 5-point scale ranging from 1 = *totally disagree* to 5 = *totally agree*. Table 1 shows the means, standard deviations, and intercorrelations of all study variables.

Team PsyCap. To measure team PsyCap we used the 24-item Psychological Capital Questionnaire (PCQ, Luthans, Avolio, Avey, & Norman, 2007). Permission to use the PCQ in its English and German version was obtained through the www.mindgarden.com permission process. The instrument includes six items for each of the four subscales (efficacy, hope, resilience, and optimism). Originally, items are worded in a self-rating form and consequently had to be adapted with a team referent (Chan, 1998). This procedure is common for measuring PsyCap on a collective level (e.g., Heled et al., 2016; Rego et al., 2017).

[1] We used an adapted version of the original item of Meade and Craig (2012): “It is vital to our study that we only include responses from people that devoted their full attention to this study. Otherwise, time and effort could be wasted. No matter what, you will receive the chance to win the Amazon voucher after this study. In your honest opinion, should we use your data in our analyses as you have devoted your full attention to this survey?” If they did not agree, they were excluded.

Sample items include “My team feels confident presenting information to a group of colleagues” (self-efficacy), “If my team should find myself in a jam at work, it could think of many ways to get out of it” (hope), “My team usually takes stressful things at work in stride” (resilience), and “My team always looks on the bright side of things regarding its job” (optimism). Cronbach´s alpha for this scale was .89.

In order to test the psychometric properties of the instrument we conducted a confirmatory factor analysis (CFA) using the lavaan package in R. (Version 3.3.2). Taking theoretical and empirical evidence into account (Avey, Reichard, Luthans, & Mhatre, 2011; Luthans, & Youssef-Morgan, 2017), we tested PsyCap including a higher-order factor. The fit indices all showed an acceptable model fit for the proposed higher-order model with four factors ($\chi^2 = 456.811$, $df = 248$, $p < .000$, CFI = .841, RMSEA = .071, SRMR = .080). Furthermore, χ^2 difference test revealed a significantly better model fit for the proposed four-factor model compared to the best fitting three-factor model with hope, resilience merged to one factor ($\Delta\ \chi^2 = 18.895$, $\Delta\ df = 1$, $p < .001$), two-factor model with hope, resilience and optimism merged to one factor ($\Delta\ \chi^2 = 78.968$, $\Delta\ df = 2$, $p < .001$) and one-factor model where all items loaded on one common factor ($\Delta\ \chi^2 = 180.862$, $\Delta\ df = 4$, $p < .001$).

Vision. In order to measure the visionary leader behavior, we used the “Identifying and Articulating a Vision” subscale of the Transformational Leadership Inventory (TLI, Podsakoff, MacKenzie, & Brommer, 1996; Podsakoff et al., 1990) and the validated German translation by Heinitz and Rowold (2007). The subscale contains five items. A sample item is “My supervisor is able to get others committed to his/her dream of the future”. Cronbach’s alpha for this subscale was .91.

Exhaustion. To measure exhaustion, we used the original subscale and its translation of the Oldenburg Burnout Inventory (OLBI, Demerouti et al., 2003) which we were provided with by the authors. The subscale for exhaustion contains eight items. One sample item is "There are days when I feel tired before I arrive at work". Cronbach's alpha for this scale was .83.

Control variables. As control variables we included gender, age, and averaged team size because all of these constructs have been shown to be potentially related to our main constructs in prior research (e.g., Dawkins et al., 2015; 2018; Montano, Reeske, Franke, & Hüffmeier, 2017).

5. Results

5.1 Level of analysis

Following recommendations for multilevel research we centered all level-1 as well as level-2 continuous predictor variables around the grand mean (e.g., Enders & Tofighi, 2007). We first examined the main effect of team PsyCap while controlling for gender and age at the individual-level, and averaged team size at the team-level. In a second step, we addressed the cross-level interaction consisting of team PsyCap and individual-level visionary leader behavior. All analyses were conducted with the statistical software package HLM 7 (Raudenbush, Bryk, Cheong, & Congdon, 2004).

5.2 Preliminary analysis

To assess the appropriateness of aggregating team PsyCap scores to the team-level, we calculated the within group rater agreement rWG (j) and Inter Class Correlations (ICC1, ICC2) using the multilevel package in R (Version 3.3.2). The term within-group agreement refers to "the degree to which ratings from individuals are interchangeable" (Bliese, 2000, p. 351).

Furthermore, we calculated Inter Class Correlations (ICCs). While ICC1 gives information about the level of agreement from members in the same team, ICC2 indicates whether teams can be differentiated on the investigated variables (Dawkins et al., 2018). As a rule of thumb LeBreton and Senter (2008) report rWG values between .51 and .70 indicate moderate agreement, for ICC1 values should be > .05 and ICC2 > .60 (Bliese, 2000).

With .65, the mean rWG (j) value for team PsyCap showed a moderate agreement. The ICC1 was .18 and the ICC2 .40 which means that a substantial amount of variance occurred on both the individual and team-level and thus multilevel analyses are indicated. Usually in multi-level data a high agreement is warranted. However, Dawkins et al. (2018) suggest that "some diversity of team PsyCap perceptions may be beneficial" and further that "it may not be necessary for all team members to be similar in their team PsyCap perceptions in order to achieve desired outcomes" (p. 17).

Subsequently, taking the multilevel structure of our data into account, we conducted a series of multilevel confirmatory factor analyses (CFAs) to ensure that our three main constructs (i.e. team-level PsyCap, individual-level visionary leader behavior, and exhaustion) constituted distinct factors (Dyer, Hanges, & Hall, 2005) using the Mplus software package (Muthén & Muthén, 1998-2012). Overall, we tested two models: a three-factor structure (team-level PsyCap, individual-level visionary leader behavior, and exhaustion) and a two-factor-structure (individual-level visionary leader behavior and exhaustion merged to one factor).

Results indicated that the three-factor structure fit the data well ($\chi^2 = 539.480$, $df = 312$, $p < .000$, CFI = .859, RMSEA = .066, SRMR = .064). In comparison the fit indices for the two-factor structure were as follows: $\chi^2 = 894.113$, $df = 313$, $p < .000$, CFI = .640, RMSEA = .105, SRMR = .124.

5.3 Hypotheses testing

Hypothesis 1 predicted that team PsyCap negatively relates to individual-level exhaustion. Furthermore, hypothesis 2 predicted that individual-level perceived visionary leader behavior moderates the relationship between team PsyCap and individual-level exhaustion in such a way that it amplifies beneficial effects of team PsyCap.

To test hypothesis 1, we compared three nested models: (1) A null model (Model 0), which was the intercept-only model; (2) Model 1, in which we included all control variables (gender, age at the individual-level, and the average team size at the team-level); (3) Model 2, in which we included the main effect (team-level PsyCap). In order to test this hypothesis, we tested model improvements by calculating the difference (Chi-square distribution) between the likelihood ratio of the current and the previous model.

The results are displayed in Table 2. Model 1 showed no significant improvement over the null model ($\Delta - 2 \times$ log likelihood = 5.178, $df = 6$, $p = .158$). Thus, neither control variable significantly predicted employees' perceived exhaustion. By contrast, Model 2 showed a significant improvement over Model 1 ($\Delta - 2 \times$ log likelihood = 13.061, $df = 7$, $p < .001$). When looking at the regression coefficients, team PsyCap significantly predicted employees' exhaustion (ß = -.802, $SE = .206$, $p < .001$). Thus, hypothesis 1 was confirmed[2].

Addressing hypothesis 2, we compared five nested models: (1) A null model (Model 0), which was the intercept-only model; (2) Model 1, in which we included the same control variables as for hypothesis 1; (3) Model 2, in which we included the main effect (team-level PsyCap and individual-level visionary leader behavior). In a further intermediate step, following recommendations on cross-level interactions (Aguinis, Gottfredson, & Culpepper, 2013) we

[2] We also conducted our analysis with including individual PsyCap as a control variable, obtaining the same pattern of results.

added a random slope to the random intercept model in Model 3 (4). Finally, in Model 4 (5), we included the interaction-term between team-level PsyCap and individual-level visionary leader behavior. The results are displayed in Table 3. Model 1 showed the same results as when testing hypothesis 1 with no control variables significantly predicting employees' exhaustion. By contrast, Model 2 showed a significant improvement over Model 1 ($\Delta - 2 \times$ log likelihood = 17.844, $df = 8$, $p < .001$). When looking at the regression coefficients, team-level PsyCap (ß = -.628, $SE = .216$, $p = .005$) as well as individual-level visionary leader behavior significantly related to exhaustion (ß = -.145, $SE = .066$, $p = .030$). Model 3 showed no significant improvement over Model 2 ($\Delta - 2 \times$ log likelihood = 2.788 $df = 10$, $p = .247$). Finally, Model 4 again showed a significant improvement over Model 3 ($\Delta - 2 \times$ log likelihood = 5.745, $df = 11$, $p = .016$). Also, as expected, the regression coefficient of the moderation was significant (ß = -.635, $SE = .246$, $p = .013$). In a further step, we probed the simple slopes of the interaction term following the approach recommended by Preacher, Curran, and Bauer (2006). As expected, when participants perceived visionary leader behavior to be high (1 *SD* above the mean), team-level PsyCap negatively related to their exhaustion (estimate = -1.066; $SE = 0.235$; $t = -4.530$, $p < .001$). By contrast, there was no association if team members perceived visionary leader behavior to be low (1 *SD* below the mean) (estimate = 0.037; $SE = 0.102$; $t = 0.156$, $p = .877$. In conclusion, hypothesis 2 was supported[3]. Results are displayed in Figure 1.

[3] We also conducted our analysis with including individual PsyCap as a control variable, obtaining the same pattern of results.

Table 1. *Means, standard deviations, and correlations of the study variables.*

	M	*SD*	1	2	3	4	5
Individual-level (Level-1)							
1 Gender[a]	1.43	.50					
2 Age	32.52	9.71	-.12				
3 TFL-V[b]	3.65	.87	.17*	-.22**			
4 Exhaustion	2.52	.68	-.13	.05	-.32**		
Team-level (Level-2)							
5 Team size[c]	8.56	3.68	-.08	.04	-.29**	.16*	
6 Team PsyCap[d]	3.98	.28	.09	-.10	.48**	-.36**	-.34**

Note. N = 168 individuals (Level-1) in 53 teams (Level-2); ratings of the continuous variables were accomplished on a 5-point likert scale; [a] gender (1 = female, 2 = male); [b] TFL-V= Visionary leader behavior; [c] mean team size was aggregated between team members; [d] variable at the team level was assigned to individuals and correlated at the individual-level. The size of these correlations indicates the relationships at their level of analysis, respectively. However, due to the nested structure of the data, standard errors are biased, therefore, significance levels should be interpreted with caution (see Braun & Nieberle, 2017).
** $p < .01$ (two-tailed test).
* $p < .05$ (two-tailed test).

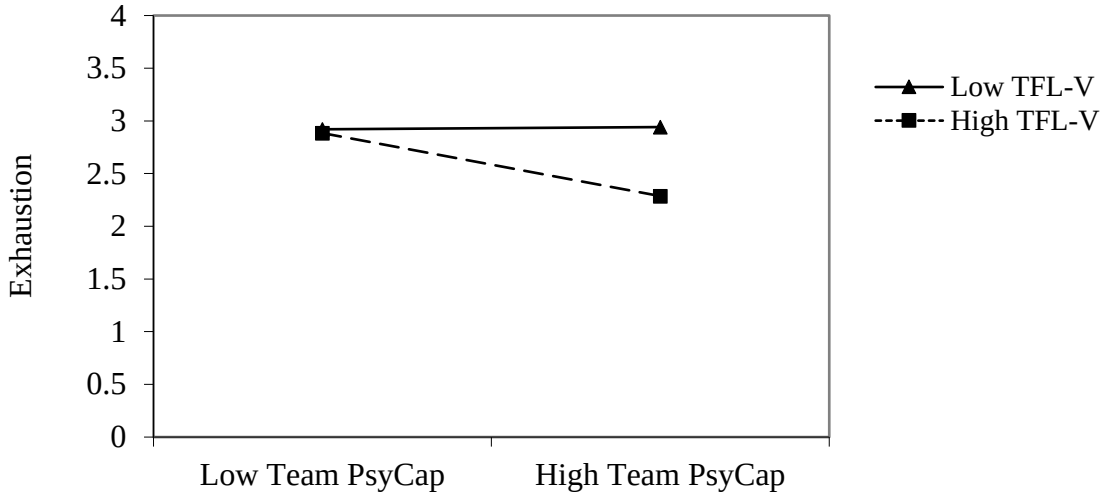

Figure 1. Interaction effect of individual-level visionary leader behavior (TFL-V) and team-level PsyCap.

Table 2. *Results of multilevel modeling analyses.*

	Nullmodel			Model 1			Model 2		
	Estimate	*SE*	*t*	Estimate	*SE*	*t*	Estimate	*SE*	*t*
Intercept	2.512	0.064	39.166***	2.688	0.163	16.499***	2.679	0.154	17.405***
Gender				-0.124	0.105	-1.180	-0.119	0.100	-1.188
Age				0.005	0.005	0.967	0.002	0.005	0.461
Team Size				0.027	0.017	1.536	0.007	0.016	0.409
Level-2									
Team PsyCap							-0.802	0.206	-3.898***
Model fits statistics									
– 2 × log likelihood			337.197			332.019			318.958
df			3			6			7
Δ – 2 × log likelihood						5.178			13.061***
Δ *df*						3			1

Note. Level-1: $N = 168$, Level-2: $N = 53$.
* $p < .05$ (two-tailed test).
** $p < .01$ (two-tailed test).
*** $p < .001$ (two-tailed test).

Table 3. *Results of multilevel modeling analyses.*

	Nullmodel			Model 1			Model 2		
	Estimate	*SE*	*t*	Estimate	*SE*	*t*	Estimate	*SE*	*t*
Intercept	2.512	0.064	39.166***	2.688	0.163	16.499***	2.655	0.152	17.478***
Gender				-0.124	0.105	-1.180	-0.100	0.099	-1.006
Age				0.005	0.005	0.967	0.000	0.005	0.071
Team Size				0.027	0.017	1.536	0.002	0.016	0.126
Level-1									
TFL-V							-0.145	0.066	-2.204*
Level-2									
Team PsyCap							-0.628	0.216	-2.900**
Cross-level interaction									
TFL-V × Team PsyCap									
Model fits statistics									
– 2 × log likelihood			337.197			332.019			314.175
df			3			6			8
Δ – 2 × log likelihood						5.178			17.844***
Δ *df*						3			2

Note. Level-1: $N = 168$, Level-2: $N = 53$.
* $p < .05$ (two-tailed test).
** $p < .01$ (two-tailed test).
*** $p < .001$ (two-tailed test).

Table 3. *Results of multilevel modeling analyses*. (Continued)

	Model 3			Model 4		
	Estimate	*SE*	*t*	Estimate	*SE*	*t*
Intercept	2.676	0.149	17.909***	2.757	0.150	18.366***
Gender	-0.090	0.096	-0.934	-0.118	0.095	-1.236
Age	0.002	0.005	0.393	0.003	0.005	0.553
Team Size	0.005	0.015	0.343	0.005	0.014	0.327
Level-1						
TFL-V	-0.167	0.083	-2.029*	-0.199	0.076	-2.597*
Level-2						
Team PsyCap	-0.640	0.210	-3.049**	-0.515	0.211	-2.436*
Cross-level interaction						
TFL-V × Team PsyCap				-0.635	0.246	-2.577*
Model fits statistics						
– 2 × log likelihood			311.387			305.642
df			10			11
Δ – 2 × log likelihood			2.788			5.745*
Δ *df*			2			1

Note. Level-1: $N = 168$, Level-2: $N = 53$.
* $p < .05$ (two-tailed test).
** $p < .01$ (two-tailed test).
*** $p < .001$ (two-tailed test).

6. Discussion

In the present study, we examined if team PsyCap functions as a team-level personal resource in the context of burnout and further, if visionary leader behavior as a contextual job resource will facilitate this process. Our results supported our hypotheses. Thus, team PsyCap negatively predicted team members' individual exhaustion. Furthermore, individual-level perceptions of visionary leader behavior moderated this relationship in such a way that the relationship was stronger when perceived visionary leader behavior is high.

The negative association between team PsyCap and employees' exhaustion shows that when the shared perception of team PsyCap was perceived as high, the individual team members felt less exhausted. The positive effect of team PsyCap as a personal team resource is in line with former research on team PsyCap and performance-related work outcomes (e.g., Dawkins et al., 2018, Heled et al., 2016) as well as on team-level components of PsyCap and burnout (Avanzi et al., 2015; Consiglio et al., 2013). Presumably, when team PsyCap - a construct which is decribed as highly goal related (e.g., Luthans et al., 2007) - is high, team-related planning processes are better and, thus, coping with job demands is more effective. This will bring along beneficial consequences for employees' perceived exhaustion. Additionally, the perception of the team as being very competent (self-efficient) in reaching its goals or can overcome difficult situations easily (resilience) may also improve the individual employees' coping strategies due to a sense of belongingness. Finally, an individual perceiving team PsyCap a being probably will feel feels safer in a sense that the team could act as a backup if he or she should find him- or herself confronted with a situation he or she could not cope with.

The fact that employees' perceived leader's visionary leader behavior facilitated the functioning of team PsyCap on burnout also finds support in literature. For example, transformational leadership in general has been shown to moderate the relationship between team

PsyCap and performance (Peterson & Zhang, 2011). Our results support the notion that by painting a vision of the team´s future (Podsakoff et al., 1990) leaders support the team's planning and, therefore, channel the team's resources. Our research thereby hints to fact that leader's visionary leader behavior acts as a contextual job resource interacting with a crucial team-level resource to prevent employees' burnout.

6.1 Limitations and implications for future research

In the following section, we want to describe some of the major limitations as well as suggestions for future research. First of all, our cross-sectional design limits the interpretability of our results due to common method variance (Podsakoff, MacKenzie, & Podsakoff, 2003). Thus, although our results are in line with previous longitudinal research in the context of individual resources and burnout (e.g., Kalimo, Pahkin, Mutanen, & Topipinen-Tanner, 2003) and we included various sources to obtain team PsyCap, future research could address this research question adding other research designs such as longitudinal studies as well as more objective indicators of stress-reactions (e.g., sickness leaves) to strengthen the interpretability of results. Conducting longitudinal research also would be beneficial to further analyze leadership as an ongoing process.

Furthermore, we captured exhaustion as an individual-level outcome. Although researchers called to determine the cross-level effect of team-level PsyCap on individual-level outcomes (see review by Dawkins et al., 2015) future research could include outcomes on the team-level or outcomes framed according to the referent shift approach (Chan, 1998). This would lead to a more comprehensive understanding of processes concerning team PsyCap.

Finally, we concentrated on visionary leader behavior since it is a leader behavior which focuses on the whole team and facilitates goal setting. However, this is a rather limited way to look at leadership. Nowadays leadership is more often understood as a dynamic social process

including leaders and followers (Acton, Foti, Lord, & Gladfelter, 2019). Consequently, also followers also could initiate or facilitate goal setting within the team. Hence, future research could look at those aspects as well. Furthermore, there might be other relevant aspects of the leader or the team in general which also may facilitate the functioning of team PsyCap. Thus, future research could take transformational leadership as a whole into consideration and may also add team-related aspects as boundary conditions such as the (collective) team identification which already has been shown to be a crucial moderator in team processes (Van Der Vegt & Bunderson, 2005). The authors describe that in teams with high levels of collective team identification individuals are committed to the team and its goals. Accordingly, the mechanism could be also relevant in order to facilitate team resources.

6.2 Theoretical and practical implications

In the following section we want to highlight what our results implicate for theory and practice. First, our study was the first to shed light on the relationship between team PsyCap and burnout as a crucial health-related outcome at work. This supports former research that not only individual-level resources matter but also team-level resources can have a beneficial impact on health-related outcomes (Avanzi et al., 2015; Consiglio et al., 2013). More specifically, our study offers initial support for the relevance of team PsyCap in this context. By revealing a cross-level effect of team-level PsyCap on an individual-level outcome - which has been called for in literature (Dawkins et al., 2015) - this finding highlights the relevance of including a multi-level perspective in research on personal resources. From a practical point of view, it shows that personnel development programs should take a closer look on team processes besides individual functioning. In their meta-analysis, Bolieret al. (2013) have shown the impact of positive psychological interventions on well-being and depressive symptoms on the individual-level. Accordingly, these interventions could be extended to include a team perspective, as well.

Furthermore, as delineated above, by including leader's visionary leader behavior as a contextual job resource into our study, we contribute to the exploration of the role of leadership within the JDR-framework (Bakker & Demerouti, 2017) as well as the interplay between personal and job resources which is still discussed in literature (Xanthopoulou et al., 2009). We showed that visionary leader behavior as a job resources acts as a facilitator for a team-level personal resource. This extends the view on the interplay between job and personal resources and supports the fact that besides a mediating function of personal resources (Xanthopoulou et al., 2007), job and personal resources also interact with each other thereby strengthening beneficial effects of each other (Xanthopoulou et al., 2009). From a practical point of view, our study highlights the relevance of the leader to activate the full potential of team-level resources. This is important for followers as well as for leaders. On the one hand, followers who know about the role of leader visionary behavior for their individual health can actively demand for it. On the other hand, visionary leader behavior as part of transformational leadership is open to change (Barling, Weber, & Kelloway, 1996) and, therefore, should be integrated in leader development programs.

6.3 Conclusion

This study showed that team PsyCap as a team-level resource has a positive impact on the individual and, moreover, that leaders play an important role in amplifying the positive effects of these resources within the team. Future research is needed to shed further light on this relationship taking further contextual factors into account.

7. References

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Abschließendes Fazit

In den zwei dargelegten Teilen dieser Arbeit wurde die Bedeutung von PsyCap im Arbeitsalltag beleuchtet – sowohl auf individueller Ebene (Teil 1) als auch auf Teamebene (Teil 2). Mit ihren Ergebnissen zeigt die Arbeit Brücken zwischen Forschung und Praxis auf und macht deutlich, wie man die Positive Psychologie nutzen kann, um Leistung zu fördern oder auch Burnout entgegen zu wirken. Diese Brücken sind essenziell und bedingen Fortschritt auf beiden Seiten. Die Positive Psychologie stellt einen Türöffner dar. Sie weckt das breite Interesse der Gesellschaft und auch des nicht-wissenschaftlichen Publikums an der Forschung. Dennoch ist besonders hier eine kritische Betrachtungsweise gefordert. Trotz seiner Etablierung ist die Forschung zu PsyCap noch relativ am Anfang. Das Konstrukt basiert auf der Annahme, dass es als Ganzes mehr aussagt als seine Einzelteile. In der Arbeit wurde jedoch unter anderem gezeigt, dass das nicht immer der Fall ist und sich zum Beispiel im Kontext der Wissenschaft besonders bzw. fast ausschließlich Selbstwirksamkeit und Resilienz als ausschlaggebend gezeigt haben. Diese Annahme gilt es weiter zu untersuchen. Auch auf Teamebene steht die Forschung noch sehr am Anfang. In diesem Bereich sollte zum einen noch weiter beleuchtet werden wie der Übertrag von PsyCap innerhalb des Teams stattfindet und wie die Wahrnehmung von Team PsyCap beeinflusst wird. Zum anderen sollte - auf einer basalen Ebene - geprüft werden wie das Konstrukt auf Teamebene noch besser erfasst werden kann.