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How Visions Motivate Behavior: Exploring Processes, Boundary Conditions, and Interactions with Artificial Intelligence

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List of Abbreviations

AIC	=	Akaike's Information Criteria
AVE	=	Average Explained Variance
BIC	=	Bayesian Information Criteria
CI	=	Confidence interval
Cf.	=	Confer (compare)
CFI	=	Comparative Fit Index
CFA	=	Confirmatory Factor Analysis
CR	=	Composite Reliability
e.g.	=	Exempli gratia (for example)
et al.	=	Et alii (and others)
etc.	=	Et cetera (and so forth)
FWS	=	Future Work Self
FWSC	=	Perceived Control over the Future Work Self
FWSS	=	Future Work Self Salience
HTMT	=	heterotrait-monotrait
i.e.	=	Id est (that is)
OSF	=	Open Science Framework
p	=	p-value
Prof.	=	Professor
RMSEA	=	Root Mean Square Error of Approximation
SRMR	=	Standardized Root Mean Square Residual
SD	=	Standard deviation
SDT	=	Self-determination theory
SE	=	Standard error
SEM	=	Structural equation modeling
vs.	=	Versus

List of Manuscripts and Conference Proceedings

Partial results of this dissertation have been published in the form of the following articles and presented at the following conferences with the permission of the TUM School of Management, represented by this dissertation's mentor:

Publications

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Conference Proceedings

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Co-authored Journal Publications

(*Note.* These journal papers were not part of the present dissertation)

I. Kehr, H. M., Voigt, J., & Rawolle, M. (2021). Follower Implicit Motives as the Missing Link Between Leader Vision, Follower Motivation, and Vision Pursuit. *Organizational Psychology Review,* 12(2), 1–27. doi.org/10.1177/20413866211061364

II. Talluri, S., Strauss, K., Newman, A., & Voigt, J. (under review). Future Work Self Salience: A Systematic Review and Future Research Agenda. *Journal of Business Research.*

Abstract

How do people set the course for both their personal and professional lives? Visions—vivid, picture-like mental representations of a desirable, long-term future state—can be a central tool in this process. Indeed, a growing body of organizational research shows that visions of the future can increase motivation and performance. Surprisingly, however, despite the evidence for the benefits of visions, little is known about how and when they motivate behavior. In addition, most research on visions has focused primarily on their main effects on motivation. Thus, this dissertation aims to investigate the processes and boundary conditions of the effectiveness of visions, as well as how a clear vision itself may serve as a moderator.

In the first article of this dissertation, I examined positive affective responses as an important mediator of the effectiveness of visions. In an initial online experiment (N = 128), I demonstrated that both visions and vision-derived goals elicited more positive affect than a control condition (simply stating a "superordinate goal"). In a second online experiment (N = 323), I replicated and extended these findings by demonstrating that visions are positively related to goal progress through positive affect, positive anticipatory affect related to a vision-derived goal, and goal commitment. These results support the idea that visions exert their motivational effects by emotionally charging the activities associated with them.

In the second article of this dissertation, I sought to extend the findings of the first article by examining whether vision self-concordance (i.e., the degree to which an individual's stated vision aligns with his or her implicit motives) shapes the extent to which visions elicit positive affect and foster vision-related goal pursuit. To this end, I tested a first-stage moderated mediation model in which vision self-concordance moderates the effect of visions on goal commitment and goal progress via positive affect. In an initial cross-sectional experiment (N = 358), I observed that

an elicited vision (vs. simply stating a "superordinate goal") evoked greater positive affect, particularly when self-concordance was high compared to low. In a second experiment with a one-month time lag ($N = 288$), I showed that when self-concordance was high compared to low, visions were associated with heightened positive affect and commitment to the goals derived from the visions. In a third time-lagged online experiment ($N = 254$), these results were replicated and shown to extend to goal progress. By demonstrating that the congruence between implicit motives and visions results in greater positive affect, goal commitment, and goal progress, these findings highlight the important role of self-concordance in moderating the effectiveness of visions.

The third article in this dissertation examined visions in a pervasive context, the emergence of generative artificial intelligence (AI). Specifically, I examined whether the salience of one's vision of one's future career (i.e., the vividness and ease with which these future visions are imagined) moderates the effect of interacting with an AI on perceived control over one's vision of one's future career and proactive career behavior. In an initial time-lagged online experiment with 174 full-time employees based in the United Kingdom, participants who interacted with an AI on an in-tray task (as opposed to a control group) reported having greater control over their future career visions when their career visions were highly salient, as opposed to when they were less salient. In a second time-lagged online experiment, I replicated these results with a sample of German business students ($N = 208$). A third time-lagged study with full-time employees in Germany ($N = 155$) expanded the model and found evidence for a moderated mediation: for individuals whose career vision was highly salient, interaction with AI boosted perceived control over the future career vision and thereby fostered proactive career behavior. In contrast, for individuals whose career vision was less salient, it decreased perceived control over the future career vision and proactive career behavior.

In sum, this dissertation contributes to research and practice by demonstrating that: (1) a potential process by which visions motivate behavior is by affectively charging vision-related goals; (2) perceived vision self-concordance is an important individual-level moderator that affects the extent to which visions elicit positive affective responses and vision-related goal striving; (3) a clear vision of one's future career might enable individuals to imagine the possibilities of AI for their future careers, make them feel more in control of their envisioned future, and thus promote proactive career behavior. I discuss the theoretical and practical implications of the studies included in this dissertation and suggest directions for future research.

1 General Introduction

Imagination is the beginning of creation.

You imagine what you desire, you will what you imagine and at last you create what you will.

- George Bernard Shaw

In September 1962, President John F. Kennedy captured the imagination of millions of Americans. In what is now considered one of the boldest calls to action of the twentieth century, Kennedy declared America's ambition to land a man on the moon before the end of the decade: “We choose to go to the moon. We choose to go to the moon in this decade and do the other things not because they are easy, but because they are hard [...]” (JFK Library, 2024). This clear vision was more than just words; it was a living beacon that galvanized a nation’s efforts in science and technology, fostering a spirit of innovation that would eventually lead to the Apollo 11 astronauts walking on the lunar surface in 1969.

Drawing on such examples, management practitioners consistently emphasize the need for organizations and their leaders to cultivate clear visions of their future to ensure organizational success (Ashkenas & Moore, 2022; Collins & Porras, 1996). Similarly, organizational scholars have proposed that articulating a clear vision of the future plays a central role in motivating collective efforts to accomplish monumental tasks (Bass & Avolio, 1994; Stam et al., 2010b) and is a critical determinant of organizational success (Stam et al., 2010b, 2010a, 2014; van Knippenberg & Sitkin, 2013). Indeed, theorists have suggested (e.g., Berson et al., 2015; Stam et al., 2014) and empirical studies have demonstrated the effectiveness of visions in various settings on various positive outcomes, such as improved performance (Kearney et al., 2019; Kim et al., 2023), increased follower motivation (Conger et al., 2000; Stam et al., 2010b), reduced turnover intentions (Buss & Kearney, 2024; Kipfelsberger et al., 2022), increased creativity (Cai et al.,

2023; Fan et al., 2022), and greater support for organizational change (Carton et al., 2023; Venus, Stam, et al., 2019).

Although a large number of studies have documented the benefits of visions in motivating behavior, little is known about how and when visions motivate behavior (Buss & Kearney, 2024; Kohles et al., 2012; Stam et al., 2010b; Venus, Johnson, et al., 2019). For example, Venus, Stam, et al. (2019) emphasize in this regard that the mechanisms by which visions drive behavior are "ill-understood" (p. 681), especially when visions are simplified to simply communicating an image of the future (Kearney et al., 2019). Echoing this sentiment, Fan et al. (2022, p. 552) noted that "there is still a lot to learn about the mediators and moderators" that influence the effects of visions. Moreover, although some studies have begun to examine visions as a boundary condition, the majority of studies to date have focused on the main effects of visions in motivating behavior. These observations have led numerous scholars to call for a deeper investigation of the processes underlying the effectiveness of visions (Beyer, 1999; Paine et al., 2023; Stam et al., 2010b), a call that has largely gone unanswered. This is a significant omission, as furthering our understanding of how, why, and when visions motivate behavior, particularly how they relate to follower psychological states, is critical as it could provide practitioners with deeper insights into creating visions that translate effectively into concrete follower actions (Kehr et al., 2021), and identify situations in which having a clear vision may be particularly important.

Recently, scholars have suggested that this lack of detailed understanding may be due to the tendency of previous research to conflate visions and visionary leadership with broader leadership concepts such as transformational leadership (Buss & Kearney, 2024; Carton, 2022). Consequently, to truly understand how and when visions motivate behavior, and also to explore how visions may act as moderators, it is essential to study visions from an individual-level

perspective (Preller et al., 2020) that allows these elements to be studied independently (Buss & Kearney, 2024). Accordingly, in this dissertation, I examine the effects of visions at the individual behavioral level to explain three aspects: (1) the processes and (2) the boundary conditions of the motivational effects of visions, and (3) the situations in which visions shape behavior (Kehr et al., 2021; Stam et al., 2014).

First, I consider positive affect to be an important mediator of the effects of visions. Although scholars have argued that the vivid mental imagery elicited by visions is a central feature of their motivational effects (Carton et al., 2014, 2023; Carton & Lucas, 2018; Kehr et al., 2021), speculating that mental imagery is "emotionally engaging" (Carton & Lucas, 2018, p. 2108), and positive affect is generally considered to be a crucial factor in motivation (e.g., Aarts et al., 2008), whether vision-induced positive affect actually increases motivation for vision-related behaviors has yet to be empirically tested (Paine et al., 2023). Therefore, I draw on *goal systems theory* (Kruglanski et al., 2002, 2018) to examine whether vision-induced positive affect is transferred to vision-derived goals (Stam et al., 2014), thereby promoting goal commitment and consequently, goal progress (Aarts et al., 2008; Custers & Aarts, 2005).

Second, I examine the congruence between an individual's core self and their vision as a boundary condition of the effects of visions. Although it has been proposed that the effects of visions vary significantly depending on how closely they align with the core self of an individual (Shamir et al., 1993; Stam et al., 2014), this question has not been empirically examined. Drawing on the *self-concordance model* (Sheldon, 2014; Sheldon & Elliot, 1999), I examine whether the congruence of an individual's vision with his or her implicit motives and intrinsic values can shape the extent to which visions evoke positive affect and promote vision-related goal pursuit. I examine whether the congruence between an individual's vision and their implicit motives and intrinsic

values can shape the extent to which visions elicit positive affect and foster vision-related goal pursuit.

Third, I examine the situations in which visions shape behavior, focusing in particular on how the clarity of a person's personal vision acts as a boundary condition in a contemporary context: interactions with powerful generative AI. Given that AI is assumed to significantly impact careers (Parker & Grote, 2022), I examine whether the salience of an individual's future work self[1] might shape how interactions with AI influence individuals' career-related cognitions and behaviors. Drawing on the *proactive motivation model* (Parker et al., 2010) and research on *future work selves* (Strauss et al., 2012), this study examines how the salience of future work selves—the vividness and ease with which these futures are imagined—impacts individuals' perceived control over their future work self and their proactive career behaviors.

Thus, in summary, with this dissertation, I seek to explore in three papers: (1) the processes by which visions motivate behavior, (2) the boundary conditions that determine their effectiveness, and (3) whether a clear vision of the future is important when interacting with AI (see Table 1 for an overview of the three papers).

Before outlining the main parts of the research in Chapters 2 through 4, the remainder of the introductory Chapter 1 proceeds as follows. Section 1.1 provides an overview of the relevant literature on visions and related constructs and develops the research questions of this dissertation. Next, Section 1.2 provides a brief overview of the data collection procedures, sample characteristics, and analytical techniques employed in each paper. Section 1.3 then presents the key contributions and provides a brief overview of the remaining structure of the dissertation.

[1] In this dissertation, I conceptualize future work selves as a specific type of visions, specifically an individual's personal vision of their future career. This conceptualization follows previous work that has described future work selves as a "personal vision" (Strauss et al., 2012, p. 593) of one's future career (see also Strauss & Parker, 2018). In the following discussion of visions and related constructs, I will return to the relationship between visions and future work selves in more detail.

1.1 Theoretical Background and Development of Research Questions

1.1.1 Visions and related constructs

Throughout the organizational literature, visions have been defined and conceptualized in a variety of different ways, with each definition emphasizing different aspects of what constitutes a vision. For example, visions have been defined as goals or future states that align with and motivate organizational members (Berlew, 1974; House, 1977), as future-oriented idealizations of shared organizational goals shaped by leaders (Conger, 1999), as an idealized image of the future that inspires members (Rafferty & Griffin, 2004), and as images of a collective future that unify and mobilize groups (Stam et al., 2014). While attempts have been made to integrate these different conceptualizations and definitions (Berson et al., 2016), a universally accepted definition of visions remains elusive.

Nonetheless, many recent papers have emphasized the defining role of imagery in visions, describing them as "images of the future" (Carton et al., 2023; Carton & Lucas, 2018; Gochmann et al., 2022; Lewis & Clark, 2020; Stam et al., 2014). Following these recent conceptualizations, I define visions as vivid, pictorial mental representations of a desirable, long-term future state (Kehr et al., 2021; Rawolle et al., 2017). In this way, visions overlap conceptually with superordinate goals (i.e., abstract goals that are high-level, long-term, and more abstract, Eberly et al., 2013)—in the sense that both are high-level, long-term goals (Conger, 1999; Eberly et al., 2013; Latham et al., 1988). However, visions transcend the abstract features of superordinate goals by providing a mental stimulation of a possible future (Carton et al., 2014, 2023). Although superordinate goals can also evoke mental images, they do so with less intensity and detail. As such, visions transcend an abstract wish or hope and instead encapsulate a state of being in the future in which one's long-

held desires have been realized (Carton & Lucas, 2018). Although visions may be shared aspirations in an organizational setting, they function mainly as cognitions at the individual level (Stam et al., 2014), representing the uniqueness of each person's perspective and desires. Thus, as the name implies, visions are characterized by their visual component (Kouzes & Posner, 2017; Rawolle et al., 2017). This feature transforms an imagination into a mental image that provides a picture-like, "quasi-perceptual simulation of a future reality" (Rawolle et al., 2017, p. 769), offering a "sneak peek" at the incentives that are related to the imagined state (Carton & Lucas, 2018; Masuda et al., 2010; Rawolle et al., 2017).

At the individual level, a key concept in the study of visions are future work selves (Strauss et al., 2012). Future work selves are possible selves (i.e., representations of "individuals' ideas about what they might become, what they would like to become, and what they are afraid of becoming", Markus & Nurius, 1986, p. 954) that reflect one's work hopes and ambitions for future work (Strauss et al., 2012). Future work selves are future-focused, positive, and work-related (Strauss et al., 2012; Strauss & Kelly, 2016). While visions are an umbrella term encompassing both collective and individual ambitions (Stam et al., 2014) in diverse settings such as sustainability (McMichael et al., 2003), entrepreneurship (Preller et al., 2020), or organizations (Collins & Porras, 2008), future work selves represent an individual's clear vision and passion for ideal career goals (Han & Hwang, 2022; Oyserman et al., 2006; Oyserman & James, 2009) and can thus be described as a "personal vision" (Strauss et al., 2012, p. 593) of one's future career (see also Strauss & Parker, 2018).

Similar to the literature on visions, much research has demonstrated the motivational benefits of future work selves (W. Lin et al., 2016; Strauss et al., 2012; Taber & Blankemeyer, 2015). In particular, one important aspect of a future work self that has been intensively studied

and that shapes the effect of a future work self on motivational outcomes is its salience (i.e., the extent to which one's future work self is "clear and easy to imagine" [Strauss et al., 2012, p. 581]). Research has shown that employees with salient future work selves are motivated to pursue broad needs and shape their desired careers (Fang & Saks, 2022; Guo et al., 2022; Strauss & Kelly, 2016). In summary, both research on visions (Berson et al., 2001; Carton & Lucas, 2018; Paine et al., 2023; Zhang et al., 2021) and research on future work selves (W. Lin et al., 2016; Strauss et al., 2012; Strauss & Parker, 2018) point to the important role of having a clear and accessible mental image in eliciting organizational and individual responses and in motivating behavior.

1.1.2 Visions motivating effects

Mental imagery, the defining feature of visions, refers to "representations and the accompanying experience of sensory information without a direct external stimulus" (Pearson et al., 2015, p. 590). Mental imagery enables individuals to experience sensory information, such as "seeing a visual scene in the 'mind's eye'" (Carton & Lucas, 2018, p. 2115) by either reliving the past or imagining the future without direct exposure to external stimuli (Kosslyn et al., 1995; Pearson et al., 2015). Extensive clinical psychology research has found a positive effect of mental imagery on positive affect (Holmes et al., 2006, 2008, 2016), and in particular, vividly imagining personal future events has been suggested to enhance positive affect (Morton & MacLeod, 2023; Schubert et al., 2020)

In addition to research in clinical psychology, evidence for the idea that mental imagery elicits positive affect can be found in the heuristics literature, specifically in research on Schwarz's *feelings-as-information theory* (1990, 2012), which shows that verbal descriptions of pictures evoke stronger emotions than abstract concepts by providing vivid and concrete information that allows individuals to use their emotional responses as heuristic cues for judgment.

In addition, organizational scholars have shown that presidential speeches with more imagery evoke stronger emotional responses (Emrich et al., 2001). Similarly, Naidoo and Lord's (2008) empirical research on vision communication found that subjects exposed to a speech rich in imagery showed more emotional responses compared to a control condition. Finally, a recent experiment by Fiset and Boies (2019) demonstrated a positive effect of a leader's vision on followers' emotional outcomes. Specifically, the authors found that teachers' perceptions of positive affect at work increased when school principals communicated a vividly imagined vision. Given this evidence, I expect that visions, with their capacity to evoke mental imagery, will elicit positive affective responses.

Motivational psychologists agree that positive affect is critical to motivation, acting as an "implicit motivator" (Custers & Aarts, 2005, p. 129; see also Aarts et al., 2008) for goal achievement. Previous studies have demonstrated that positive affect increases goal commitment (e.g., Fishbach & Labroo, 2007), goal pursuit (e.g., Ilies & Judge, 2005), and subsequently, goal progress (e.g., Fritz et al., 2021). Although the link between mental imagery and strong emotional responses is well established (Carton & Lucas, 2018; Emrich et al., 2001; Rawolle et al., 2017), and many studies have demonstrated the significance of positive affect for motivation (Aarts et al., 2008; Fishbach & Labroo, 2007; Orehek et al., 2011), the literature has yet to examine whether these positive affective responses mediate the link between visions and vision-related goal pursuit (Paine et al., 2023). One might speculate that visions evoke strong, positive emotions (Ernst et al., 2018; Rawolle et al., 2017) that motivate individuals to devote energy and resources to "goals that are hierarchically related to the vision" (Stam et al., 2014, p. 1174) in an attempt to achieve positive expectations (Carver & Scheier, 1982, 1998, 2000). This idea is consistent with the research of Fishbach et al. (2004), who showed that experiencing positive affect can be implicitly linked to a

goal being pursued, increasing the perceived value of the goal and promoting motivation to approach it (see also Fishbach & Finkelstein, 2011). Thus, the first goal of this dissertation is to empirically investigate the mediating role of positive affective reactions in the relationship between visions and vision-related goal pursuit. To address this, the dissertation proposes the following research question:

Research Question 1: Does positive affect mediate the relationship between visions and vision-derived goal pursuit?

1.1.3 The boundary conditions of visions motivating effects

Further, building on the proposed role of positive affect as a mediator, it is important to consider individual differences in responding to visions, which have been largely neglected in the literature (Fan et al., 2022; van Knippenberg & Sitkin, 2013). Some scholars (e.g., Fan et al., 2022; Kehr et al., 2021; Shamir et al., 1993) have speculated that one potential boundary condition of visions effects is the degree to which a vision is in alignment with the core self (i.e., "who people believe they are deep down," Bailey & Iyengar, 2023, p. 1360; see also Baumeister, 2019). In this vein, researchers have suggested that the degree of alignment between a vision and an individual's core self affects the extent to which a vision will resonate with them, which in turn influences the positive affect and motivational power it evokes (Berson et al., 2015; Shamir et al., 1993; Stam et al., 2014), as visions are more powerful when they mirror an individual's personal values and identity (e.g., Fiset & Boies, 2019). In line with this, Lewis and Clark (2020) recently suggested the centrality of aligning visions with employees' core selves and personal values. Researchers propose that this individualization, combined with facilitating a feeling "of ownership of the vision" (Kearney et al., 2019, p. 5; see also Stam et al., 2014), helps to foster identified and internalized motivation by enhancing employees' personal connection to the vision (Carton, 2022;

Kearney et al., 2019). Recent support for this idea comes from an experimental study by Fan et al. (2022), who confirmed that the effectiveness of visions depends on their fit with followers' value orientations. Extending this idea, Kehr et al. (2021) proposed that alignment between visions and the deeper aspects of an individual's personality, such as implicit motives (i.e., stable, unconscious motivational dispositions for specific incentive classes, McClelland, 1985; McClelland et al., 1989), may promote the achievement of vision-derived goals. Therefore, according to this view, one might suggest that a vision that aligns with a person's deeper self, implicit motives, and intrinsic values may elicit stronger positive affective responses, and thus increase motivation (Kehr et al., 2021; Ryan & Deci, 2000).

The self-concordance model (Sheldon, 2014; Sheldon & Elliot, 1999) offers a theoretical lens that is directly related to this idea. Rooted in *self-determination theory* (SDT, Deci & Ryan, 1985; Ryan & Deci, 2000), the model posits that goals stated by individuals are explicit (McClelland, 1985; McClelland et al., 1989), or "system 2" manifestations that may be more or less consistent with the individual's implicit or "system 1" self (Kahneman, 2011; Kahneman & Frederick, 2002). Thus, self-concordance can be thought of as a form of fit between a goal and a person that involves the alignment of an individual's inner self with his or her intentionally set goals (Sheldon, 2014; Sheldon & Goffredi, 2023) and has been associated with a number of positive outcomes (see Sezer et al., 2023). Researchers suggest that pursuing self-concordant goals is associated with increased need satisfaction (Ryan & Deci, 2000), which in turn is positively associated with well-being and satisfaction (Kelly et al., 2015; Sheldon & Schüler, 2011). Consistent with this, a large body of research has demonstrated that individuals who pursue self-concordant goals have greater levels of a variety of well-being indicators, such as subjective well-

being (Hope et al., 2019), positive affect (Gillet et al., 2014) or life satisfaction (Judge et al., 2005), than those who pursue less self-concordant goals.

Drawing on the self-concordance model (Sheldon & Elliot, 1999) and integrating it with findings from the organizational literature (Fan et al., 2022; Kehr et al., 2021; Shamir et al., 1993), I propose that perceived self-concordance plays a key moderating role in the relation between visions and positive affective reactions. Specifically, I suggest that this arises from the fit between a vision and a person, which I conceive as the congruence between a person's vision and his or her deeper self, personal values, and implicit motives (Kehr et al., 2021; Sheldon, 2014; Sheldon & Goffredi, 2023). Visions that are perceived to be more self-concordant, i.e., have a greater level of vision-person fit, may resonate more deeply with an individual's implicit motives and deeper values (Kehr et al., 2021). As a result, the three basic psychological needs may be better satisfied through the pursuit (Ryan & Deci, 2000; Sheldon & Elliot, 1999), which in turn may elicit greater positive affective reactions (Gillet et al., 2014; Levine et al., 2021; Sheldon et al., 2004). In contrast, when visions are perceived as less self-concordant, that is, they have a lower vision-person fit, this discrepancy may lead to lower basic psychological need satisfaction (Ryan & Deci, 2000) and personal ownership (Kearney et al., 2019), which in turn may reduce positive affective responses (Sheldon & Elliot, 1999; Stam et al., 2014). Although these less self-concordant visions might still contain imagery that elicits certain positive affective responses, the lack of alignment with an individual's deep self may result in a less powerful affective response.

In summary, the second goal of this dissertation is to examine whether visions that are perceived as self-concordant, i.e., have a higher congruence between the vision and a person's deeper self and personal values (higher vision-person fit), may resonate more strongly with an individual's implicit self and deeper values (Kehr et al., 2021) and elicit stronger positive affective

responses. Furthermore, given that previous research has shown that pursuing self-concordant goals promotes goal progress (Gaudreau, 2012; Koestner et al., 2008; Smyth et al., 2020) by facilitating commitment (Koestner et al., 2002), greater effort (Koestner et al., 2008; Sheldon & Elliot, 1999; Sheldon & Kasser, 1995), and perceived ease (Dominick & Cole, 2020; Werner et al., 2016), it could be argued that when individuals' visions are experienced as self-concordant, they are more apt to experience greater positive affect, which in turn enhances goal commitment and goal progress. Therefore, the second goal of this dissertation is to empirically examine the role of rated self-concordance of visions as a moderator of the indirect relationship between visions and vision-related goal pursuit via positive affect. To address this, the dissertation suggests the following research question:

Research Question 2: Does perceived self-concordance of visions moderate the indirect relationship between visions and vision-derived goal pursuit via positive affect?

1.1.4 Visions shape the effects of interacting with AI

Building on the earlier discussion of how and when visions motivate behavior, this section explores the role of a clear vision of the future as a moderator. As noted above, most research has focused primarily on the direct effects of visions on motivation. However, recent studies have begun to broaden this perspective by examining how a clear vision can shape behavior, particularly for individuals facing challenging or uncertain situations. For example, having a clear vision of the future has been shown to be beneficial when people encounter abusive supervision (Yu et al., 2016) or during periods of reduced employability (H. Lin et al., 2024). In this regard, one could speculate that the rise of generative AI, such as *ChatGPT* (OpenAI, 2024), may evoke feelings of insecurity and uncertainty (Cave & Dihal, 2019) in some individuals, especially in the work domain. As such, I suggest that a clear vision of one's professional future may shape one's

reactions when interacting with AI. To examine this issue, I draw on the proactive motivation model (Parker et al., 2010) and research on future work selves (Strauss et al., 2012). Applying the proactive motivation model, which posits that "reason to" and "can do" factors jointly shape proactive motivation, I propose that interactions with AI and its observed capabilities influence individuals' control over their future work selves (a "can do" factor) depending on the salience (i.e., clarity) of their future work selves (a "reason to" factor).

The term AI broadly refers to "intelligent entities—machines that can compute how to act effectively and safely in a wide variety of novel situations" (Russell & Norvig, 2021, p. 1). As such, AI is an umbrella term that includes a number of different technologies and tools (e.g., natural language processing, knowledge representation, automated reasoning, machine learning; Russell & Norvig, 2021) that can automate tasks and emulate human decision-making (von Krogh, 2018). Initial studies have shown that AI has the potential to significantly increase productivity (Dell'Acqua et al., 2023; Noy & Zhang, 2023), creativity (Girotra et al., 2023), and thus improve overall performance (Brynjolfsson et al., 2023). As a result, it is proposed that the integration of AI into the workplace will have a profound impact on the careers of individuals (Donald et al., 2024; Parker & Grote, 2022).

However, the relationship between AI and individuals' perceptions of its impact on their careers is multifaceted. Previous studies have proposed that reactions to AI vary significantly across individuals (Cave & Dihal, 2019), particularly with respect to its integration into the workplace (Bankins et al., 2023). These differences are not only due to the "type of technology" but are also influenced by "the user of the AI system" (Maragno et al., 2023, p. 10) and their individual differences (Bankins et al., 2023). While some research has begun to examine how individual-level factors shape responses to AI, research has mainly focused on how personality

affects attitudes about AI (Kaya et al., 2024; Stein et al., 2024) and how people perceive their current jobs to be influenced by AI (Bhargava et al., 2021; Lin et al., 2024). However, the way individuals react to interactions with AI is strongly influenced by their perceptions of what these experiences might imply for their future (Gioia et al., 1994; Gioia & Thomas, 1996). Yet, how individuals' more future-oriented career-related cognitions affect their interactions with AI, and thus their career-related behaviors, remains poorly understood.

Building on the literature on prospective sensemaking (Gioia et al., 1994; Gioia & Thomas, 1996), I suggest that a promising lens for addressing this issue may be through the lens of future work selves (Strauss et al., 2012). As noted before, the future work self is an individual's vision or representation of who they wish to be in the future, reflecting their hopes and ambitions with regard to work (Strauss et al., 2012) and can be described as a "personal vision" (Strauss et al., 2012, p. 593) of one's future career (see also Strauss & Parker, 2018).

In this regard, it is plausible to assume that interacting with AI will affect the degree of control individuals believe they have over the realization of their future work selves, i.e., the extent to which the realization of their future work selves is seen as under their own control (Norman & Aron, 2003). Previous research has shown that future work self control (FWSC) is important in determining how much effort individuals put into achieving their respective possible selves (Norman & Aron, 2003). Thus, FWSC represents individuals' control appraisals of their future work selves, i.e., their perceived control over their future with respect to work, given their existing resources (Lazarus & Folkman, 1984).

Another key characteristic of the motivational power of a future work self is how salient it is, i.e., how much a future work self can be "clearly and easily imagined" (Strauss et al., 2012, p. 581). In this regard, Strauss et al. (2012) propose that the mental stimulation of the future explains

the motivational force of a salient future work self (e.g., Bulley et al., 2016; Suddendorf & Moore, 2011). In line with the idea that envisioning future states can help to optimize goal-oriented cognition and behavior (Seligman et al., 2013), this mental simulation of possible future scenarios allows people to structure their present actions in preparation for future events by helping them identify possible inconsistencies between their present abilities and future needs (Strauss et al., 2012), thereby motivating them to take action to address these inconsistencies (Schultz & Hernes, 2013). In this regard, Taylor et al. (1998) showed that mentally simulating possible future events aids planning and problem solving (for a recent meta-analysis, see Cole et al., 2021). Moreover, research has shown that simulating stressful events improves the tendency to engage in problem-solving behaviors (Jing et al., 2016; Rivkin & Taylor, 1999). Emphasizing the stabilizing effects of a clearly defined future work self during times of uncertainty, people with a salient and hopeful possible self experience better psychological adjustment and exhibit lower levels of both anxiety and depression (Sweeny & Dunlop, 2020).

Given this evidence, one might assume that individuals with a salient future work self can mentally travel into the future and imagine possible uses of AI in their future work lives. Drawing on Parker et al.'s (2010) proactive motivation model and research on future work selves, I propose that interacting with AI and experiencing its capabilities will influence individuals' perceptions of control over their future work selves (a "can do" factor of motivation, i.e., the individuals' expectancy perceptions), depending on the initial salience of their future work selves (a "reason to" factor of motivation, i.e., the value and desirability of the goal). Rather than viewing AI as a threatening force to their future work selves, a salient future work self allows them to visualize its potential benefits as well as how to avoid its potential negative effects, thereby increasing their sense of control over their future work selves. In comparison, when the salience of their future

work selves is low, individuals tend to have more difficulty imagining their future work selves (Strauss et al., 2012). As a result, they are limited in their ability to imagine the potential benefits of AI for their future work selves. Rather, AI may lead to a lack of perceived control over the future self, as AI may be perceived as limiting their future opportunities.

The future work self has significant self-regulatory capacities in the career domain (Fang & Saks, 2022) and drives individuals' efforts to achieve their desired future with respect to work by engaging in proactive career behaviors (Han & Hwang, 2022; Strauss et al., 2012; Taber & Blankemeyer, 2015). As suggested by Parker et al. (2010), a salient future work self can serve as a "reason to" motivator for proactive career behaviors. The term proactive career behavior describes self-initiated behaviors that individuals engage in to manage their future careers, such as "setting goals, exploring options, and formulating plans" (Claes & Ruiz-Quintanilla, 1998, pp. 358-360).

Previous research investigating the future work self and proactive career behaviors has focused on the salience of the future work self (Strauss et al., 2012), and thus has primarily focused on the "reason to" aspect of the future work self (Parker et al., 2010). Yet, little attention is focused on the "can-do" motivation of the individual regarding their future work self. However, in the possible self literature, Norman and Aron (2003) have demonstrated that the degree to which the achievement of a possible self is seen as "under one's perceived control" (p. 505) is positively related to motivation to achieve it (see also Oyserman & James, 2009). This could be explained by the finding that control beliefs or expectancy beliefs, i.e., individuals' beliefs that their actions can bring about the desired outcome, drive their decisions and behavior (Bandura, 1997). In fact, a recent study revealed a negative association between employees' control perceptions at work and their proactive career behaviors in a sample of employees in insecure jobs (Koen & Parker, 2020).

Thus, there is support for the notion that perceived control over the future work self, in combination with future work self salience, is likely to foster individuals' efforts to manage their careers, and that the interplay of future work self control and future work self salience determines the effect of interacting with AI on proactive career behavior. Therefore, the third goal of this dissertation is to empirically explore the moderating role of a clear vision of the future (salient future work self) on the indirect relationship between interacting with AI and proactive career behavior via perceived control over achieving one's vision. To address this, the dissertation suggests the following research question:

> *Research question 3: Does the salience of a future work self moderate the indirect relationship between interacting with artificial intelligence and proactive career behavior via perceived control over one's future work self?*

1.2 Data and Methods Used in this Dissertation

I empirically investigate the research questions in this dissertation through a series of online experiments spread across three papers (Chapters 2-4). All studies used experimental designs in which participants were randomly assigned to a condition, as experiments are regarded as the gold standard of scientific research (Podsakoff & Podsakoff, 2019) and allow to establish causality between the focal variables (Antonakis et al., 2010). Furthermore, each paper includes multiple studies using different quantitative methods to explore the proposed hypotheses (Shrout & Rodgers, 2018). The following sections briefly describe the data collection procedures, sample characteristics, and analytical techniques employed in each paper.

In Chapter 2, I conducted two online experiments using the platform Sosci Survey (Leiner, 2024). Study 1 used a cross-sectional experimental design and included 128 participants consisting of consultants from two mid-sized consulting firms and students. Study 2 included 323 students

and used a time-lagged experimental design with a two-week interval. I used two main analytical approaches. In Study 1, I used the PROCESS macro (Hayes, 2022) in SPSS version 26.0 (IBM Corp., 2019) to evaluate the mediation model, whereas in Study 2, I used R (R Development Core Team, 2013) to first conduct a confirmatory factor analysis to test the measurement model and second conduct structural equation modeling to measure the path coefficients (Anderson & Gerbing, 1988; Kline, 2016).

In Chapter 3, I conducted three online experiments, again using the platform Sosci Survey (Leiner, 2024). Study 1 had a sample size of 358 students and used a cross-sectional design. Studies 2 and 3 had 288 and 254 participants, respectively, with Study 2 including only students and Study 3 including both students and full-time employees. Studies 2 and 3 used time-lagged designs with one-month intervals. In this chapter, I used the PROCESS macro (Hayes, 2022) to conduct a moderation analysis (Study 1, PROCESS Model 1) and a moderated mediation analysis (Studies 2 and 3, PROCESS Model 7).

In Chapter 4, I conducted three time-lagged online experiments in which participants interacted with the generative AI ChatGPT (OpenAI, 2024), a validation study, and a manipulation check, all using the Qualtrics platform (Qualtrics, 2024). Although many AI technologies have already been incorporated into jobs (von Krogh, 2018), recent attention has shifted to generative AI systems—that is, systems that employ "computational techniques that are capable of generating seemingly new, meaningful content such as text, images, or audio from training data" (Feuerriegel et al., 2024, p. 111). Given the ability of generative AI to impact a wide range of jobs that have traditionally been considered relatively unlikely to be affected by automation (Brown et al., 2024; Dwivedi et al., 2023), these systems provide an ideal context for examining the impact of AI on individuals' work-related cognition and behavior. In Study 1, I recruited a sample of 174 working

professionals located in the United Kingdom who indicated that they had never interacted with ChatGPT, recruited through the Prolific Academic platform (Palan & Schitter, 2018). In the second Study, I employed the same online experiment with a sample of 208 business students in Germany. In Study 3, I applied the same experimental design to test the full model of first-stage moderated mediation in a sample of 155 full-time employees in Germany. I also carried out a validation study with 257 full-time employees from the United Kingdom via Prolific to support the construct validity of the adapted measure of future work self-control (Norman & Aron, 2003). Finally, I conducted a manipulation study with 119 full-time employees located in the UK via Prolific to test the effectiveness of the experimental manipulations (Lonati et al., 2018). I used three main analytical approaches. In the main papers, I used the PROCESS macro (Hayes, 2022) to conduct a moderation analysis (Studies 1 and 2, PROCESS Model 1) and a moderated mediation analysis (Study 3, PROCESS Model 7). In the validation study, all of the analyses were carried out in R (R Development Core Team, 2013). For the confirmatory factor analyses (CFA), I used the package *lavaan* (Rosseel, 2012). Furthermore, I used the package *semTools* (Jorgensen et al., 2022) to evaluate the heterotrait-monotrait (HTMT) ratio of the correlations with the function 'HTMT'. I implemented the CI_{CFA} *(sys)* methodology of Rönkkö and Cho (2022) with the function 'discriminantValidity'. In the manipulation study, I examined group differences by means of an independent samples t-test. Each of the three corresponding chapters provides detailed information on data collection procedures, sample characteristics, and analysis techniques.

1.3 Dissertation Structure and Key Contributions

In order to answer the three research questions developed in Section 1.1, this dissertation consists of three separate papers, which are presented in Chapters 2 through 4. Chapter 2 seeks to advance our knowledge of the mediators of visions effectiveness. Based on this foundation,

Chapter 3 examines the potential boundary conditions of visions effects. Chapter 4 explores the role of a clear vision of the future as a moderator of behavior, particularly in the context of interactions with AI.

Chapter 2 responds to Research Question 1 and aims to provide a detailed understanding of the relationship between visions and vision-related goal pursuit. The main findings of Chapter 2 show that positive affective reactions mediate the positive effect of visions on vision-related goal pursuit. As such, the findings provide the first empirical support for the notion that visions are motivating because they elicit positive affective responses that increase motivation for vision-related behaviors. By doing so, these findings contribute to existing research in a number of ways. First, I show that visions elicit positive affect that spills over to vision-derived goals, which in turn motivates goal pursuit, suggesting a mechanism of action for visions. Second, I extend research on visions by examining how visions relate to hierarchically related goals, as research has often called for a synthesis of research on visions and goals (Berson et al., 2015; Southwick et al., 2019). Third, I examine the effects of visions at the individual behavioral level, whereas current research on visions has primarily focused on the group level (Kipfelsberger et al., 2022).

Building on the previous chapter, Chapter 3 examines the individual-level boundary conditions of vision effectiveness. Drawing on self-determination theory, the main findings of this chapter illustrate that perceived self-concordance of visions moderates the positive effect of visions on positive affective reactions and subsequent goal pursuit. Thus, my research makes several distinct contributions to the literature. First, it adds to the organizational literature on visions (Lewis & Clark, 2020) by highlighting the critical but previously understudied role of individual-level differences in vision effectiveness (Fan et al., 2022). Second, I extend the self-concordance literature (Levine et al., 2021; Sheldon et al., 2004) by demonstrating that the positive

effects of self-concordance typically studied with personal goals can be similarly elicited by visions. Third, my findings contribute to the goal-setting literature by investigating the dual role of positive affect in goal pursuit (Aarts et al., 2008; Louro et al., 2007). Specifically, I find that vision-evoked positive affect, when aligned with personally meaningful goals, not only motivates initial effort but also sustains energy through the early stages of goal pursuit (cf. Orehek et al., 2011).

Finally, Chapter 4 examines the moderating role of a more or less salient vision of one's future work self on individuals' proactive behavior in reaction to interacting with generative AI. Drawing on research on future work selves (Strauss et al., 2012) as well as the proactive motivation model (Parker et al., 2010), I show that for individuals who have a salient future work self, AI interaction increases perceived control over the future work self, thereby promoting proactive career behavior. The empirical findings of my research contribute to the literature in several ways. First, by establishing the salience of the future work self as an important individual-level difference and showing that individuals interpret AI in terms of how these interactions align with and inform their future careers, I extend previous research that has primarily used a "present" perspective when examining responses to AI (e.g., Kong et al., 2023; Langer et al., 2023). Second, because research on future work selves has focused primarily on their salience (Strauss et al., 2012), I expand this research by presenting perceived control over the future work self as an important and previously overlooked feature of career-related future cognition. Third, I advance research on FWSS by examining it as a boundary condition, while previous studies have mainly focused on the main effects of FWSS on career-related outcomes.

In sum, Chapters 2 to 4 of this dissertation address the three research questions outlined in Section 1.1 by using eight experimental studies. The remainder of my dissertation is organized as

follows. In Chapter 2, I discuss how positive affective reactions mediate the effect of visions on vision-derived goal pursuit. This chapter is based on a research paper by Voigt et al. (2024) published in *Current Psychology*. In Chapter 3, I examine how the rated self-concordance of a vision moderates the effect of visions on vision-derived goal pursuit. This chapter is based on research by Voigt et al. (2024) published in the *Journal of Research in Personality*. In Chapter 4, I examine how the salience of a career vision moderates the effect of interacting with a generative AI on career-related cognitions and behaviors. This chapter is based on a research paper by Voigt and Strauss (2024) that is currently under review in the *Journal of Vocational Behavior*. In Chapter 5, I conclude the dissertation with a brief summary of findings, a discussion of my dissertation's theoretical and practical contributions, as well as a discussion of this dissertation's limitations and outlook for future research.

In Table 1, I summarize the following three chapters of my dissertation, including information about the research questions, theoretical framework, methods, sample, and key findings. I use the pronoun “we” rather than “I” in these chapters because the research underlying each of these chapters was developed and conducted by me in collaboration with a number of co-authors.

Table 1. Overview of the papers included in the dissertation.

	Chapter 2	**Chapter 3**	**Chapter 4**
Title	An Image of What I Want to Achieve: How Visions Motivate Goal Pursuit	When Visions Truly Inspire: The Moderating Role of Self-Concordance in Boosting Positive Affect, Goal Commitment, and Goal Progress	How Future W Shapes the Eff with Artificial
Research Question	Does positive affect mediate the relationship between visions and vision-derived goal pursuit?	Does perceived self-concordance of visions moderate the indirect relationship between visions and vision-derived goal pursuit via positive affect?	Does the salien self moderate t relationship be with artificial i proactive caree perceived cont work self?
Thereotical Framework(s)	Goal System Theory (Kruglanski et al., 2002)	Self Determination Theory (Ryan & Deci, 2000)	Future Work S 2012); Model o Motivation (Pa
Method	Online experiments	Online experiments	Online experin
Samples	Study 1: $N = 128$ (full-time employees and students); Study 2: $N = 323$ (students)	Study 1: $N = 358$ (students); Study 2: $N = 288$ (students); Study 3: $N = 254$ (full-time employees and students)	Study 1: $N = 1$ employees); Study 2: $N = 2$ Study 3: $N = 1$ employees); Validation Stu time employee Manipulation C time employee
Key Findings	Visions foster goal progress through vision-evoked positive affect, positive anticipatory affect associated with vision-derived goal attainment, and goal commitment.	Self-concordance moderates the effect of visions on goal commitment and goal progress via positive affect.	Future work se the effect of A proactive caree perceived cont work self.

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2 An Image of What I Want to Achieve: How Visions Motivate Goal Pursuit

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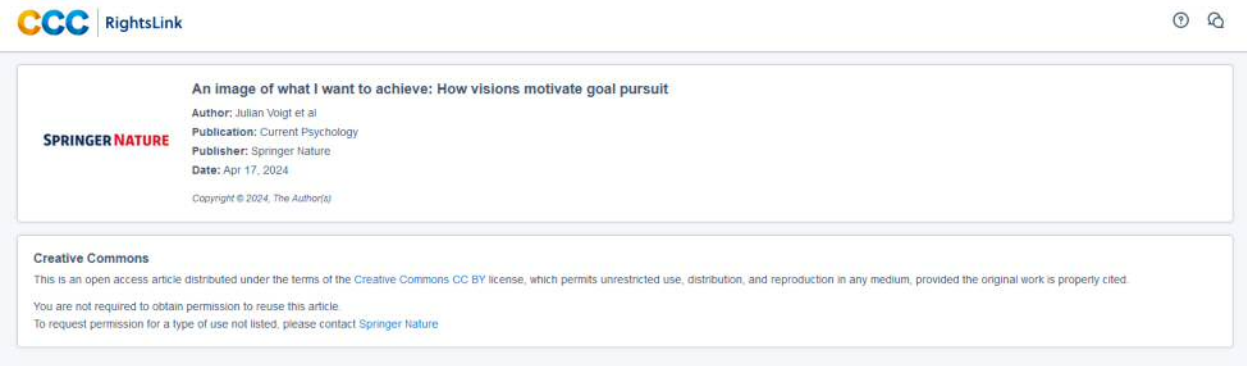

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An image of what I want to achieve: How visions motivate goal pursuit

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Abstract
In a rapidly changing world, leaders are constantly searching for effective ways to motivate employees and drive change. Management scholars agree that an essential tool for inspiring and motivating employees is to communicate a clear vision of the future. Yet, there remains a significant gap in understanding how and why visions actually move individuals to action. The current study investigated the effects of visions on goal-pursuit in comparison to merely listing a "superordinate goal." We argue that visions, that are high in mental imagery, are motivationally effective because (a) visions evoke positive affect, (b) vision-evoked positive affect spills over to goals derived from the vision, leading to affectively charged goals, (c) affectively charged goals are predictive of increased commitment, and (d) increased commitment contributes to goal progress. In a first experimental study ($N = 128$), the findings suggest that visions and vision-derived goals were both higher in positive affect than our control condition. In a second experimental study ($N = 323$), we replicated our results from Study 1. In addition, we extended these findings and showed that visions predict goal progress via vision-evoked positive affect, positive anticipatory affect related to prospective vision-derived goal attainment, and goal commitment. Taken together, our studies contribute to research on visions and goals by showing that visions exert their motivational effects by affectively charging activities related to them. From a practical perspective, our studies highlight the importance of visions as an effective tool in motivating work-related behaviors.

Keywords Visions · Goals · Vision pursuit · Positive affect · Motivation

Introduction

In April 1976, Steve Jobs and Steve Wozniak founded one of the largest and most successful companies in the world: Apple Inc. When Steve Jobs was asked what inspired him to start the company, he stated that the foundation of all his achievement had been a strong and compelling vision: "To put a computer in the hands of everyday people." Drawing on such successful examples, organizational scholars have promoted the idea that *visions*, vivid future-oriented images of a desirable, future state (Carton & Lucas, 2018; Rawolle et al., 2017), can mobilize and motivate goal-directed behaviors related to achieving this desired future (Kehr et al., 2021; Stam et al., 2014), thereby promoting motivation, performance, and work engagement (e.g., Kearney et al., 2019; Kohles et al., 2012). Altogether, there is substantial evidence that visions guide behavior (Fiset & Boies, 2019; Masuda et al., 2010), in both organizations and individuals.

Despite the practical importance of the relationship between visions and motivational outcomes, surprisingly little effort has been made to identify how and why visions stimulate and drive behavior (Kohles et al., 2012; Paine et al., 2023;). Indeed, scholars have consistently noted that the processes by which visions motivate behavior are still "ill-understood" and have suggested that there is still much to learn about the mediators of vision effectiveness (Fan et al., 2022). Understanding the mediators underlying the relationship between visions and vision-related behaviors, such as follower psychological states, is critical because it may help practitioners better understand how to craft visions that effectively translate into follower actions (Kehr et al., 2021). Thus, in the current paper, we aim to shed light on the processes by which visions lead to increased motivation and successful goal pursuit.

One potential mediator of the relationship between visions and vision-related behaviors is positive affect.

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Several authors have suggested that the vivid mental imagery induced by a vision is a key aspect of its motivating power (e.g. Carton & Lucas, 2018; Kehr et al., 2021; Masuda et al., 2010). Specifically, researchers speculated that the stimulation of future events in one's mind's eye (Masuda et al., 2010) is "emotionally engaging" (Carton & Lucas, 2018, p. 2108). In support of this notion, studies have shown that mental images evoke affective reactions (e.g. Emrich et al., 2001; Rawolle et al., 2017). However, even if positive affect is commonly recognized as a key factor in motivation (e.g., Aarts et al., 2008), research has yet to empirically investigate whether vision induced positive affect does indeed increase the motivation for vision-related behaviors (Paine et al., 2023).

The present study seeks to address this research gap. By integrating findings from research on mental imagery (e.g., Schubert et al., 2020) and organizational research on visions (e.g., Carton & Lucas, 2018), we propose that visions evoke positive affect. Further, we draw on *goal systems theory* (Fishbach & Woolley, 2022; Kruglanski et al., 2018) specifically, what Fishbach et al. (2004) call "emotional transfer" (see also Woolley & Fishbach, 2023) and propose that vision-evoked positive affect can transfer to vision-derived goals (Stam et al., 2014). In line with research that has demonstrated the importance of positive affect in goal pursuit (e.g., Aarts et al., 2008), we argue that vision-evoked positive affect will foster goal commitment and ultimately goal progress. Goal progress is a key construct for capturing the degree of agency with which individuals pursue their vision-derived goals (e.g., Holtschlag et al., 2020). Figure 1 illustrates our theoretical model.

We test these hypotheses in two experimental studies. In Study 1, using a mixed sample of consultants and business students, we examine whether visions evoke more positive affect than a control group (superordinate goals), and whether vision-evoked positive affect spills over to the goals a person derives from that vision. In Study 2, using a sample of business students we aim to replicate and extend our findings by examining the downstream behavioral consequences of vision-evoked positive affect in a time-lagged design.

The current research makes three important contributions to the literature. First, we show that visions evoke positive affect, which in turn motivates goal pursuit. In doing so, we add to the scarce research on the specific mechanisms by which visions motivate behavior (e.g., Venus et al., 2019) by linking research on mental imagery and its affective consequences (Rawolle et al., 2017) to research proposing the importance of vision-evoked emotion for motivation and performance (Carton & Lucas, 2018). In doing so, we not only add to the understudied field of visions mediators (e.g., Fan et al., 2022), but also respond to a recent call by Paine et al. (2023) to examine the role of emotions as a mediating mechanism in vision effectiveness. As a result, our research provides a more comprehensive view of how visions motivate vision-related behaviors.

Second, we extend research on visions by examining how visions relate to goals that are hierarchically related to them. To date, although scholars have repeatedly called for the integration of research on visions and goals (Berson et al., 2015) and have speculated that goals are complementary to visions (Southwick et al., 2019) such that visions need to be translated into actionable and specific goals (Carton & Lucas, 2018; Stam et al., 2014), to our knowledge, little research has empirically examined visions and goals in synthesis. Drawing on goal system theory, particularly work on emotional transfer in goal systems (Fishbach & Woolley, 2022; Kruglanski et al., 2018), we introduce vision-affect spillover as a potential mechanism by which visions affectively charge lower-level goals derived from them. Thus, our findings illustrate how visions, when they evoke positive emotions, can effectively infuse lower-level goals with these emotions, enhancing the pursuit of these goals and thereby actualizing the pursuit of the vision (Stam et al., 2014).

Third, we examine the effect of visions at the individual behavioral level. Research on visions has primarily focused on the collective level (e.g., Kipfelsberger et al., 2022), even though visions start by operating on the individual level in motivating and affecting a person's behaviors (Kehr et al., 2021). Building on theorists (Fiset & Robinson, 2020) who speculate that individual-level visions may be an important factor in career development, our study provides new insights into how individual visions motivate and shape career trajectories, thereby advancing our understanding of the role of visions in personal and career development contexts.

The motivational effect of visions: Mental imagery and positive affect

Organizational scholars propose that visions are future-oriented images (Baum et al., 1998; Carton & Lucas, 2018; Stam et al., 2014). Consistently, we define visions as "mental images of a desirable future" (Rawolle et al., 2017, p. 770, see also Carton & Lucas, 2018). This definition highlights a vision's unique characteristic: the fact that it is visual (Kehr et al., 2021; Rawolle et al., 2017). More specifically, visions are individual-level cognitions (Stam et al., 2014) that exist in a picture-like format and are based on imagery (Berson et al., 2015; Emrich et al., 2001). In contrast, goals, commonly defined as objects or aims of an action (Locke & Latham, 1990), are considered to be mainly cognitive representations of a target state (Kruglanski et al., 2002). However, apart

from the visual element, visions and goals are conceptually overlapping and share certain characteristics (e.g. both refer to desirable end states, Kirkpatrick & Locke, 1996). According to goal systems theory (Kruglanski et al., 2002) this applies particularly to superordinate goals (i.e., "higher-level, long-term, and abstract goals"). That is, visions also represent higher level, long-term goals with the important distinction that visions contain mental imagery while superordinate goals are rather abstract (Berson et al., 2015).

Mental imagery, the distinctive characteristic of visions, refers to "an experience like perception in the absence of a percept" (Holmes et al., 2016, p. 2). Thus, mental imagery allows people to relive their past or imagine their future and experience sensory information (e.g., "seeing a visual scene in the 'mind's eye", Carton & Lucas, 2018, p. 2115) without being directly exposed to an external stimulus.

Particularly in clinical psychology, a growing body of research was able to demonstrate the positive relationship between mental imagery and positive affect (for a review see Holmes et al., 2016). Clinical psychologists assume that mental imagery, especially in the form of vividly imagining personal future events, boosts positive affect (for a recent meta-analysis, see Schubert et al., 2020).

Further support for the notion that mental imagery evokes positive affect comes from various lines of research. Work on heuristics (for a review see Schwarz, 2012) for instance, showed that verbal descriptions of images are more likely to elicit emotions compared to abstract concepts. Organizational scholars (e.g. Emrich et al., 2001) demonstrated that using more imagery in presidential speeches elicited stronger emotional reactions. Empirical research on vision communication by Naidoo and Lord (2008) indicated that subjects who listened to a speech high in imagery showed more emotional reactions than a control group. Lastly, a recent study by Fiset and Boies (2019) found a positive relationship between a leader's vision and follower emotional outcomes. Their study used a matched sample of teachers and principals and disclosed that principals who communicated a vividly imaginable vision increased teachers' perceptions of affective tone (i.e., the frequency with which they experienced positive emotions at work). In line with these different streams of research, visions that contain mental imagery (Carton & Lucas, 2018) should evoke positive affect (Rawolle et al., 2017). The same should not apply to the control group (superordinate goals) due to their cognitive nature (Kruglanski et al., 2002) (see Fig. 1; path A). We, therefore, hypothesize the following:

Hypothesis 1 Visions evoke more positive affect as compared to a control group (superordinate goals).

Visions affectively charge vision-derived goals

A substantial amount of research has highlighted the role of positive affect in motivating and influencing behavior (e.g. Aarts et al., 2008; Custers & Aarts, 2005). Likewise, positive affective reactions evoked by visions are speculated to motivate people to action (Carton & Lucas, 2018; Fiset & Boies, 2019; Paine et al., 2023). However, it is difficult to directly measure the influence of positive affect on vision-pursuit since visions are conceptualized as open-ended endeavors (Berson et al., 2015), which are never fully achieved (Kirkpatrick & Locke, 1996). Stam et al. (2014) have therefore suggested that it may be helpful to conceptualize visions "in terms of a goal hierarchy in which the vision is a high-level goal that is hierarchically related to lower-level goals" (p. 1174). Following this framework, Stam et al. (2014) defined *vision pursuit* as all "goal-directed actions that are hierarchically related to the vision" (p. 1174). Building on Stam and colleague's (2014) conceptualization, we propose a spillover hypothesis whereby visions affectively charge lower-level goals that are derived from them.

The prediction that positive affect evoked by a vision might transfer to goals derived from the vision is supported by two different lines of research: affect transfer in goal systems and affect in self-regulation. First, research on affect transfer in Goals Systems Theory (Kruglanski et al., 2002) suggested that positive emotions associated with goal attainment can transfer to activities performed to pursue the goal (Fishbach et al., 2004; Kruglanski et al., 2018; Woolley & Fishbach, 2023). For example, Fishbach et al. (2004) conducted five experiments that demonstrated that positive affect associated with goal attainment (e.g., keeping fit) were transferred to means (e.g., running every morning) by pure association (see also Kruglanski et al., 2018).

Second, literature on self-regulation demonstrates that positive affect can serve as a temporary heuristic and/or an affective cue, that influences subsequent judgments about personal goals and related emotions (for a review see Schwarz, 2012). For example, researchers have demonstrated that imagining *best possible selves*, defined as representations of personal hopes and fears regarding the future, leads to affective responses that can emotionally charge the representation of a goal (for a recent review see Oyserman & Horowitz, 2023).

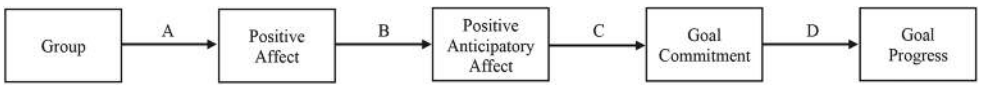

Fig. 1 Hypothesized theoretical model. *Note.* Group was coded as 0 = superordinate goal and 1 = vision

Similar to how imagining best possible selves can emotionally charge goals, we propose that visions-evoked positive affect spills over to vision-derived goals. In particular, this should lead individuals to anticipate how these positive affective reactions relate to the achievement of a derived goal. Thus, we assume that vision-evoked positive affect spills over in the form of *positive anticipatory affect* (i.e., "positive emotions that are currently experienced due to something that could happen in the future," Baumgartner et al., 2008, p. 685). However, for the control group (superordinate goals), which are expected evoke less positive affect, this affect should attenuate (see Fig. 1; paths A and B). Thus, we predict the following:

Hypothesis 2 The positive effect of visions (compared to a control group) on positive anticipatory affect is mediated by positive affect.

Vision-induced positive anticipatory affect increases goal commitment and goal progress

As stated before, much research has shown the importance of positive affect as a proxy for motivation (e.g. Aarts et al., 2008; Custers & Aarts, 2005). Researchers suggest that positive affect acts as an "implicit motivator" (Custers & Aarts, 2005, p. 129) in the achievement of goals, stating that striving for goals is an "inherently affective experience." Past research has even demonstrated that positive affect is associated with an increased expectancy to reach one's goals, which in turn fosters more effort to attain a goal (Fishbach et al., 2010).

In addition to affective reactions related to present events, people also experience emotions with the prospect of future events (Bagozzi et al., 1998; Baumgartner et al., 2008), so called anticipatory affect. Much like momentary affective reactions, scholars argue that positive anticipatory affect can guide decision making (for a recent meta-analysis, see Chitraranjan & Botenne, 2023). More specifically, emotional theorists posit that positive anticipatory affect can influence behavior by determining the expectancy and desirability of future events (Bagozzi et al., 1998; Baumgartner et al., 2008). This assumption is supported by the goal setting literature, which argues that the expectancy of goal attainment is one of the most "proximal antecedents of goal commitment" (Klein et al., 2001, p. 885, i.e., people's attachment or determination to reach a pursued goal, Locke & Latham, 1990). Indeed, some empirical research has demonstrated that positive anticipatory affect encourages goal-directed behavior (Bagozzi et al., 1998; Baumgartner et al., 2008). For example, Harvey and Victoravich (2009) found that managers with higher positive anticipatory affect showed increased commitment to an ongoing project as they considered that project achievement is more likely (see also Ding, 2019).

Accordingly, we propose that heightened positive anticipatory affect evoked by a vision-derived goal is related to stronger goal commitment. Specifically, we argue that visions evoke positive affect, which in turn spills over in the form of positive anticipatory affect and ultimately fosters goal commitment (see Fig. 1; paths A, B, and C). As such, we propose the following integrative hypothesis:

Hypothesis 3 The positive effect of visions (compared to a control group) on goal commitment is sequentially mediated by positive affect and positive anticipatory affect.

Researchers argue that goal commitment is one of the most critical requirements of goal progress (Locke & Latham, 1990; Monzani et al., 2015). Individuals who focus on their commitment to a goal also increase their engagement in pursuing that goal (Fishbach et al., 2010), which ultimately leads to higher performance (Klein et al., 2001). Consistent with these results, Monzani et al. (2015) demonstrated in two studies that individuals who showed higher commitment to their personal goals were subsequently more likely to report higher levels of goal progress (for a similar finding see Rafieian & Sharif, 2022). Consistent with our serial mediation hypothesis, we propose that visions are positively associated with positive affect, positive anticipatory affect, goal commitment, and ultimately goal progress (see Fig. 1; paths A, B, C, and D). Therefore, we hypothesize:

Hypothesis 4 The positive effect of visions (compared to a control group) on goal progress is mediated by goal commitment.

Present research

The central aim of this study is to better understand the mechanisms underlying the motivational effects of visions. We argue that visions are by definition rich in mental imagery and are motivationally effective because (a) they evoke positive affect, (b) vision-evoked positive affect is transferred to goals derived from the vision, leading to affectively charged goals, (c) affectively charged goals lead to increased goal commitment, and (d) increased goal commitment facilitates goal progress. We tested our hypotheses in two online experiments. In Study 1, we used a cross-sectional experimental design to test our first two hypotheses (see paths A and B; Fig. 1) in a sample of consultants and business students. In Study 2, we used a time-lagged experimental design to test the full model (Hypotheses 1–4,

see paths A, B, C, and D; Fig. 1) in a sample of business students.

Study 1

As a first step, Study 1 used a cross-sectional design to test our experimental manipulation and examine whether more mental imagery and positive affect were found in visions than in superordinate goals (path A; Fig. 1). In addition, we tested the extent to which the positive affect evoked by visions "spills over" to a goal derived from the vision (paths A and B; Fig. 1).

Method

Participants

For Study 1, we recruited 141 participants, of which 13 had to be excluded due to premature termination of the questionnaire. To increase the external validity of the results, we collected both, 68 undergraduate students of a large German business school (50 women and 18 men; M_{age} = 24.1 years), and 60 full-time employees (11 women and 49 men; M_{age} = 41.6 years) of two medium-sized management consultancies.[1] Following recent recommendations (Ward & Meade, 2022), we examined nonsense response patterns and outliers in terms of completion time and Mahalanobis Distance. Two participants did not meet these criteria and were excluded from consecutive analyses. In support of the robustness of our results, the results of Study 1 remained the same irrespective of the identified outliers. The final sample consisted of 126 participants (61 women and 65 men; M_{age} = 32.17). Participation in the study was voluntary, and participants had to give informed consent. Student participants were recruited through advertisements in lectures, whereas the full-time employees were contacted personally. Student participants were eligible to receive course credit for their participation in the study.

Procedure

Participants were informed that the study's primary purpose was to find out more about their future career aspirations. In the first phase, participants provided informed consent and completed a pre-intervention positive affect measure. Then they were randomly assigned to one of two experimental conditions (vision vs. superordinate goal).

Participants received specific instructions appropriate for their respective experimental conditions in the second phase. In both conditions, participants were first asked to consider how they see their professional future. Respective to the condition they were either accompanied with a definition of the concept vision ("the mental image of a desirable future", see Rawolle et al., 2017) in the experimental condition or superordinate goal ("an objective that is important to us and that we want to achieve in the long term," see Kruglanski et al., 2002). Then, participants were prompted with a free text field and asked to describe either their vision or superordinate goal for their professional future in several sentences.

In a third phase, participants in both conditions received an imagery exercise during which they imagined a lemon using all their senses to familiarize them with mental imagery (Holmes et al., 2016). In a fourth phase, participants in the vision condition performed a guided visualization. Because various studies have shown that the visual component is the key feature of visions (Carton & Lucas, 2018; Kehr et al., 2021; Masuda et al., 2010; Rawolle et al., 2017), we chose guided visualization as a method to administer the vision. During the guided visualization, participants were asked to imagine their vision to evoke mental images in their minds (Rawolle et al., 2017). Concretely, participants were asked to "embark on a journey through time into the future to the moment when [their] vision has come true" and "to vividly imagine [their] described vision, just as if [they] were dreaming it." Concreteness was heightened by questions such as the following: "How can you tell that your vision has come true? What do you see? What surrounds you?" In the superordinate goal condition, participants had to imagine and subsequently write down their typical day (adapted from Sheldon & Lyubomirsky, 2006) which is a frequently used active control group in the context of the studies of mental imagery (for a systematic review and meta-analysis see Schubert et al., 2020). Specifically, participants were provided with a text field and requested to imagine [their] typical day, to "write about [their] typical day, and the kinds of things that happen during it" and to "outline [their] typical day in as much detail as [they] can."(Sheldon & Lyubomirsky, 2006, p. 77). Both conditions were of equal length; the guided visualization and the typical day task lasted 6 minutes.

In a fifth phase, after our experimental manipulation, mental imagery and post-intervention positive affect were assessed. In a sixth phase, participants in both experimental conditions were then asked how they wanted to achieve either their vision or their superordinate goal. For this

[1] These two samples were examined for differences before being merged. Consistent with our goal of diversifying the sample, the second sample contained a significantly higher proportion of men ($t(124) = 7.33, p < .001$) and older participants $t(124) = 11.6, p < .001$). Moreover, we tested for similarity of effects across both subgroups (students vs. consultants) and conducted all analyses with subgroup as a covariate. The analyses yielded the same pattern of results, so we combined the samples for additional power and diversification.

phase, participants in both conditions were asked to formulate three goals they might pursue in the upcoming weeks to get closer to their vision or superordinate goal. In addition, all subjects were instructed to formulate their goals as concretely and specifically as possible (Locke & Latham, 1990) and to begin their goals with the words "In the following weeks, I will…" Examples of goals reported by the respondents include: "In the following weeks, I'll be searching online for job ads to finally find and apply for a working student position at a startup." or "In the following weeks, I'll try to finish developing the precursor app system that is central behind the value creation of my startup." Lastly, participants were asked to choose one of their listed goals, which seemed to be the most important for achieving their vision or superordinate goal.

In a seventh and final phase, participants then completed a measure assessing their positive anticipatory affect regarding attaining their previously selected vision- or superordinate goal derived goal.

Measures

Positive affect. Participants completed the 10-item positive affect scale of the Positive and Negative Affect Schedule (PANAS; Watson et al., 1988). The scale measures the extent to which participants currently experience ten positive affective states (e.g., to feel excited, proud, inspired; 0 = not at all; 5 = totally). Participants' positive affect was assessed at baseline and after the experimental manipulation, with the scale indicating sufficient reliability (ωs = 0.85 and 0.92 for pre and post, respectively).

Positive anticipatory affect. Positive anticipatory affect was measured using six items developed by (Bagozzi et al., 1998). The scale measures the extent to which participants anticipate experiencing positive emotions if they succeed in attaining their goal (e.g., excited, delighted, happy; 0 = not at all; 6 = totally; ω = 0.84).

Mental imagery. Mental imagery was assessed as a manipulation check to test for expected differences in the vision and superordinate goal condition. We used three items developed by Carton and Lucas (2018) (e.g., "Right now there is a visual scene playing in my 'mind's eye'"; 1 = disagree to 7 = agree; ω = 0.80).

Control variables. In line with recent recommendations for including control variables (Becker et al., 2016), we considered participants' age and gender as potential controls. Previous research has found that these two sociodemographic variables may influence positive affect (e.g., Fujita et al., 1991; Pinquart, 2001). In addition, to obtain a valid estimate of the intervention effect on positive affect, we followed previous research (e.g., Hülsheger et al., 2013) and considered baseline positive affect as a possible control (van Breukelen, 2013). All analyses were tested with and without these covariates (Becker et al., 2016). The results remained stable with and without the covariates. Thus, the effects of our control variables on the relationships we examined can be considered negligible (Becker et al., 2016).

Results

Manipulation check

First, we tested whether our experimental conditions (visions vs. superordinate goals) were successful by comparing the scores of participants' mental imagery after the completion of each intervention. As expected, results from the manipulation check showed that participants in the vision condition ($M = 5.39$, $SD = 1.04$) had significantly higher mental imagery scores compared to participants in the superordinate goal condition ($M = 4.72$, $SD = 1.60$), $t(124) = 2.80$, $p = .006$.

Hypotheses tests

Means and standard deviations of all variables are shown in Table 1. Table 2 shows their zero-order correlations. To test our hypothesis that visions as compared to superordinate goals evoke more positive affect and that positive affect mediates the effect of visions on positive anticipatory affect, we followed the recommendations of Hayes (2022). The mediation effect analysis was conducted using the Bootstrap method ($n = 5000$) and standardized effects due to different Likert scale points across variables (e.g., 5-point Likert-type scale vs. 6-point Likert-type scale). SPSS version 26.0 (IBM Corp., 2019) and R (R Development Core Team, 2013) were used for the analyses. We entered positive anticipatory affect as the dependent variable, experimental condition (coded as 0 = *superordinate goal*, 1 = *vision*) as the independent variable, positive affect as the mediator and pre-intervention positive affect as a covariate.

The mediation analysis, which is illustrated in Fig. 2, revealed that participants in the visions group reported higher positive affect than people in the superordinate goal group (a = 0.50, $p < .01$, 95% CI [0.31, 0.70]), which in turn predicted positive anticipatory affect ($b = 0.35$, $p < .01$ 95% CI [0.14, 0.56]). The biased-corrected bootstrap confidence interval (based on 5.000 samples) for the indirect effect was significant ($ab = 0.25$, 95% CI [0.09, 0.42]). Thus, these results provide support for hypothesis 1 in that visions, compared with superordinate goals, evoke more positive affect. Moreover, these results provide support for hypothesis 2 in that positive affect mediated the relationship between visions and positive anticipatory affect.

Table 1 Means and standard deviations of the two conditions for the variables

	Vision		Superordinate Goal	
Variables	*M*	*SD*	*M*	*SD*
Study 1				
1. Positive Affect (pre)	3.25	0.70	3.35	0.55
2. Positive Affect (post)	3.77	0.74	3.34	0.73
3. Mental Imagery	5.39	1.04	4.72	1.60
4. Positive Anticipatory Affect	6.10	0.83	6.20	0.89
5. Age	32.9	12.8	31.3	11.2
6. Gender	1.57	0.50	1.46	0.50
Study 2				
1. Positive Affect (pre)	3.11	0.62	3.11	0.66
2. Positive Affect (post)	3.64	0.70	3.11	0.70
3. Mental Imagery	5.27	1.13	4.61	1.33
4. Positive Anticipatory Affect	5.90	0.80	5.90	0.80
5. Goal Commitment	4.27	0.54	4.33	0.55
6. Goal Progress	2.85	0.87	2.95	0.96
7. Age	21.5	2.10	21.6	2.32
8. Gender	1.62	0.49	1.57	0.49

Note. SD = Standard deviation. Group was coded as 0 = superordinate goal and 1 = vision.
Gender was coded with 1 = female and 2 = male. Age was measured in years.

Table 2 Zero-order correlations of the variables

Variables	1	2	3	4	5	6	7	8	9
Study 1									
1. Group	—								
2. Positive Affect (pre)	−0.07	—							
3. Positive Affect (post)	0.28**	0.60**	—						
4. Mental Imagery	0.24**	0.24**	0.43**	—					
5. Positive Anticipatory Affect	−0.09	0.13	0.26**	0.27**	—				
6. Age	0.06	0.12	0.03	−0.12	−0.33**	—			
7. Gender	0.10	−0.05	−0.10	−0.16	−0.43**	0.39**	—		
Study 2									
1. Group	—								
2. Positive Affect (pre)	0.00	—							
3. Positive Affect (post)	0.34**	0.60**	—						
4. Mental Imagery	0.26**	0.21**	0.37**	—					
5. Positive Anticipatory Affect	−0.02	0.21**	0.29**	0.25**	—				
6. Goal Commitment	−0.07	0.14**	0.18**	0.13**	0.39**	—			
7. Goal Progress	−0.06	0.12*	0.16**	0.10	0.07	0.17**	—		
8. Age	−0.03	−0.01	−0.02	0.00	−0.00	0.00	−0.03	—	
9. Gender	0.05	0.05	0.03	0.06	−0.15**	−0.08	0.04	−0.11*	—

Note. Group was coded as 0 = superordinate goal and 1 = vision. Gender was coded with 1 = female and 2 = male. Age was measured in years.
* $p < .05$, ** $p < .01$

Discussion

The results of Study 1 supported Hypotheses 1 and 2. First, we were able to show that visions evoke more positive affect compared to a control group (superordinate goals). Based on research that has shown that positive affective experiences are promoted by mental imagery, our results may point to a mode of action of visions. Specifically, the results suggest that visions, which by definition are high in mental imagery, may exert their motivational influence on individuals by eliciting positive affect. Second, consistent with our expectations, we showed that the positive influence of visions on positive anticipatory affect is mediated by positive affect. This finding provides a first indication that the motivational properties of a vision can be transferred to a goal derived

from it (Fishbach et al., 2004). These results also provide an interesting starting point for exploring the motivational consequences of visions.

Although the results presented are consistent with our predictions, we note several limitations. First, although, as noted above, positive affect is an important proxy for motivation (Custers & Aarts, 2005), it is critical to examine the downstream consequences of vision-evoked positive affect, such as commitment and subsequent progress toward a vision-related goal (see Fig. 1). Second, even though the study used an experimental design, it was a cross-sectional design, which is at risk for common method bias. Therefore, the introduction of a time-lagged examination of downstream effects would be important to mitigate concerns associated with common method biases (Cooper et al., 2020; Podsakoff et al., 2012). To address these issues, we conducted Study 2, assessing both goal commitment and progress, while measuring goal progress two weeks after the initial goal formulation.

Study 2

In Study 2, we first aimed to replicate the results of Study 1 by again testing the extent to which visions compared with superordinate goals evoke positive affect and the indirect effect of visions on positive anticipatory affect, via positive affect. Secondly, we proposed a serial mediation model to determine whether positive affect and positive anticipatory affect would serially mediate the association between visions and goal commitment. We also sought to investigate if heightened goal commitment leads to higher goal progress. Ultimately, these objectives propose a model in which visions– through positive affect, positive anticipatory affect, and goal commitment– lead to higher goal progress (paths A, B, C, and D; Fig. 2).

Method

Participants

We conducted a time-lagged study with two measurement waves to test our hypotheses. We recruited 507 participants at a large German business school, of which 58 had to be excluded due to premature termination of the questionnaire and insufficient German language proficiency (CEFR level lower than C1). Following the approach of Study 1, we inspected careless responses and multivariate outliers in terms of completion time and Mahalanobis Distance (Ward & Meade, 2022). 5 participants did not meet the criteria and were excluded from subsequent analyses. To ensure the robustness of our results, we conducted our analyses for Study 2 with and without excluding those 5 participants, but found the same results. The final sample in Study 2 consisted of 444 participants (195 women, 247 men, 2 diverse; M_{age} = 23.6 years). Participants were recruited through online advertisements and lectures and were able to receive course credit for their participation in the study.

Procedure

The procedure resembled Study 1, except that for the vision- or superordinate goal derived goals, goal commitment and positive anticipatory affect were also assessed. Two weeks later, participants received an invitation to the second part of the study. In the second measurement wave, participants were presented their vision- or superordinate goal derived goal which they had formulated in the first part of the study and were asked to rate the progress they had made towards attaining this goal. In total, 321 participants (71.9%) responded to the second survey (129 women, 192 men; M_{age} = 21.6 years). Participation in both studies was voluntary, and participants had to give informed consent.

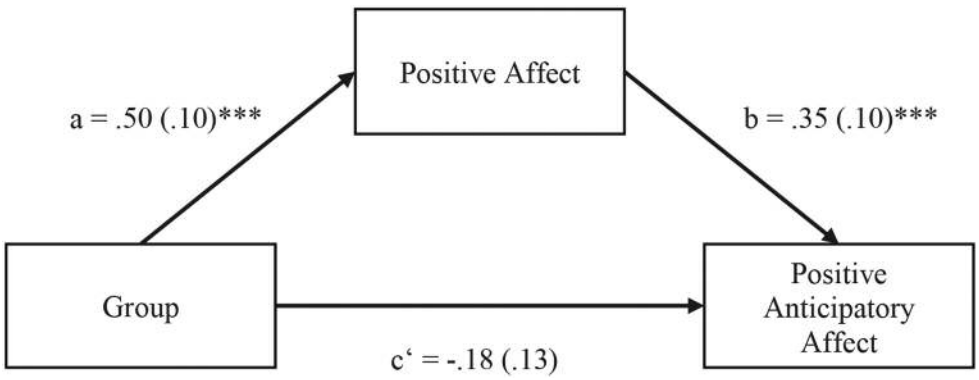

Fig. 2 Mediation model depicting the relation between group (vision vs. superordinate goal) and positive anticipatory affect as mediated by positive affect. *Note.* Group was coded as 0 = superordinate goal and 1 =vision. Regression coefficients are all in standardized form, and standard errors are given in parentheses. Symbol c' represents the direct effect of group on positive anticipatory affect.$p < .05$, ** $p < .01$

Measures

Positive affect, positive anticipatory affect, and mental imagery. Positive affect (ωs = 0.85 and 0.91 for pre and post, respectively), positive anticipatory affect (ω = 0.84), and mental imagery (ω = 0.77) were assessed with the same scales as in Study 1.

Goal commitment. Participants had to rate five items assessing their goal commitment using (Klein et al., 2001) five-item scale (e.g., "I am strongly committed to pursuing this goal.", 1 = strongly disagree, 5 = strongly agree, ω = 0.53).[2]

Goal progress. Goal progress was assessed with four items developed by Greguras and Diefendorff (2010) (e.g., "I have made considerable progress toward attaining this goal"; ω = 0.87). Responses were anchored on a 7-point Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree).

Control variables. As in Study 1, we considered the potential effects of age and gender on positive affect (e.g., Fujita et al., 1991; Pinquart, 2001). Moreover, as in Study 1, we also controlled for baseline positive affect scores (van Breukelen, 2013) to obtain a valid estimate of the intervention effect on positive affect (e.g., Hülsheger et al., 2013). Like in Study 1, we ran all analyses were tested with and without these covariates (Becker et al., 2016). The findings were stable with and without the covariates. Therefore, the effects of our control variables on the relationships we examined can be regarded as negligible (Becker et al., 2016).

Analyses

The analyses were performed using the same software as in Study 1. Our analytical approach was guided by the two-step strategy to analyze mediation effects proposed by Anderson and Gerbing (1988). Prior to hypothesis testing, we first conducted a confirmatory factor analysis (CFA) to verify our measurement model and ensure that each of our latent variables was represented by its indicators. Second, we performed structural equation modeling (SEM) analysis to measure the model fit and path coefficients for our hypothesized structural model. According to the recommendations put forth by Hayes (2022), the mediation effect analysis was conducted using the Bootstrap method ($n = 5000$) and standardized effects. Measurement models and the statistical model were estimated with a robust Maximum-Likelihood (MLM) estimator. Model fit was evaluated using four indexes (Kline, 2016), with the cutoff criteria being: (a) normed chi-square index $\chi 2/df$ of 3 or less; (b) CFI ≥ 0.90; (c) RMSE ≤ 0.08, and (d) SRMR ≤ 0.08 (Kline, 2016).

Results

Measurement model

First, we tested the fit of our four-factor measurement model, $\chi 2/df = 2.1$, CFI = 0.91, RMSEA = 0.05, and SRMR = 0.05, which confirmed that the measurement model revealed a fairly good fit with the data. We then compared the fit indices to two plausible alternative models (see Table 3). Specifically we compared our model to two three-factor models that combined into one factor (a) the first mediator and the second mediator (positive affect and positive anticipatory affect), and (b) the second mediator and the first outcome variable (positive anticipatory affect and goal commitment). Thereafter, we calculated fit statistics for a model that combined all four variables. The results illustrated that the measurement model fits the data significantly better than all three alternative models (all *p-values* < 0.001), with the best-fitting alternative model being the four-factor model combining positive anticipatory affect and goal commitment ($\chi 2/df = 2.2$, CFI = 0.88, RMSEA = 0.06, and SRMR = 0.05). These fit indices, and the fact that all factor loadings of all indicators on their respective latent variables were significant, indicate adequate discriminant validity of the variables in our model.

Table 3 Measurement Model Comparisons (Study 2)

Model	$\chi 2$	Df	$\Delta\chi 2$	CFI	RMSEA	SRMR
4-Factor Model	530.5	269		0.91	0.05	0.05
3-Factor Model A	1075.0	272	544.5	0.70	0.10	0.11
3-Factor Model B	565.5	272	35.0	0.88	0.06	0.06
1-Factor Model	1662.8	275	1132.3	0.48	0.12	0.14

Note. 3-Factor Model A denotes a model in which positive affect and positive anticipatory affect were combined into one factor. 3-Factor Model B denotes in a model in which positive anticipatory affect and goal commitment were combined into one factor

[2] The reliability of the goal commitment scale did not improve by removing one or more items. We therefore follow earlier research that found similar low reliability coefficients and retained the measure as it was assessed in previous research (Klein et al., 2001).

Structural model testing

We tested the structural equation model depicted in Fig. 3, illustrating the properties of the research hypothesis, including all the standardized path coefficients. The structural-modeling results suggested that the hypothesized had an adequate model fit, $\chi 2/df = 2.4$, CFI = 0.98, RMSEA = 0.07, SRMR = 0.03.

Manipulation check

Consistent with Study 1, results from the manipulation check showed that participants in the vision condition ($M = 5.27$, $SD = 1.13$) had significantly higher mental imagery scores compared to participants in the superordinate goal condition ($M = 4.61$, $SD = 1.33$), $t(447) = 5.68$, $p < .001$.

Hypotheses tests

Descriptive statistics of all variables are shown in Table 1. Table 2 shows their zero-order correlations. We again found support for hypothesis 1 in that the visions group reported higher positive affect than the superordinate goal group (a = 0.50, $p < .001$, 95% CI [0.40, 0.61]), and in turn predicted positive anticipatory affect ($b = 0.35$, $p < .001$, 95% CI [0.20, 0.49]) which is in support of hypothesis 2. The biased-corrected bootstrap confidence interval (based on 5000 samples) for the indirect effect was significant ($ab = 0.18$, 95% CI [0.09, 0.27]).

We then examined the significance levels of the indirect effects for the hypothesized model using the bootstrap procedure (Hayes, 2022). Supporting hypothesis 3, there was a significant indirect effect of visions on goal commitment through positive affect and positive anticipatory affect (indirect effect = β = 0.017, $SE = 0.009$, 95% CI [0.003, 0.039]), operating sequentially. Specifically, visions significantly and positively predicted positive affect, positive affect significantly and positively predicted positive anticipatory affect, and positive anticipatory affect significantly and positively predicted goal commitment (for standardized path coefficients, see Fig. 3). Ultimately, confirming hypothesis 4, the indirect effect of visions on goal progress was significant (β = 0.005, SE = 0.003, 95% CI [0.001, 0.016]). The results showed that visions significantly and positively predicted positive affect, positive affect significantly and positively predicted positive anticipatory affect, positive goal-related affect significantly and positively predicted goal commitment, and goal commitment significantly and positively predicted goal progress (for standardized path coefficients, see Fig. 3).

Discussion

First, the results of Study 2 replicated Study 1. They provided additional support for the proposition that visions evoke more positive affect than a control group (superordinate goals). We additionally provided supplemental evidence that shows that visions are positively associated with positive anticipatory affect, which is mediated by positive affect. We, therefore, provided further evidence for a central claim of our model, namely, visions are positively associated with positive affective reactions, which can spill over to goals derived from the vision. This finding offers a first important clue that visions ignite their motivational effect by affectively charging goals that work towards the vision. We were able to further strengthen this finding by showing that, in addition to positive anticipatory affect, as an indicator of approach motivation, the latter was associated with goal commitment, which led to increased goal progress. Thus, our results illustrate the first empirical evidence for the notion that visions are motivationally effective because they evoke positive affective reactions which increases the motivation for vision-related behaviors.

General discussion

Although management scholars agree that visions are an important tool for motivating employees and inspiring change (Carton & Lucas, 2018; Kohles et al., 2012), the processes by which visions motivate behavior remain unclear (Paine et al., 2023; Venus, Stam et al., 2019). The aim of the current study was to better understand the motivational mechanisms by which visions stimulate and drive behavior. In doing so, we respond to recent calls in the literature for a better understanding of the mediating processes of visions effectiveness (Fan et al., 2022), particularly the role of positive affect (Paine et al., 2023). By integrating findings from research on mental imagery (e.g., Schubert et al., 2020) and organizational research on visions (e.g., Carton & Lucas, 2018), we show that visions elicit positive affect. Drawing on goal systems theory (Fishbach & Woolley, 2022; Kruglanski et al., 2018), which suggests that emotional properties of goals can be transferred to one another, we propose

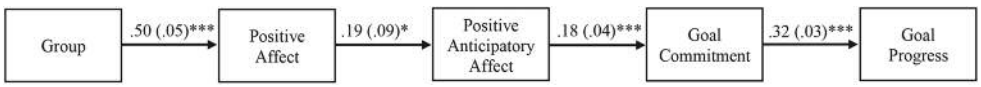

Fig. 3 Parameter estimates for the proposed model. The first value represents the standardized path estimate; the second value (within parentheses) represents the standard error. *Note.* Group was coded as 0 = superordinate goal and 1 =vision.* $p < .05$, ** $p < .01$

that positive affect evoked by visions spills over to vision-derived goals, which in turn facilitates more successful goal pursuit. In doing so, we answer the call for an empirical investigation and integration of visions and goals (Southwick et al., 2019; Berson et al., 2015) by using Stam et al.'s (2014, p. 1174) theoretical framework, which conceptualizes vision pursuit as all ''goal-directed actions that are hierarchically related to the vision.'' Study 1 was designed to test the proposed motivational mechanism by which visions evoke positive affect and its subsequent transfer to related goals using a diverse sample of consultants and business students. Building on these central findings, Study 2 aimed to replicate and extend these results by examining the downstream behavioral consequences of vision-evoked positive affect in a time-lagged design. In Study 1, we found that visions evoked more positive affect compared to superordinate goals, and that vision-evoked positive affect mediated the effect of visions on positive anticipatory affect. In Study 2, we not only replicated, but also extended the findings of Study 1. Specifically, we found that visions were positively related to goal progress two weeks later through positive affect, positive anticipatory affect, and goal commitment.

Theoretical implications

The above findings contribute to the literature in multiple ways. First, and most importantly, our research provides insight into the process of visions motivational effect. Scholars have noted that "empirical evidence pertaining to the antecedents and consequences of visions remains fragmented and scarce" (Boyatzis et al., 2015, p.1; see also Strauss et al., 2012; Venus, Johnson et al., 2019; and that the processes by which visions motivate behavior are still "ill-understood" (Venus, Stam et al., 2019, p. 681). In this regard, Kearney et al. (2019) argue that when visions are reduced to merely communicating an image of the future "there is surprisingly little empirical research on how it affects outcomes" (p. 3). Our research indicates that visions evoke positive affect, taking together findings from clinical psychology (e.g., Schubert et al., 2020) and organizational scholars (Fiset & Boies, 2019; Naidoo & Lord, 2008). As such, our findings complement the results of previous research that highlighted the role of imagery in visions (Carton & Lucas, 2018; Masuda et al., 2010) by revealing the ability of visions to evoke positive affect, as a possible underlying mechanism of the effectiveness of imagery in visions (see Rawolle et al., 2017). By doing so, we respond to the recent call by Paine et al. (2023), and advance the understanding of positive affect as a key mediating mechanism in how visions influence motivation and behavior. Developing a vision and imagining it in vivid imagery evokes positive emotions associated with the anticipation of realizing that vision. This positive response is transferred to the current emotional state, giving the vision a positive valence. In doing so, our research not only demonstrates the potential motivational impact of a simple "vision intervention," but also builds on research on *future work selves* that has encouraged future researchers to address the effect of future imagery on "affective outcomes" (Strauss et al., 2012, p. 594).

Second, we contribute to research on visions by examining how visions relate to goals that are hierarchically related to them. While scholars have repeatedly called for the integration of research on visions and goals (Berson et al., 2015) and suggested that visions need to be translated into actionable and specific goals (Carton & Lucas, 2018; Stam et al., 2014), to our knowledge, studies have not yet empirically explored this question. Drawing on work on emotional transfer in goal systems theory (Fishbach & Woolley, 2022; Kruglanski et al., 2018); Stam et al., 2014, p. 1174) theoretical framework, which conceptualizes vision pursuit as all "goal-directed actions that are hierarchically related to the vision," we examined (a) whether vision-evoked positive affect spills over to vision-derived goals and (b) whether these affectively charged vision-derived goals benefit from increased commitment and goal progress. We demonstrated that positive affect associated with a vision spills over to a vision-derived goal enhancing the pursuit of these goals and thereby actualizing the pursuit of the vision (Stam et al., 2014). Although the exact mechanism by which visions facilitate this affective spillover requires future research, our studies suggest a potential mechanism by which visions unleash their motivational effects. By further investigating how vision-derived goals are affectively charged, but people also seem to pursue them more vigorously, we offer a novel perspective in vision research. Although some research has found that bringing a positive future to one's mind leads only to moderate goal commitment (for a review see Oettingen, 2012) the present studies have shown that visions and vision-evoked positive affect stimulate goal pursuit. In line with research showing that images of a desired future foster proactivity (e.g. Strauss et al., 2012), we argue that a vision can illustrate an existing discrepancy between the positive future and the status quo.

Third, we contribute to the research by examining the effect of visions at the individual behavioral level. Although scholars have argued that visions are individual-level cognitions (Stam et al., 2014) that begin at the individual level by motivating and influencing a person's behavior (Kehr et al., 2021), most previous research has examined the effects of visions at the collective level (e.g., Kipfelsberger et al., 2022), attempting to explain how a firm's organizational vision motivates followers. Building on theorists (Fiset & Robinson, 2020) who speculate that individual-level visions

may be an important factor in career development, our study provides new insights into how individual visions may be an important tool that can help individuals to pursue career-related goals, and thus their own careers. Moreover, a better understanding of such individual-level visions may be particularly important given recent scholarly emphasis on the importance of organizations considering their employees' individual visions (Preller et al., 2020) and increasing employees' personal connection to the vision (Carton, 2022).

Practical implications

Our research has several practical implications. Our results demonstrate the importance of visions as an effective tool in motivating individual behavior. Visions, which are high in mental imagery, evoke positive affect, which affectively charges related goals, ultimately fostering goal pursuit. Even though visions were only examined at the individual level, according to research by Stam and colleagues (2014) we can assume that visions have practically relevant collective effects as well.

On an individual level, personal visions could serve as an integral part of career management practices, for example, career counseling. Importantly, our findings imply that the vision-derived goals are only affectively charged to the extent that the vision itself leads to affective reactions. Based on our research, interventions can help individuals set personal visions that affectively resonate with them and thereby support them in their goal pursuit. For example, companies could integrate interventions in formal career management practices, career development, training opportunities, or coaching and mentoring to help employees foster personal visions that might positively affect their work-related behavior. Leaders might have an especially essential role in helping their employees to develop motivationally compelling personal visions. Research has shown that leaders have a profound impact on the way employees see themselves (Avolio et al., 2004). Therefore, if leaders demonstrate that they have high expectations and confidence in the abilities and potential of their employees, they could potentially inspire and promote personal visions (Avolio et al., 2004).

Secondly, and in addition to the individual level, our research findings also provide clues for the pursuit of corporate visions, that is, for a company's strategic orientation. Visions are often used in everyday corporate life to derive goals, which employees work towards. However, if the corporate vision does not evoke positive affect among employees this could also harm the pursuit of personal work goals. For example, because it is communicated in a rather abstract and less pictorial manner (Carton & Lucas, 2018; Emrich et al., 2001). Leaders could therefore bear a distinctive responsibility to assist their employees.Therefore, managers should evaluate how the vision triggers positive affective reactions among employees. If the positive affective response in employees are weak, leaders could reframe the vision in more vivid image-based language (Carton & Lucas, 2018; Kehr et al., 2021) to evoke more positive affective reactions in employees.

Limitations and future directions

Although the cross-lagged design of Study 2 enables us to overcome shortcomings of previous studies examining visions which relied on cross-sectional data (e.g. Carton & Lucas, 2018; Masuda et al., 2010; Naidoo & Lord, 2008) we only used one additional measurement point, two weeks after the initial survey. Taking into account that scholar's postulate that visions ultimately motivate vision-pursuit "over long periods of time" (Stam et al., 2014, p. 1174, see also Kirkpatrick & Locke, 1996), future studies should measure the goal-related variables (positive anticipatory affect, commitment, and goal progress) multiple times at regular intervals over a more extended period. Such designs could be used to examine whether the influence of a vision on the pursuit of goals derived from it remains constant. In addition, individuals in each experimental condition could be reminded of their vision or goal between days of data collection to investigate if this affects their pursuit of the goal.

Second, common-method bias might pose a possible issue as we solely used self-reported measures in these studies. Because both our studies used an experimental design, comparing two different interventions, we controlled for some of the problems of self-reported behaviors (Cooper et al., 2020). Moreover, by using different scale points, we further mitigated the risk of common method bias (Jordan & Troth, 2020). Nevertheless, we advise that future research uses more rigorously designed longitudinal studies to temporally separate the measurement of mediators and dependent variables (Cooper et al., 2020). Future studies could also obtain multi-source data by assessing objective indicators of goal-related behavior (e.g., grades, workload, etc.).

Third, a potential limitation of our research is its focus on individual-level visions, which may differ from organizational visions, which are typically characterized by their imposed nature. Nevertheless, prior research suggests that our findings may be applicable to organizational contexts, as individuals often align with goals that reflect their intrinsic values, even when they are externally imposed (Barrick et al., 2013; Sheldon et al., 2015). However, future research should examine the extent to which our findings are applicable to organizational-level visions. In addition, and relatedly, we did not examine the conditions under which visions elicit mental imagery and evoke positive affect. We recommend

further research to examine possible interindividual differences that might moderate the relationship between visions and positive affect. For example, one might expect that the degree to which a vision is perceived as self-concordant (i.e., better representing people's implicit personality preferences and potentials, see Sheldon, 2014) would moderate the relationship between visions and positive affect. One could argue that only self-concordant visions would lead to mental imagery and positive affect, thereby facilitating the choice of more motive-congruent goals (Sheldon, 2014). Specifically, it may be that a vision that successfully elicits mental imagery arouses implicit motives (Kehr et al., 2021). This leads to positive affective responses that can help us make motive-congruent decisions by linking our goals to our implicit preferences (Kehr et al., 2021).

Last, we acknowledge that the student sample of Study 2 may limit the generalizability of our findings. The rationale for using business students was that investigating visions in the context of professional future visions is highly relevant for business students given their stage of career planning (e.g., Taber & Blankemeyer, 2015). Moreover, these limitations do not apply to the first study, which used a mixed sample of business students and full-time employees from two medium-sized consulting firms. Nevertheless, we encourage future researchers to explore these concepts with more diverse populations, including a broader range of professionals from different industries, to further validate and extend our findings. This approach would provide a more comprehensive understanding of the impact of visions in different professional contexts.

Conclusion

The purpose of our paper was, first, to investigate the relationship between visions and positive affect, second, to examine the extent to which positive affect spills over from the vision to goals derived from it, and third to analyze how this affects the pursuit of these goals. We showed that visions are positively associated with goal progress of a derived goal via positive affect, positive anticipatory affect, and goal commitment. We hope that our integration of research on visions and goals provides new insights and opens new avenues for future research.

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Data availability The datasets generated during and/or analysed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethical approval The procedures for human participants involved in this study are consistent with the ethical standards of the authors' institution.

Informed consent Informed consent was obtained from all participants included in the study.

Conflict of interest The authors have no conflicts of interest to declare that are relevant to the content of this article.

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3 When Visions Truly Inspire: The Moderating Role of Self-Concordance in Boosting Positive Affect, Goal Commitment, and Goal Progress

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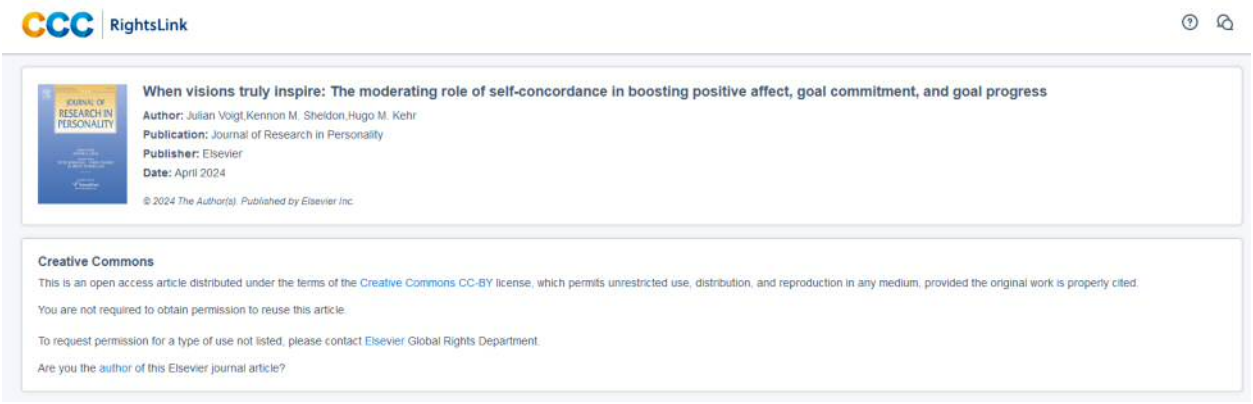

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When visions truly inspire: The moderating role of self-concordance in boosting positive affect, goal commitment, and goal progress

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ABSTRACT

Research demonstrates that visions elicit positive affective reactions, which can mobilize and motivate behavior. However, the factors that determine their effectiveness remain largely unknown. We examine the role of self-concordance in shaping the extent to which visions elicit positive affect and promote vision-related goal pursuit. We develop and test a moderated mediation model, where self-concordance moderates the path from visions through positive affect to both goal commitment and goal progress. In a first cross-sectional experiment (N = 358), we found that an evoked vision (compared to merely listing a "superordinate goal") produced more positive affect, especially when self-concordance was high (vs. low). A second time-lagged experiment with a one-month interval (N = 288) revealed that with high (vs. low) self-concordance, visions led to increased positive affect and commitment to vision-derived goals. A third time-lagged experiment (N = 254) confirmed the pattern with a more diverse sample, showing that it extends to goal progress as well. We discuss theoretical and practical implications and suggest directions for future research.

1. Introduction

How do individuals chart the long-term course for their personal and professional lives? A crucial concept in this process might be a *vision*— a vivid, picture-like mental representation of a desirable, long-term future state (Rawolle et al., 2017). In recent times, visions have garnered increased interest, particularly within the organizational field, where they have been shown to foster enhanced motivation, performance, and readiness for change (e.g., Baum et al., 1998; Stam et al., 2010; Venus et al., 2019). Despite the documented benefits of visions, there is an acknowledged gap in understanding the individual-level factors that determine a vision's effectiveness (Fan et al., 2022; Stam et al., 2014; van Knippenberg & Sitkin, 2013). The current research, therefore, seeks to explore the boundary conditions underpinning the effectiveness of visions. Drawing on insights from self-determination theory, we posit that *self-concordance*— the alignment between an individual's stated goals and their implicit motives, intrinsic values, and inherent potentials (Sheldon, 2014)—might play a pivotal role. Accordingly, this study intends to explore the moderating role of self-concordance in shaping the degree to which visions evoke positive affect and promote vision-related goal pursuit.

1.1. Visions and related constructs

Again, visions are vivid, picture-like mental representations of a desirable, long-term future state (Rawolle et al., 2017). As such, they intersect conceptually with *superordinate goals*—defined as "higher-level, long-term, and abstract goals" (Eberly et al., 2013, p. 45)—in that both represent higher-level, long-term goals (Conger, 1999; Latham et al., 1988). However, a vision, going beyond the abstract characteristics of superordinate goals, offers a compelling mental stimulation of a future reality (Carton et al., 2014; Carton & Lucas, 2018),

whereas superordinate goals, while also capable of evoking mental images, typically do so with less intensity and detail. A vision fleshes out an abstract goal via imaginal elaboration of a future state where one's long-term aspirations have come true (Carton et al., 2014). Importantly, while visions can be collective aspirations within an organizational context, they primarily operate as individual-level cognitions (Stam et al., 2014), reflecting the unique nature of each individual's perspective and aspirations. The defining characteristic of a vision, as its name suggests, is its visual element (Kehr et al., 2021; Rawolle et al., 2017). This aspect turns an idea into a pictorial mental representation, offering a quasi-perceptual simulation of a prospective reality, offering a

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'glimpse' and a 'taste' of the incentives tied to the envisioned state (Carton & Lucas, 2018; Masuda et al., 2010). The vision concept differs from other goal constructs like personal strivings (Emmons, 1986), personal projects (Little, 1983), life tasks (Cantor et al., 1987), future wishes or fantasies (Oettingen, 1996), and aspirations (Kasser & Ryan, 1993) in the way that it is elicited, via highly elaborated visual imagery.

1.2. The motivational power of visions

A significant body of research has demonstrated the motivational power of visions in influencing behavior (e.g., Baum et al., 1998; Stam et al., 2010; Venus et al., 2019). These studies propose that visions enhance motivation and vision-related goal pursuit primarily through their emotional impact (Berson et al., 2015; Carton & Lucas, 2018; Shamir et al., 1993). The emotional impact of visions is attributed to their ability to generate mental imagery in individuals (Berson et al., 2015; Conger, 1999; Stam et al., 2014), enabling them to visualize what success might look like (Carton & Lucas, 2018) and thereby making the envisioned future appear more realistic (Masuda et al., 2010). Mental imagery also allows individuals to vividly envision the positive outcomes associated with achieving the vision, thereby likely creating positive expectancies (Jennings et al., 2022), making them emotionally engaging (Carton et al., 2014; Carton & Lucas, 2018; Guadagno et al., 2011). Supporting this notion, several studies have found that visions high in imagery evoke positive affective reactions (Fiset & Boies, 2019; Griffith et al., 2015; Rawolle et al., 2017). We expected to replicate such effects as a first preliminary hypothesis within our three studies.

1.3. Moderating role of self-concordance to positive affect

While the extant literature validates the positive impact of visions on affective reactions, it also points to the potential for these effects to vary across individuals due to unique personal differences (Berson et al., 2016; Fan et al., 2022; Kehr et al., 2021). The main proposal of our research, as elaborated below, is that the extent to which a vision aligns with an individual's core self influences the degree to which a vision resonates with them, ultimately influencing the strength of the positive affect and motivation evoked (Berson et al., 2015; Stam et al., 2014). In this vein, researchers have proposed that when individuals anchor visions to valued aspects of their self-concept, this congruence enhances motivation, as visions become more meaningful when they reflect an individual's values and identity (Fiset & Boies, 2019; Shamir et al., 1993).

Grounded in these insights, recent organizational research underscores the importance of tailoring visions to employees' core self and their personal values (Lewis & Clark, 2020). Scholars argue that this personalization, coupled with fostering a sense of personal ownership of the vision (Kearney et al., 2019), serves to nurture identified and internalized motivation by enhancing employees' personal connection to the vision (Carton, 2022). Recent evidence for this notion comes from Fan et al. (2022), who, in a two-part experimental study, affirmed that the efficacy of visions is contingent on their alignment with followers' value orientations. Expanding on this idea, Kehr et al. (2021) theorized that congruence between visions and the deeper, implicit aspects of an individual's personality, such as fundamental psychological needs and intrinsic values, may foster the pursuit of vision-derived goals. Hence, following this perspective, one could speculate that a vision that resonates with a person's deeper self and intrinsic values may evoke more potent positive affective responses, thereby enhancing motivation (Ryan & Deci, 2000).

The self-concordance model (Sheldon & Elliot, 1999) provides a theoretical framework that is directly relevant to this suggestion. The model, rooted in self-determination theory (Ryan & Deci, 2000), postulates that stated goals are explicit (McClelland et al., 1989) or "system 2" phenomena (Kahneman, 2011), which can be more or less aligned with an individual's implicit or "system 1" self. Self-concordance can thus be conceived as a type of goal-person fit, which encompasses the convergence between the individual's deeper self and their consciously stated goals (Sheldon & Goffredi, 2023). Goal self-concordance has been linked to numerous positive outcomes (Sezer et al., 2023, for a recent meta-analysis). Scholars argue that pursuing self-concordant goals leads to greater psychological need satisfaction (i.e., the three basic needs for autonomy, competence, and relatedness; Ryan & Deci, 2000), which in turn promotes well-being (Kelly et al., 2015; Sheldon & Schüler, 2011). In line with this, numerous studies have shown that individuals who progress towards more self-concordant goals report higher well-being indices, such as life satisfaction (Judge et al., 2005), subjective well-being (Hope et al., 2019), and positive affect (Gillet et al., 2014; Levine et al., 2021; Sheldon et al., 2004) compared to those that progress towards less self-concordant goals.

Drawing from the self-concordance model (Sheldon & Elliot, 1999) and consolidating it with insights from organizational literature (Fan et al., 2022; Kehr et al., 2021; Shamir et al., 1993), we contend that self-concordance serves a critical moderating role in the relationship between visions and positive affective responses. This moderation is thought to stem from the vision/person fit, which we conceptualize as the alignment between a person's vision and their deeper self and values (Sheldon & Goffredi, 2023). When visions are felt to be more self-concordant, i.e., exhibiting a higher degree of vision/person fit, they may echo more strongly with an individual's implicit self and deeper values (Kehr et al., 2021). Consequently, the psychological needs for autonomy, competence, and relatedness may be better met by engaging in self-congruent visions (Ryan & Deci, 2000; Sheldon & Elliot, 1999), which in turn may evoke stronger positive affective responses (Gillet et al., 2014; Levine et al., 2021; Sheldon et al., 2004).

Conversely, when visions are perceived as low in self-concordance, i.e., they exhibit a weaker vision/person fit, this misalignment may result in a diminished satisfaction of basic psychological needs (Ryan & Deci, 2000) and personal ownership (Kearney et al., 2019), reducing the positive affective reactions (Sheldon & Elliot, 1999; Stam et al., 2014). While these less self-concordant visions may still contain imagery, which allows for some positive affective reactions, the absence of congruence with an individual's deep self and values may lead to less potent affective reactions. These considerations lead to the proposed model shown in Fig. 1. In summary, we propose the following initial hypotheses:

Hypothesis 1. Consistent with past research, visions should evoke more positive affect, as compared to a control group.

Hypothesis 2. The rated self-concordance of visions will moderate the effects of visions (versus a control group) on positive affect. That is, when participants are prompted to generate visions, the visions will be more emotionally impactful if they are self-concordant ones.

Fig. 1 illustrates these first two hypotheses. As noted earlier, Hypothesis 1 is merely a replication attempt, whereas Hypothesis 2 represents a central proposed contribution of our studies.

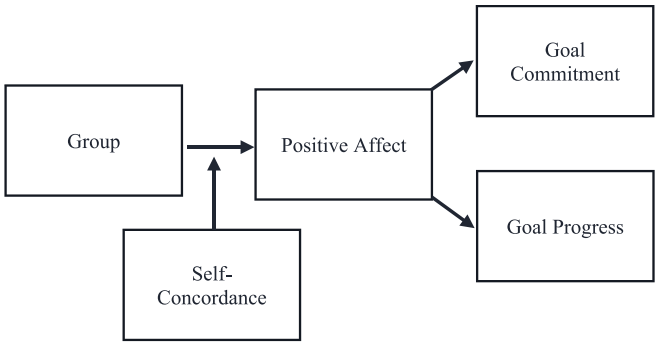

Fig. 1. Theoretical Model.

Fig. 1 also illustrates another important assumption of our research, namely, that positive affect has beneficial effects upon later goal outcomes such as commitment and progress. We do not formally test this hypothesis because it has been well supported by past research (e.g., Aarts et al., 2008; Custers & Aarts, 2005), although we will confirm that the relations hold by inspecting the correlational data of the three studies (see Table 2).

1.4. The mediating role of positive affect to goal commitment and goal progress

Building upon the association between visions, self-concordance, and positive affect, as outlined in the previous section, we explore their potential role in a mediational process that connects visions to goal commitment and goal progress.

As stated before, scholars argue that positive affect plays a crucial role in the motivational process (Custers & Aarts, 2005; Erez & Isen, 2002), serving as an "implicit motivator" (Custers & Aarts, 2005, p. 129) in goal attainment. Prior research has shown that positive affect bolsters goal commitment (Custers & Aarts, 2005; Fishbach & Labroo, 2007), goal pursuit (Ilies & Judge, 2005; Seo & Ilies, 2009), and consequently, goal progress (Cameron et al., 2018; Fritz et al., 2021). Similarly, the positive affect evoked by visions is proposed to ignite powerful and positive emotions (Ernst et al., 2018), motivating individuals to allocate effort and resources toward "goals that are hierarchically related to the vision" (Stam et al., 2014, p. 1174) in order to fulfill positive expectancies (Carver & Scheier, 1998, 2000). This proposition aligns with findings by Fishbach et al. (2004), who demonstrated that the experience of general positive affect can be implicitly associated with a pursued goal and subsequently increase the goal's perceived value and foster approach motivation (see also Cameron et al., 2018; Fishbach & Finkelstein, 2011). Taking this evidence together, we propose that vision-evoked positive affect energizes the pursuit of vision-related goals, reinforcing commitment and progress. Combining those expectations, we hypothesize:

Hypothesis 3. Positive affect mediates the effects of visions (versus a control group) on goal commitment and progress.

1.5. Self-concordance as a moderator of the indirect effects of visions on goal outcomes via positive affect

Finally, considering our arguments regarding the moderating role of self-concordance and the mediating role of positive affect, we expect that the indirect relationships between visions and both goal commitment and goal progress via positive affect are contingent upon the degree of self-concordance (i.e., moderated mediation). These contentions align with past works that have established that the pursuit of self-concordant goals contributes to enhanced goal progress (e.g., Smyth et al., 2020) by promoting commitment (Koestner et al., 2002), increased effort (Koestner et al., 2008; Sheldon & Elliot, 1999), and subjective ease (Werner et al., 2016). Hence, we propose that when individuals perceive their visions as self-concordant, they are likely to experience more positive affect, which in turn boosts goal commitment and goal progress.

Hypothesis 4a. Self-concordance moderates the indirect effect of visions on goal commitment via positive affect, such that the indirect effect is stronger when self-concordance is high (vs. low). In the control group, self-concordance is not expected to influence the indirect effect.

Hypothesis 4b. Self-concordance moderates the indirect effect of visions on goal progress via positive affect, such that the indirect effect is stronger when self-concordance is high (vs. low). In the control group, self-concordance is not expected to influence the indirect effect.

1.6. Overview of studies

Three online experiments tested our hypotheses, all involving students who received course credit for participating (community adults were also included in Study 3). In Study 1, we used a cross-sectional design to test the moderating effect of self-concordance on the relationship between group (vision vs. superordinate goal) and positive affect, the first part of Fig. 1. In Study 2, we used a time-lagged design with two measurement points to investigate a moderated mediation model of the posited effect of group (vision vs. superordinate goal) on goal commitment (see Fig. 1) by testing positive affect as a mediator and self-concordance as a moderator. In Study 3—which used the same time-lagged design as Study 2 but had a more diverse sample—goal progress was investigated as another outcome variable of our moderated mediation model (see Fig. 1). None of the studies were pre-registered. Data, hypotheses tests, and output files can be found on our OSF site (https://osf.io/8zxhp/?view_only=b504c8a7941f4f30bf558c74faa4dfe4).

2. Study 1

2.1. Method

2.1.1. Participants and procedure

The sample consisted of 385 students at a large German business school. After eliminating incomplete surveys, we received 358 usable surveys. Following recent recommendations (Ward & Meade, 2022), we examined for careless response patterns and outliers in terms of completion time (Bowling et al., 2016) and Mahalanobis Distance (Meade & Craig, 2012). However, all participants met the required criteria regarding the two aspects. The final sample consisted of 358 participants, who were, on average, 24 years of age ($SD = 3.1$); 215 were women, 142 were men, and one was diverse.

Initially, participants were informed that the study's primary purpose was to learn about their future career aspirations. Afterwards, participants gave informed consent and responded to a baseline test of positive affect. They were then randomly assigned to one of two experimental conditions (vision vs. superordinate goal).

In the vision condition, participants were provided a definition of the term vision ("the mental picture of a desirable future," see Rawolle et al., 2017). They were then asked to describe in a free-text field, in several sentences, their vision for their professional future. Afterwards, they rated their vision on self-concordance. Subsequently, to familiarize them with mental imagery, participants underwent an imagination exercise in which they imagined a lemon using all their senses (Meevissen et al., 2011). Following this exercise, participants proceeded to a guided visualization exercise. Due to the prevalent understanding that the visual component is a core feature of visions (Carton & Lucas, 2018; Kehr et al., 2021; Masuda et al., 2010; Rawolle et al., 2017), we selected guided visualization as the method for administering the vision. Throughout the guided visualization, participants were requested to imagine their vision in order to elicit mental images in their minds (Rawolle et al., 2017; Schultheiss & Brunstein, 1999). Specifically, participants were instructed to "time travel into the future to the moment when [their] vision came true" and to "vividly imagine [their] described vision, just as if [they] were dreaming it." Concreteness was increased by including questions like the following: In what ways can you tell that your vision has come true? How do you see it? What is surrounding you?

The superordinate goal condition began similarly, with participants being presented with a definition of a superordinate goal ("a goal that is important to us and that we want to achieve in the long term," see Höchli et al., 2018). Participants were asked to describe in several sentences their superordinate goal for their professional future in a free-text field. Then, they rated their superordinate goal on self-concordance. This was followed by the imagination exercise (Meevissen et al., 2011), mirroring the vision condition. Afterwards, participants were administered a

guided relaxation exercise (Rawolle et al., 2017). Relaxation exercises are a widespread active control group in the study of future thinking and mental imagery (e.g., Rawolle et al., 2017; for a review, see Scholten et al., 2019). Specifically, respondents were instructed that "[they] can let everything that is going on around [them] things that have just been occupying [their] thoughts - be completely unimportant for once, remain completely for [themselves] and [their] body - and feel how [they] can relax". To maximize relaxation, participants were asked to concentrate on their body and its reactions: "The next time [they] exhale, [they] feel even the smallest muscles under [their] scalp relax completely. [Their] eyelids are now also quite heavy. [They] now feel [their] face relax completely." (Rawolle et al., 2017). Both experimental conditions were equal in length and lasted 6 min each. The forward progression button on the screen was displayed afterwards.

Following these experimental manipulations, we assessed mental imagery and post-intervention positive affect.

2.1.2. Measures

2.1.2.1. Mental imagery. In accordance with Carton & Lucas (2018), who adapted items from Babin & Burns (1998), we measured mental imagery with three items (e.g., "Right now there is a visual scene playing in my 'mind's eye'"; 1 = disagree to 7 = agree; α = 0.84). This variable was used as a manipulation check.

2.1.2.2. Positive affect. Positive affect was assessed with the Positive and Negative Affect Schedule (PANAS; Watson et al., 1988). Ten items assessed the extent to which participants currently experience positive affective states (e.g., "Proud", "Inspired") with 5-point Likert-type scaled answers (1 = *not at all*, 5 = *very strongly*) with ten items (αs = 0.88 and 0.92 for pre and post, respectively).

2.1.2.3. Self-concordance. Self-concordance of visions and superordinate goals was measured with four items adapted from Sheldon and Elliot (1998). The items assessed participants' reasons to pursue either their vision or superordinate goal on a 7-point scale (1 = *not at all for this reason;* 7 = *completely because of this reason)*: intrinsic (i.e., "because I am interested in the experience itself"), identified (i.e., "because I really believe it is an important vision/superordinate goal to have"), introjected (i.e., "because I would feel ashamed, guilty or anxious if I didn't"), and external (i.e., "because somebody else wants me to or the situations demands it"). Consistent with previous research, the final score was computed by adding up ratings from the identified and intrinsic items and subtracting introjected and external ratings (Sheldon, 2014; Sheldon & Elliot, 1998). The internal consistency of the self-concordance scale was 0.83.

2.1.2.4. Control variables. In accordance with recent recommendations for the inclusion of control variables (Becker et al., 2016), we considered participants' age and gender as possible controls. Prior research has found that both these socio-demographic variables can influence positive affect (e.g., Fujita et al., 1991; Pinquart, 2001). However, these demographic variables were not significantly correlated with our core variables in this sample, and they did not impact the statistical significance of the findings (see the online supplementary material for the results of these sensitivity analyses). Thus, we excluded these controls from the analysis (Becker et al., 2016). Moreover, to obtain a valid estimation of the intervention effect on positive affect, we followed previous research (e.g., Hülsheger et al., 2013) and controlled for baseline scores of positive affect (van Breukelen, 2013).

2.2. Results

2.2.1. Manipulation check

First, we examined whether our experimental manipulation (vision vs. superordinate goal) was successful by comparing the scores of participants' mental imagery after the completion of each intervention. As expected, results from the manipulation check showed that participants in the vision condition ($M = 5.39$, $SD = 1.22$) had significantly higher mental imagery scores compared to participants in the superordinate goal condition ($M = 4.90$, $SD = 1.24$), $t(356) = 3.73$, $p < .001$.

2.2.2. Hypotheses tests

Means and standard deviations of study variables are listed in Table 1. Table 2 shows the intercorrelations among the study variables.[1] To examine our first two hypotheses, we followed recommendations by Preacher et al. (2007) and Hayes (2022) and used the SPSS PROCESS macro (Model 1; Hayes, 2022). In order to examine these hypotheses, we predicted positive affect (dependent variable) based on group (independent variable, coded as 0 = superordinate goal and 1 = vision), self-concordance (moderator), and the interaction term of group and self-concordance. Hypothesis 1 posited that visions, as compared to superordinate goals, would evoke more positive affect. As expected, we found that visions evoke more positive affect compared to superordinate goals ($\beta = 0.46$, $p < .001$), supporting Hypothesis 1. Next, we examined

Table 1
Means, Standard Deviations, and Independent Samples t-Tests of the two Conditions for Study 1, 2, and 3 Variables.

	Vision		Superordinate Goal		
Variables	*M*	*SD*	*M*	*SD*	*t*
Study 1					
1. Self-Concordance	4.41	3.70	4.47	4.05	0.14
2. Positive Affect (pre)	3.09	0.74	3.10	0.72	0.13
3. Positive Affect (post)	3.56	0.76	3.09	0.80	−5.64***
4. Gender	1.34	0.48	1.46	0.50	2.31*
5. Age	24.0	3.26	24.2	3.01	0.50
Study 2					
1. Self-Concordance	4.53	3.54	5.89	3.56	3.24**
2. Positive Affect (pre)	3.00	0.56	3.13	0.61	1.59
3. Positive Affect (post)	3.58	0.66	3.17	0.72	−5.04***
4. Goal Commitment	5.23	1.04	5.38	0.95	1.22
5. Gender	1.50	0.52	1.43	0.49	0.87
6. Age	22.5	3.25	22.8	7.20	0.25
Study 3					
1. Self-Concordance	5.80	3.05	6.27	3.58	1.12
2. Positive Affect (pre)	3.19	0.58	3.27	0.58	1.08
3. Positive Affect (post)	3.68	0.72	3.29	0.67	−4.36***
4. Goal Progress	3.22	1.04	3.34	1.07	0.88
5. Gender	1.35	0.49	1.32	0.46	−0.56
6. Age	29.7	11.2	29.7	10.9	−0.03
7. Employment Status	0.43	0.50	0.46	0.50	0.49

Note. SD = Standard deviation. Group was coded as 0 = superordinate goal and 1 = vision. Gender was coded with 1 = female and 2 = male. Employment Status was coded with 0 = unemployed and 1 = full-time employed. Age was measured in years.
* $p < .05$.
** $p < .01$.
*** $p < .001$.

[1] We want to note that while in Study 2, small but significant positive correlations between self-concordance and both positive affect and goal commitment were found, these correlations were not observed in Studies 1 and 3. Even though this may be surprising given the broad evidence from the self-concordance literature (Sezer et al., 2023, for a recent meta-analysis), there have also been a number of studies with similar mixed findings (Bono & Judge, 2003; Koestner et al., 2002, Study 1; van Dierendonck, 2015). We note that the main effects of self-concordance are not included in Fig. 1 and are not relevant to our main theoretical and empirical contribution.

Table 2
Correlations Between Study Variables (Studies 1, 2, and 3).

Variable	Group	Self-Concordance	Positive Affect (pre)	Positive Affect (post)	Goal Commit-ment (T2)	Goal Progress (T2)	Gender	Age	Employment Status
Study 1									
Group	—				—	—			—
Self-Concordance	−0.00	—			—	—			—
Positive Affect (pre)	0.00	0.02	—		—	—			—
Positive Affect (post)	0.29**	0.08	0.54**	—	—	—			—
Gender	−0.13*	0.02	0.03	−0.03	—	—	—		—
Age	−0.02	−0.07	0.00	0.03	—	—	−0.04	—	—
Study 2									
Group	—					—			—
Self-Concordance	−0.18**	—				—			—
Positive Affect (pre)	−0.09	0.19**	—			—			—
Positive Affect (post)	0.29**	0.12*	0.55**	—		—			—
Goal Commitment (T2)	−0.07	0.15*	0.12*	0.17**	—	—			—
Gender	−0.03	−0.08	−0.02	−0.07	−0.08	—	—		—
Age	−0.03	0.04	−0.02	−0.06	−0.07	—	−0.08	—	—
Study 3									
Group	—								
Self-Concordance	−0.07	—			—				
Positive Affect (pre)	−0.06	0.06	—		—				
Positive Affect (post)	0.26**	0.03	0.52**	—	—				
Goal Progress (T2)	−0.06	0.03	0.13*	0.19**	—	—			
Gender	0.04	−0.10	0.02	−0.07	—	0.06	—		
Age	0.01	−0.05	0.18**	0.11	—	0.05	0.20**	—	
Employment Status	−0.02	−0.03	0.05	−0.00	—	0.00	0.22**	0.53**	—

Note. $N_{Study1} = 358$. $N_{Study\ 2} = 288$. $N_{Study\ 3} = 254$. Gender was coded with 1 = female and 2 = male. Employment Status was coded with 0 = unemployed and 1 = full-time employed. Age was measured in years.

* $p < .05$.

** $p < .01$.

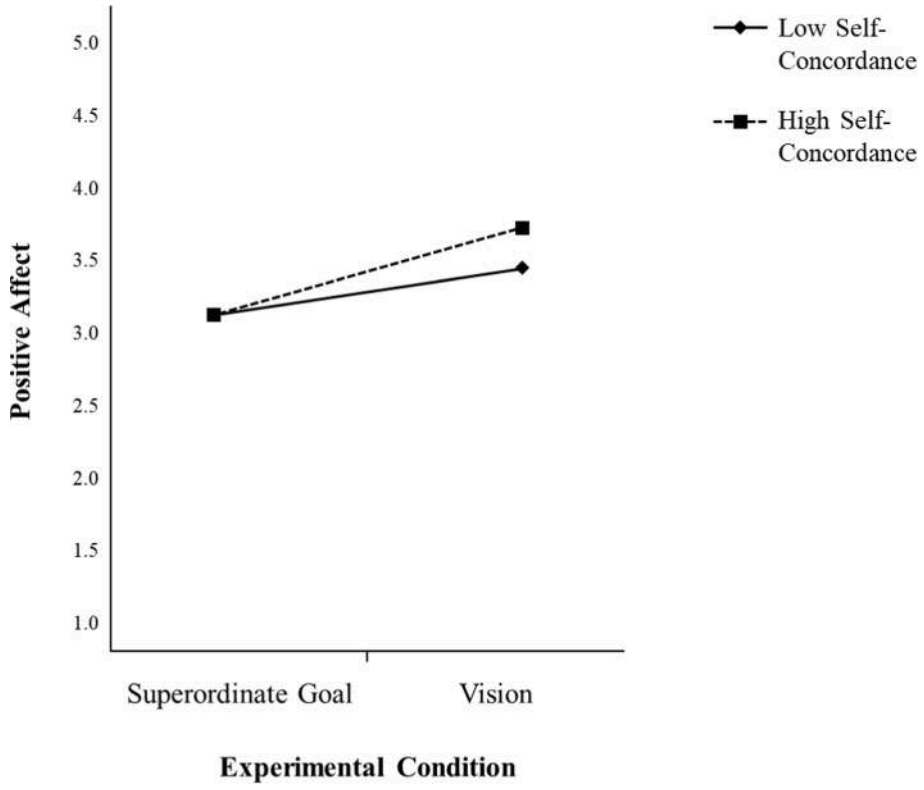

Fig. 2. Study 1: Moderating effect of self-concordance on the relationship between group and positive affect.

Hypothesis 2, which predicted that self-concordance would moderate the relationship between group (coded as 0 = superordinate goal and 1 = vision) and positive affect, such that this relationship would be stronger when self-concordance is high than when self-concordance is low. As expected, we found a significant interaction effect between group and self-concordance on positive affect, $\beta = 0.04$, $p = .04$, supporting Hypothesis 2. Fig. 2 shows the pattern of the interaction. A simple slope analysis (Aiken & West, 1991) illustrated that for high self-concordance (1 *SD* above the mean), the relationship between group and positive affect is stronger (simple slope = 0.60, $p < .001$) than for low self-concordance (1 *SD* below the mean) (simple slope = 0.32, $p < .001$). Additionally, these slopes differed significantly from one another, $z = 2.20$, $p = .02$ (Paternoster et al., 1998).

2.3. Discussion

The findings from Study 1 supported Hypotheses 1 and 2. First, consistent with past research, we found that visions evoked more positive affect, as compared to superordinate goals. Second, we obtained evidence that self-concordance moderated the relationship between visions and positive affect. Specifically, when individuals' vision self-concordance was high, participants reported more positive affect compared to when vision self-concordance was low. These results suggest that individuals who perceive their visions as highly self-concordant experience more positive affect.

While the results of Study 1 confirmed our proposed interaction effect, we note several limitations. First, the study employed a cross-sectional design, which poses a risk for common method biases to occur (Cooper et al., 2020). Hence, introducing a time-lagged examination of the effects would be important in an effort to mitigate concerns tied to common method biases (Cooper et al., 2020; Podsakoff et al., 2012). Second, while, as noted above, positive affect is an important proxy for motivation (Custers & Aarts, 2005), it is critical to examine the downstream consequences of vision-evoked positive affect, such as commitment to a vision-related goal (see Fig. 1). Therefore, we conducted Study 2 to address these points.

3. Study 2

3.1. Method

3.1.1. Participants and procedure

We conducted two surveys that occurred one month apart. The manipulation check (mental imagery), moderator variable (self-concordance), the mediator (positive affect), and control variables were collected at Time 1 (T1), and the dependent variable, goal commitment, was collected at Time 2 (T2; one month later).

To determine the sample size required to test our mediation model, we conducted an a priori power analysis for mediations using Monte Carlo simulations in R (Schoemann et al., 2017). Using the parameter obtained in Study 1 for the link between group and positive affect, assuming a small to moderate effect size for the link between positive affect and goal commitment (r = 0.20) and setting statistical power at 0.80, a sample size of 221 people was recommended. A total of 353 participants were recruited, of which 294 completed the Time 1 and Time 2 surveys (completion rate of 83 %). Using the same approach as in Study 1, we examined careless response patterns and outliers in terms of completion time and Mahalanobis Distance (Ward & Meade, 2022). Six participants did not meet these two criteria and were dropped from the following analyses. We performed our analyses in Study 2 with and without these exclusions to check the validity of our results. We found the same results. The final sample comprised 288 participants. The mean age of participants was 22.73 years ($SD = 5.5$); 157 were women, 129 were men, and two were diverse.

The procedures and manipulations were identical to Study 1. However, the study continued after the assessment of mental imagery and post-intervention positive affect. The subjects were asked how they intended to reach either their vision or their superordinate goal. Participants in both conditions were asked to state three goals they could follow in the upcoming weeks to move closer to their vision or superordinate goal. Here, subjects were asked to state these goals as specific and concrete as they could (Locke & Latham, 2002) and preface these with the words "In the next few weeks, I will…" (Brunstein et al., 1996). Examples of goals given by respondents include: "In the next few weeks, I will go to the library twice a week to study" or "In the next few weeks, I will be checking e-commerce course opportunities on a daily basis and apply to interesting ones". Finally, participants were asked to identify one out of the three goals they listed as the most important one to them in achieving their vision or superordinate goal, which they further planned to pursue in the upcoming weeks (for a similar approach, see Pieters et al., 1995).

One month later, participants received an invitation to the second part of the study. At the beginning of the second part, participants were first reminded of the study's content by showing them either their vision or their superordinate goal, which they formulated at Time 1. Next, the participants were prompted with their vision- or superordinate goal-derived goal, which they had selected to pursue in the upcoming weeks, and were asked to indicate how committed they were to their vision- or superordinate goal-derived goal (Klein et al., 2014).

3.1.2. Measures

3.1.2.1. Positive affect (Time 1), self-concordance (Time 1), and mental imagery (Time 1). Positive affect (α = 0.82 and 0.90 for pre and post, respectively), self-concordance (α = 0.76), and mental imagery (α = 0.78) were assessed with the same scales as in Study 1.

3.1.2.2. Goal commitment (Time 2). Participants' commitment to their goals was measured with a four-item (α = 0.84) scale by (Klein et al., 2014) (i.e., "How committed are you to this goal?"; "To what extent have you chosen to be committed to this goal?", "To what extent do you care about this goal?", "How dedicated are you to this goal?"; 1 = *not at all*, 7 = *completely*).

3.1.2.3. Control variables (Time 1). Consistent with Study 1, we considered the potential impact of age and gender on positive affect (e.g., Fujita et al., 1991; Pinquart, 2001). Similar to Study 1, these control variables were not included in the final analyses because they did not have a significant effect on the hypothesized relationships (Becker et al., 2016). However, we report the results of these sensitivity analyses in the online supplementary material. As in Study 1, we controlled for baseline scores of positive affect (van Breukelen, 2013) to receive a valid estimation of the intervention effect on positive affect (e.g., Hülsheger et al., 2013).

3.2. Results

3.2.1. Manipulation check

First, to ensure that our experimental manipulation (vision vs. superordinate goal) was successful, we compared the scores of participants' mental imagery after the completion of each intervention. These results demonstrate the effectiveness and validity of the two manipulations, showing that participants in the vision condition ($M = 5.20$, $SD = 1.27$) had significantly higher mental imagery scores compared to participants in the superordinate goal condition ($M = 4.86$, $SD = 1.36$), $t(286) = 2.12$, $p < .05$.

3.2.2. Hypotheses tests

Means and standard deviations of study variables are listed in Table 1. Table 2 displays the correlations among the study variables. To test our theoretical model (Fig. 1), we applied first-stage moderated

mediation analyses (Preacher et al., 2007) with the SPSS PROCESS macro (Model 7; Hayes, 2022). By doing so, we were able to generate the confidence intervals (CI) for the indirect effects in hypotheses 3 and 4a as well as for the index of moderated mediation, which tests the equality of the conditional indirect effects, utilizing bootstrapping with 5,000 resamples (Preacher & Hayes, 2004) and 95 % confidence intervals (Hayes, 2022; Preacher & Hayes, 2004).

Hypothesis 1 posited that visions, as compared to superordinate goals would evoke more positive affect. As expected, we found that visions, compared to superordinate goals, evoke more positive affect ($\beta = 0.50$, $p < .001$). Hypothesis 2 proposed that self-concordance would moderate the relationship between group (coded as 0 = superordinate goal and 1 = vision) and positive affect. Supporting Hypothesis 2, we found a significant moderation effect of self-concordance on the relationship between group and positive affect ($\beta = 0.03$, $p = .04$) (Model 1, Table 3). Fig. 3 portrays the effect of the interaction on positive affect. Simple slope analyses (Aiken & West, 1991) revealed that the relationship between group and positive affect was positive and significant when self-concordance was high (1 *SD* above the mean) (estimate = 0.64, $p < .001$), but less positive when self-concordance was low (1 *SD* below the mean) (estimate = 0.36, $p < .001$). Moreover, these slopes differed significantly from one another, $z = 2.20$, $p = .02$ (Paternoster et al., 1998).

Hypothesis 3 stated that positive affect mediates the effect of group on goal commitment. The indirect effect was significant at a 95 % confidence level (estimate = 0.14, [0.055; 0.256]), providing support for Hypothesis 3. Next, we examined Hypothesis 4a, which proposed that the indirect effect of group on goal commitment via positive affect would be moderated by self-concordance. To examine this hypothesis, we incorporated the estimates from Model 1 (Table 3) and, moreover, the estimates from a second model where the goal commitment (dependent variable) was posited to be influenced by positive affect (mediator) while considering group (independent variable), self-concordance (moderator), and the interaction term of group and self-concordance (Model 2, Table 3). These model estimates may then, in turn, be employed to compute the index of moderated mediation, which, if it differs significantly from zero, supports Hypothesis 4a (Hayes, 2022). The concrete structure of the moderated indirect effect can be determined by estimating indirect effects and their corresponding confidence intervals across different values of self-concordance (Hayes, 2022). Supporting Hypothesis 4a, our results revealed a significant effect of positive affect on goal commitment ($\beta = 0.29$, $p = .006$) (Model 2, Table 3). We then utilized bootstrapping with 5,000 resamples (Preacher & Hayes, 2004) to estimate the 95 % confidence intervals for both the index of moderated mediation as well as the indirect effects at high (1 *SD* above the mean) and low (1 *SD* below the mean) values of self-concordance (Hayes, 2022). The index of moderated mediation was different from zero and therefore significant (index = 0.010, 95 % CI [0.0006; 0.025]), indicating that positive affect served as a mediator in the indirect effect of group on goal commitment, and this mediating effect was found to vary across different values of self-concordance. Concretely, the conditional indirect effect of group on goal commitment via positive affect was more positive when self-concordance was high (1 *SD* above the mean) (estimate = 0.18, 95 % CI [0.070; 0.332]) compared to when self-concordance was low (1 *SD* below the mean) (estimate = 0.10, 95 % CI [0.034; 0.210]). This difference was statistically significant (difference = 0.079, 95 % CI [0.004; 0.178]). Hence, Hypothesis 4a was supported.

Table 3
Moderated Mediation Analyses Testing Hypothesis 4a (Study 2).

	Mediator = Positive Affect Model 1		Dependent Variable = Goal Commitment Model 2	
Predictors	*β*	*SE*	*β*	*SE*
Group	0.50***	0.06	−0.26*	0.12
Positive Affect	—	—	0.29**	0.10
Self-Concordance	0.01	0.00	—	—
Group × Self-Concordance	0.03*	0.01	—	—
R2	0.43		0.04	
Indirect effects		Effect	LL	UL
Conditional indirect effect of Group on Goal Commitment at:				
Low Self-Concordance (−1 *SD*)		0.107	[0.034	0.210]
High Self-Concordance (+1 *SD*)		0.187	[0.070	0.332]
Difference		0.079	[0.005	0.178]

Note. $N = 288$. The 95 % confidence intervals for the conditional indirect effects and the conditional indirect effect difference were calculated using 5,000 bootstrapping resamples. LL = lower limit; UL = upper limit.
* $p < .05$.
** $p < .01$.
*** $p < .001$.

3.3. Discussion

Study 2 replicated the findings of Study 1 and extended them by examining positive affect as a mechanism driving the commitment to a vision-related goal. Using a time-lagged design, results revealed that visions are positively associated with goal commitment via positive affect and that this relationship is stronger when vision self-concordance is high.

While the results of Study 2 confirmed our proposed hypotheses, we note several shortcomings. First, while we assessed goal commitment using self-reported intentions to act on the goal, it is unclear whether these intentions translate into actual goal progress. Second, the study again used a sample of university students, which may limit the generalizability of our findings. To address these limitations, we conducted Study 3, which aimed to complete the testing of Fig. 1 by assessing goal progress as a direct indicator of how well participants are attaining the vision-related goal, and recruited a mixed sample that included both university students and full-time employees to increase the external validity of our findings.

4. Study 3

4.1. Method

4.1.1. Participants and procedure

In Study 3, we used the same time-lagged design with two measurement points set one month apart as in Study 2. We again assessed the manipulation check (mental imagery), moderator variable (self-concordance), mediator (positive affect), and control variables at Time 1 (T1), and the dependent variable (goal progress) at Time 2 (T2; one month after Time 1). Using the parameters obtained in Studies 1 and 2 for the link between group and positive affect, assuming a small to moderate effect size for the link between positive affect and goal progress (r = 0.20) and setting statistical power at 0.80, a sample size of 221 people was recommended. A total of 352 participants were recruited, of which 255 completed the Time 1 and Time 2 surveys (completion rate of 72 %). Using the same approach as in Studies 1 and 2, we analyzed for nonsense response patterns and outliers in terms of completion time and Mahalanobis Distance (Ward & Meade, 2022). One participant did not meet these two criteria and was dropped from the following analyses. As a test of the validity of our findings, we performed our analyses for Study 3 with and without this exclusion. We obtained the same results. Our final sample consisted of 254 participants. The average age of participants was 29.92 years ($SD = 11.2$); 172 were women, 84 were men, and one was diverse.

To enhance the generalizability of our findings, we targeted a broad pool of both students as well as full-time employees. Specifically, we recruited 141 students (107 women, 33 men, one diverse; $M_{age} = 24.50$ years) and 113 full-time employees (62 women and 51 men; M_{age} =

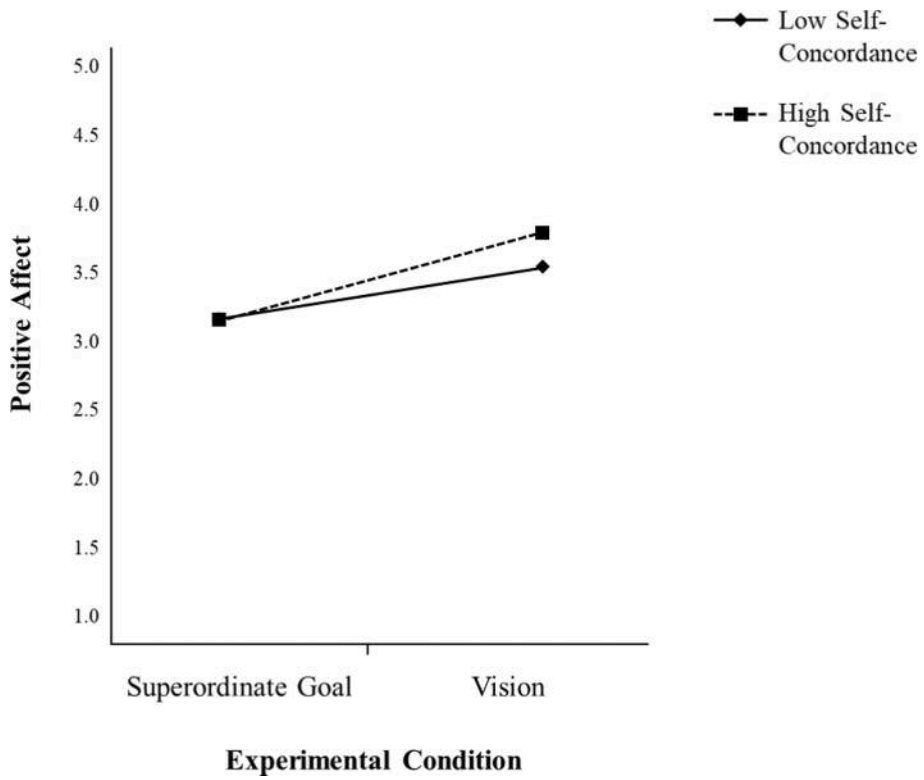

Fig. 3. Study 2: Moderating effect of self-concordance on the relationship between group and positive affect.

36.30 years). Students and full-time employees were examined for differences before being merged. In line with the objective of diversifying the sample, the full-time employees were more often men $t(252) = 3.40$, $p < .001$, and older $t(252) = 9.90$, $p < .001$. Importantly, the results showed that there were no significant differences between full-time employees and students for our main study variables positive affect $t(252) = 0.18$, *ns.*, self-concordance $t(252) = 0.60$, *ns.*, and goal progress $t(252) = 0.13$, *ns*. In addition, we tested for similarity of effects across both groups (students vs. full-time employees) and conducted all analyses with and without employment status as a covariate. The analyses yielded the same pattern of results, so we combined both groups for additional power and diversification.

The procedure was nearly the same as in studies 1 and 2. The only difference was that participants in the superordinate goal condition were required to visualize and then write down their typical day (adapted from Peters et al., 2010, original instructions by Sheldon & Lyubomirsky, 2006), which is a commonly employed active control group in mental imagery studies (for a meta-analysis see Schubert et al., 2020). Concretely, respondents were prompted with a text field and asked to visualize [their] typical day, to "write about [their] typical day, and the kinds of things that happen during it'' and to "outline [their] typical day in as much detail as [they] can.''(Sheldon & Lyubomirsky, 2006, p. 77). (Rawolle et al., 2017). Both of these conditions were equal in length and lasted 6 min each. The forward progression button on the screen was displayed afterwards.

Additionally, at Time 2, participants were asked to rate the progress they had made towards the vision- or superordinate goal-derived goal they had stated at Time 1 (for a similar procedure, see Hülsheger & Maier, 2010).

4.1.2. Measures

4.1.2.1. Positive affect (Time 1), self-concordance (Time 1), and mental imagery (Time 1). Positive affect ($\alpha = 0.82$ and 0.91 for pre and post, respectively), self-concordance ($\alpha = 0.72$), and mental imagery ($\alpha = 0.80$) were assessed with the same scales as in Study 1.

4.1.2.2. Goal progress (Time 2). We measured participants' goal progress ($\alpha = 0.93$) with four items by Greguras & Diefendorff (2010) (e.g., "I have made considerable progress toward attaining this goal"; 1 = *strongly disagree*; 7 = *strongly agree*).

4.1.2.3. Control variables (Time 1). Based on the same rationale provided in Studies 1 and 2, we considered the inclusion of participants' age and gender as control variables. Moreover, we considered employment status (student vs. full-time employee) as a potential control variable because prior research has shown that employment status is associated with positive affect (Griffin et al., 2006,) and both age and gender were highly correlated with employment status ($r = 0.53$ and $r = 0.22$, respectively, $p < .001$). Similar to Studies 1 and 2, these control variables were not included in the final analyses because they did not have a significant effect on the hypothesized relationships (Becker et al., 2016). The results of these sensitivity analyses can be found in the online supplementary material. In addition, as in Study 1 and Study 2, to obtain a valid estimate of the intervention effect on positive affect, we followed previous research (e.g., Hülsheger et al., 2013) and controlled for baseline positive affect (van Breukelen, 2013).

4.2. Results

4.2.1. Manipulation check

First, we examined whether our experimental manipulation (vision vs. superordinate goal) was successful by comparing the scores of participants' mental imagery after the completion of each intervention. As expected, results from the manipulation check showed that participants in the vision condition ($M = 5.35$, $SD = 1.22$) had significantly higher mental imagery scores compared to participants in the superordinate goal condition ($M = 4.83$, $SD = 1.36$), $t(252) = 3.19$, $p < .001$.

4.2.2. Hypotheses tests

Means and standard deviations of study variables are listed in Table 1. Correlations among the study variables are presented in Table 2. To test our hypotheses, we used the same first-stage moderated mediation model (Hayes, 2022) as in Study 2 using the SPSS PROCESS macro (Model 7; Hayes, 2022). Hypothesis 1 posited that visions as compared to superordinate goals would evoke more positive affect. As expected, we found that visions, compared to superordinate goals, evoke more positive affect (β = 0.43, $p < .001$). Hypothesis 2 postulated that self-concordance would moderate the relationship between group (coded as 0 = superordinate goal and 1 = vision) and positive affect. As anticipated, we found a significant interaction between group and self-concordance, predicting positive affect (β = 0.05, $p = .01$) (Model 1, Table 4). Fig. 4 depicts the interaction effect on positive affect. Plotting the simple slopes (Aiken & West, 1991) indicated that the slope of group on positive affect was positive and significant when self-concordance was high (+1 *SD*) (β = 0.61, $p < .001$), but less positive when self-concordance was low (- 1 *SD*) (β = 0.26, $p = .02$); moreover both slopes differed significantly from one another, $z = 2.74$, $p = .006$ (Paternoster et al., 1998). Thus, Hypothesis 2 was supported.

Hypothesis 3 predicted that positive affect mediates the effects of group on goal progress. The indirect effect was significant at a 95 % confidence level (estimate = 0.13, [0.031; 0.253]), thus supporting Hypothesis 3. Hypothesis 4b predicted an indirect effect of group on goal progress through positive affect, with a more positive indirect effect expected under high self-concordance compared to low. Analogous to Study 2, we investigated a mediation effect contingent on a moderator, employing the index of moderated mediation (Hayes, 2022) and calculating the same two models as in Study 2. Model 2 demonstrated a significant effect of positive affect on goal progress (β = 0.30, $p = .007$) (Model 2, Table 4), supporting our hypothesis. We then utilized bootstrapping with 5,000 resamples (Preacher & Hayes, 2004) to estimate the 95 % confidence intervals for the index of moderated mediation as well as the indirect effects at high (1 *SD* above the mean) and low (1 *SD* below the mean) values of self-concordance (Hayes, 2022). The index of moderated mediation was statistically significant (index = 0.016, 95 % CI [0.0013; 0.036]), indicating that positive affect mediated the effect of group on goal progress as well as that the indirect effect varied across different self-concordance values. Concretely, the conditional indirect effect of group on goal progress via positive affect was more positive when self-concordance was high (1 *SD* above the mean) (estimate = 0.18, 95 % CI [0.040; 0.352]) than when self-concordance was low (1 *SD* below the mean) (estimate = 0.08, 95 % CI [0.086; 0.183]). This difference was statistically significant (difference = 0.10, 95 % CI [0.008; 0.249]). Hence, Hypothesis 4b was supported.

Table 4
Moderated Mediation Analyses Testing Hypothesis 4b (Study 3).

	Mediator = Positive Affect Model 1		Dependent Variable = Goal Progress Model 2	
Predictors	*β*	*SE*	*β*	*SE*
Group	0.43***	0.07	−0.23	0.14
Positive Affect	—	—	0.30**	0.11
Self-Concordance	0.00	0.01	—	—
Group × Self-Concordance	0.05*	0.02	—	—
*R*2	0.39		0.05	
Indirect effects		Effect	LL	UL
Conditional indirect effect of Group on Goal Progress at:				
Low Self-Concordance (−1 *SD*)		0.079	[0.086	0.183]
High Self-Concordance (+1 *SD*)		0.180	[0.040	0.352]
Difference		0.107	[0.011	0.249]

Note. $N = 254$. The 95 % confidence intervals for the conditional indirect effects and the conditional indirect effect difference were calculated using 5,000 bootstrapping resamples. LL = lower limit; UL = upper limit.
* $p < .05$.
** $p < .01$.
*** $p < .001$.

5. General discussion

Across three studies, we found consistent support for our central hypothesis, that self-concordance strengthens the positive influence of visions on positive affect and other positive outcomes. In the first study, we demonstrated that higher vision self-concordance leads to increased positive affect. Furthermore, our second and third studies provided evidence that vision-induced positive affect enhances both goal commitment (Study 2) and goal progress (Study 3), with these effects being more pronounced when vision self-concordance is high.

5.1. Theoretical implications

First and perhaps most importantly, our research contributes to the organizational literature on visions (Berson et al., 2015; Stam et al., 2014) by focusing on the previously underexplored role of individual-level factors in the effectiveness of visions. While most research has primarily focused on organizational-level factors to elucidate how and when visions impact performance (e.g., Halevy et al., 2011; Vanderstukken et al., 2019), the significance of individual-level factors has been largely overlooked (Berson et al., 2016). This is particularly surprising, given that researchers have long proposed that the alignment between visions and individual values should boost motivation (Shamir et al., 1993), an assumption that has only been recently tested by Fan et al. (2022). Drawing on these insights, our study brings to light the moderating role of vision self-concordance on the effect of visions on goal commitment and goal progress. This finding not only empirically validates the long-held assumption that alignment between visions and individual values is essential for visions' effectiveness (Shamir et al., 1993) but also refines this perspective by showing that the alignment with more implicit aspects of the individual's self, such as fundamental psychological needs and intrinsic values, influences the potency of visions (Kehr et al., 2021). In doing so, our findings complement emerging research that encourages adapting visions to employees' identities (Lewis & Clark, 2020) and promoting personal ownership of visions (Kearney et al., 2019) in order to facilitate internalized and identified motivation. By emphasizing the critical role of self-concordance in the relationship between visions and goal-related behavior, our study extends the literature by considering the individual's role in the success of vision implementation and underlines the importance of understanding the unique characteristics and value orientations of individuals when crafting visions.

Second, our research adds to the self-concordance literature. While existing research has established the connection between self-concordance and positive affective reactions in the context of personal goals (e.g., Gillet et al., 2014; Levine et al., 2021; Sheldon et al., 2004), these studies have not yet explored the implications of self-concordance in relation to visions. Although some scholars have speculated that similar effects should apply to visions (e.g., Kehr et al., 2021; Rawolle et al., 2017) and have proposed that visions are most effective in evoking positive affect if they are relevant to a person's deeper self and values, empirical evidence for this proposition remains scarce. Our study addresses this gap in the literature by demonstrating, to our knowledge, for the first time, that when visions are more self-concordant, they are more effective in evoking positive affect. Notably, our findings align with recent findings of Ernst et al. (2018), who showed that self-concordant future events have a special phenomenological status, are distinguished by more positive and intense emotions, and are more strongly associated with autobiographical knowledge. This connection between self-concordance and the phenomenological experience of envisioned future events provides a plausible explanation for our findings that self-concordant visions are more effective in evoking positive affect.

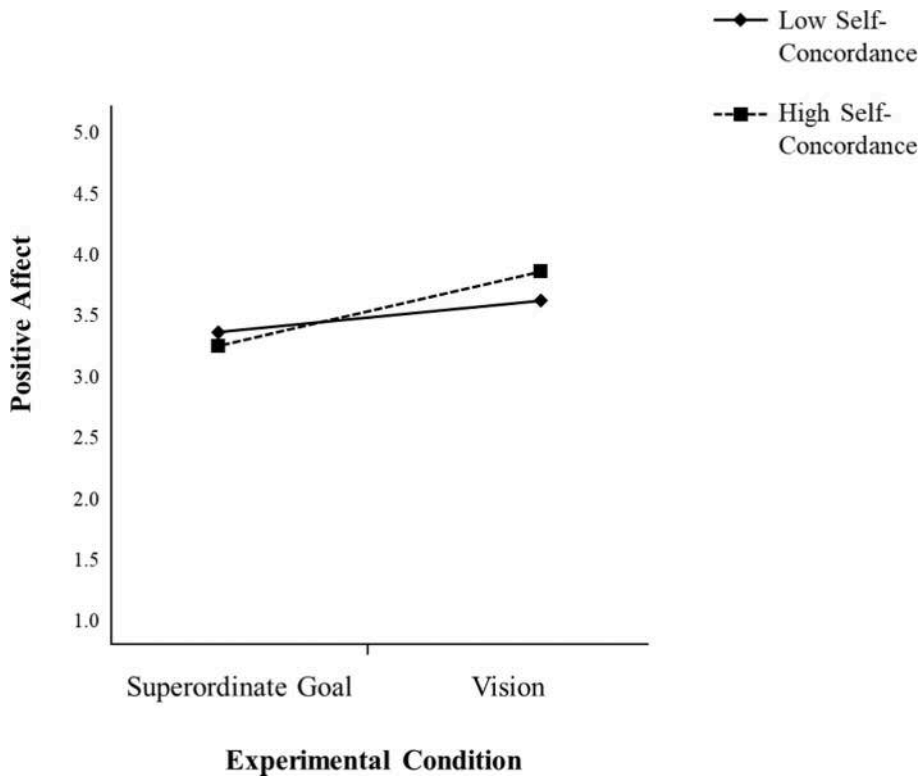

Fig. 4. Study 3: Moderating effect of self-concordance on the relationship between group and positive affect.

Related to this, researchers have recently speculated that modulating emotional states related to future mental simulations may have important consequences for pursuing goals (Ernst et al., 2018). Confirming this idea, we found that self-concordant visions of the future not only boost affective reactions but also foster the commitment and progress of vision-derived goals. By showing the link between self-concordance in visions and goal-related outcomes, our study stresses the importance of aligning visions with employees' individual values and deeper self to enhance both affective and motivational aspects of goal pursuit.

Last, our findings are relevant to previous goal research on the effects of positive affect on goal-related outcomes. Whereas we relied on literature showing positive effects (e.g., Aarts et al., 2008; Custers & Aarts, 2005), other studies have found that positive affect might lead to coasting (investing less effort) or shifting to alternative goals (e.g., Louro et al., 2007; Thürmer et al., 2020). We believe that these findings can be reconciled by considering that previous research has shown that positive affect primarily leads to coasting in the presence of competing goals (Fishbach & Dhar, 2005; Orehek et al., 2011; Thürmer et al., 2020) and when goals are near completion (Orehek et al., 2011). Extending these findings, our results suggest that when people pursue a newly stated goal that they have identified as important to achieving their vision, vision-evoked positive affect is implicitly associated with this goal (Fishbach et al., 2004; Fishbach & Finkelstein, 2011), and serves as an important resource (Fredrickson, 2004), energizing the pursuit of this newly identified goal and helping to get through the initial stages of goal pursuit (Custers & Aarts, 2005; Fishbach & Labroo, 2007; Orehek et al., 2011). These findings underscore the context-dependent nature of how positive affect influences goal pursuit and highlight the importance of goal structure and stage in determining its motivational consequences.

5.2. Limitations and future research

A potential limitation of our research concerns its generalizability to organizational-level visions, which are often assigned or imposed, as opposed to the individual visions pursued by our participants. Despite this limitation, evidence from personality and organizational scholars indicates that our findings might still apply in such contexts. Prior research in personality (Sheldon et al., 2015, 2019; Sheldon & Schüler, 2011) has demonstrated that individuals can discern self-concordance in imposed goals and, when given a choice among various imposed goals, may select those that are more closely aligned with their intrinsic values. Likewise, organizational scholars (Barrick et al., 2013; Kehr, 2004) have posited that externally imposed goals can become intrinsically motivating when congruent with an individual's self, fostering a sense of meaningfulness. Consequently, future research should initially investigate the extent to which our findings are applicable to organizational-level visions. Related to this point, recognizing the methodological limitations in our approach to self-concordance, researchers should attempt to experimentally manipulate the self-concordance of visions (cf. Chatzisarantis et al., 2010; Unsworth & Mcneill, 2016). Such a methodological adoption would not only help to establish causality but also allow investigation into practical strategies for enhancing self-concordance where it is initially low. For example, researchers could explore ways to enhance self-concordance in cases where organizational vision self-concordance is low, such as by aligning organizational visions with personal goals to promote commitment and goal progress (Unsworth & Mcneill, 2016).

Additionally, in our research, we utilized the vision construct from organizational research as our theoretical lens, conceptualizing visions as being positively oriented (Rawolle et al., 2017). However, recent literature has theorized about the potential impact of negative visions on motivation (Kehr et al., 2021). Negative visions, which depict negatively valenced future scenarios, may serve to galvanize employees to enhance their efforts or modify their behaviors to avert undesirable outcomes (Kehr et al., 2021). Although empirical evidence on negative visions is limited, it is conceivable that such visions may trigger negative emotions and avoidance behaviors (Elliot & Sheldon, 1997) as a means to prevent the adverse event. Furthermore, future studies could examine the impact of contrasting a positive vision, central to a person's self, with realistic assessments of potential obstacles (Oettingen et al., 2001). While our

research did not explicitly address this question, it would be interesting to explore whether high vision self-concordance might elicit greater goal commitment and goal progress via feelings of energization as an alternative mechanism when the desired future is juxtaposed with negative reflections on reality impeding this future, compared to situations with low vision self-concordance (Oettingen et al., 2009).

Moreover, potential limitations in our research may arise from common method bias due to the exclusive use of self-reported measures. However, we argue that common method variance (CMV) is less likely to influence our findings based on three key factors. First, our experimental design featured two experimental conditions, therefore addressing some common issues associated with self-reported behaviors by providing distinct contexts for participants' responses, thereby enhancing the validity of our findings (Cooper et al., 2020). Second, we collected data on outcome variables more than one month after assessing the independent variable, mediator, and moderator. This time separation helps mitigate priming, consistency, and other factors contributing to CMV (Johnson et al., 2012). Third, the observed indirect relationships were contingent upon moderator variables, with interactions occurring at both levels of the mediation model. Research has shown that CMV cannot account for the effects of interactions (Siemsen et al., 2009). Because of these considerations, we recommend that future research employ more rigorous longitudinal study designs such as a diary or experience-sampling methodologies, providing multiple time points for data collection (see Cooper et al., 2020 for a recent review). Additionally, incorporating multi-source data by evaluating objective indicators of goal-related behavior (e.g., grades, workload) could further strengthen the validity of future findings.

Another important consideration is that while the moderation effects we found are consistent across the three studies, the effect sizes are arguably quite small. However, we believe that these interaction effects are still important to consider. While small effect sizes are not only very common in personality psychology (Funder & Ozer, 2019) but particularly in moderation analyses (Aguinis et al., 2005), researchers have frequently argued that small but consistent effects can be critical for the advancement of theory and practice (Prentice & Miller, 1992) and have been shown to have substantial consequences for downstream outcomes (Yeager et al., 2018). In line with this, recent discourse in psychological research has encouraged that effect sizes that appear small may be of practical importance, especially when considered over time (Funder & Ozer, 2019; Götz et al., 2022). According to Funder and Ozer (2019), this is particularly important in experimental research, where small effects may indicate small effects for single events (i.e., our experimental manipulation), but these may be consequential in the long run. Applying this to our study, the results indicate that small but significant effects of self-concordance on the relationship between our experimental manipulation and positive affect may lead to meaningful differences in goal commitment and progress.

Last, reflecting upon the measurement tools employed in our studies, it is necessary to address the limitations associated with the use of the PANAS to assess positive affect. As highlighted by Sheldon and Lyubomirsky (2006) and consistent with an anonymous reviewer's observations, the PANAS may exhibit a bias towards high-activation positive emotions, such as 'excited', 'strong', and 'inspired'. This raises the possibility that the PANAS might not fully capture the breadth of positive affective states, particularly quieter emotions like 'content', 'satisfied', and 'serene'. While high-intensity positive emotions have been shown to facilitate goal pursuit (e.g., Hart & Gable, 2013), the potential underrepresentation of less intense positive states poses a limitation to our findings. Nonetheless, we chose the PANAS for its validated reliability and its frequent application in studies exploring future imagination and positive affect (for recent meta-analyses see Carrillo et al., 2019; Heekerens & Eid, 2021; Schubert et al., 2020). Moreover, we have made efforts to robustly design our studies, including the assessment of positive affect pre- and post-manipulation and the incorporation of varied control conditions. However, we would advise future research to include a more diverse array of affect measures to capture a broader emotional spectrum.

5.3. Practical implications

Our research emphasizes the importance of self-concordance in visions for both individuals and organizations. We found that self-concordant visions are especially associated with positive affect, commitment, and progress toward goals. Building on Sheldon et al. (2019), who proposed that individuals can select more self-concordant goals by tapping into their feelings and underlying motivations, we suggest that individuals can similarly choose more self-concordant visions. As proposed by Sheldon et al. (2019), one way to achieve this is by engaging in reflective exercises, such as mindfulness meditation (Brown & Ryan, 2003), to identify visions that align with personal values and motivations. Additionally, individuals could also utilize goal imagery techniques such as those proposed by Job & Brandstätter (2009) to 'get a taste of' potential visions and enhance their congruence with implicit motives (see also Schultheiss et al., 2011). By doing so, individuals can create visions that resonate deeply, ultimately leading to greater success and fulfillment.

On an organizational level, understanding the role of self-concordance can help in creating more effective visions that resonate with employees. This understanding should extend to leadership roles, given that empowering and transformational leadership styles - which support employees by providing choices and rationale for decisions, championing workplace values, and addressing affective needs - have been shown to stimulate higher self-concordant goal striving in employees (Bono & Judge, 2003).

Moreover, by involving employees in the vision-crafting process, organizations can ensure that visions are better aligned with the deeper self of their members. For example, organizations could host vision workshops, where employees collaboratively discuss and shape the organization's future aspirations. This participatory approach not only strengthens the alignment between the organizational vision and employees' deeper selves but also enhances their commitment and motivation to pursue vision-derived goals. Additionally, organizations can utilize sub-organizational visions tailored to the specific needs and identities of different units (Carton, 2022). Unit heads could create these sub-visions while maintaining alignment with the organization's broader vision (Lewis & Clark, 2020). This strategy allows employees, especially those in peripheral units, to identify with aspirations that are both personally relevant and connected to the organization's overall direction.

6. Conclusion

Our research highlights the pivotal role of self-concordance in moderating the effectiveness of visions, demonstrating that alignment between individual values and visions leads to increased positive affect, goal commitment, and goal progress. By bridging the gap between the vision and self-concordance literature, we offer a nuanced understanding of the motivational power of personal visions. Our findings pave the way for future research examining the interplay between individual and organizational factors in shaping vision effectiveness and the pursuit of vision-derived goals.

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8. Availability of data

The datasets analyzed for the current study are available on this link https://osf.io/8zxhp/?view_only=b504c8a7941f4f30bf558c74faa4

dfe4.

9. Code availability

Results of hypotheses tests and data analyses for the current study are available on this https://osf.io/8zxhp/?view_only=b504c8a7941f4f30bf558c74faa4dfe4.

10. Ethics declarations

All procedures performed in the two studies including human participants were in accordance with the institutional ethical standards and with the 1964 Helsinki declaration and its later amendments. Informed consent was obtained from all individual participants included in the studies.

11. Authors' contributions

All authors contributed to the study conception and design. Material preparation, data collection and analysis were performed by Julian Voigt. The first draft of the manuscript was written by Julian Voigt and Kennon M. Sheldon and Hugo M. Kehr commented on previous versions of the manuscript. All authors read and approved the final manuscript.

CRediT authorship contribution statement

Julian Voigt: Writing – review & editing, Writing – original draft, Visualization, Validation, Software, Resources, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Kennon M. Sheldon:** Writing – review & editing, Supervision, Conceptualization. **Hugo M. Kehr:** Writing – review & editing, Supervision, Resources, Project administration.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data will be made available on request.

Appendix A. Supplementary material

Supplementary material to this article can be found online at https://doi.org/10.1016/j.jrp.2024.104471.

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4 How Future Work Self Salience Shapes the Effects of Interacting with Artificial Intelligence

This chapter is based on the following manuscript, which is currently under review:

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Abstract

The rapid rise of artificial intelligence (AI) is transforming the world of work, leaving individuals wondering what AI means for the future of their career. The current research investigates the moderating role of future work self salience (FWSS) on the effect of interacting with AI on perceived control over one's future work self (FWSC) and proactive career behavior. In a first longitudinal experiment with full-time employees in the UK (N = 174), participants interacting with AI to solve a task (compared to a control group) experienced increased perceived control over their future work self when FWSS was high, in contrast to those with low FWSS. We replicated this pattern in a second longitudinal study with German business students (N = 208). Building on these findings, a third longitudinal experiment with German full-time employees (N = 155) extended the model by demonstrating a moderated mediation: for individuals with high FWSS, AI interaction increased perceived control over the future work self and thus promoted proactive career behavior. In contrast, perceived control and proactive career behavior decreased for those with low FWSS. This research demonstrates the potential impact of AI interactions on work-related outcomes, offering critical insights for both theory and practice.

Keywords: Artificial intelligence, future work selves, proactive career behavior

How Future Work Self Salience Shapes the Effects of Interacting with Artificial Intelligence

1. Introduction

Recent years have witnessed remarkable advancements in the realm of artificial intelligence (AI), a technology touted to bear significant and perhaps "jarring effects on work and jobs" (Phan et al., 2017, p. 253). The emergence of conversational AI systems like OpenAI's ChatGPT, Google's Bard, and Microsoft's Bing has made this revolution increasingly noticeable, prompting a complex discourse on the impact of AI on our work life and career (Kessler, 2023). Early reports on how AI will affect the world of work both praise the extraordinary potential of AI to boost the global economy (Chui et al., 2023) while also cautioning that AI could affect an estimated 80% of workers and potentially displace a quarter of the workforce (Eloundou et al., 2023). The impact of AI on individuals' careers is thus likely to be significant (Donald et al., 2024). While AI is likely to create new roles and even new industries, it will also fundamentally change or even replace existing jobs, requiring individuals to develop new skills and making at least some of their extant competencies redundant (Selenko et al., 2022). The resulting ongoing need to continually update skills and knowledge means that individuals' proactive efforts to develop their skills and shape their career is likely to play an increasingly significant role (Hirschi, 2018; Lent et al., 2022).

However, previous research suggests that individual perceptions of AI vary widely (Cave & Dihal, 2019), particularly with regard to its integration into the workplace (Bankins et al., 2023; Selenko et al., 2022). Thus, how individuals react to the impact of AI depends not only on "the type of technology implemented," but also on "individual differences among workers" (Bankins et al., 2023, p. 11). While some initial studies have begun to explore how individual-level factors influence responses to AI, research has primarily focused on how personality influences attitudes towards AI (Kaya et al., 2024; Stein et al., 2024) and on how individuals'

feel their current job or employment prospects are affected by AI (Bhargava et al., 2021; Lin et al., 2024). How individuals respond to interactions with AI is however profoundly affected by their perceptions of what these experiences might mean for their future (Gioia et al., 1994; Gioia & Thomas, 1996). Yet, how individuals' more future-focused career-related cognitions shape interactions with AI and thus their career-related behaviors remains largely unknown.

To address this issue, we draw on the proactive motivation model (S. K. Parker et al., 2010) as well as on research on future work selves, i.e., individuals' cognitive representations of their future in relation to work (Strauss et al., 2012). The proactive motivation model suggests that the interplay between "reason to" as well as "can do" factors shapes individuals' motivation for proactive behavior. Drawing on this overarching theoretical framework, we propose that interacting with artificial intelligence and witnessing its capabilities will affect individuals' sense of control over their future work self (a "can do" factor), depending on the initial salience of their future work self (a "reason to" factor). Future work self salience (FWSS) reflects how "clear and easy to imagine" the future work self is for the individual (Strauss et al., 2012, p. 581). We argue that FWSS will buffer the impact of AI on individuals' sense of control over their future: on the one hand, having a clear image of their future work self will allow individuals to envision the benefits of AI for their future career, leaving them feeling more in control of their desired future and thus promoting their proactive career behavior. On the other hand, those with low levels of FWSS will experience a lack of control over their future when they interact with AI, making it less likely for them to engage in proactive career behavior. Figure 1 shows our theoretical model.

Our study contributes to the literature in the following ways. First, we provide insights into the role of AI for individuals' future-oriented career-related cognition and behavior. Previous studies have predominantly adopted a "present" perspective when investigating employees' views of AI (e.g., Bochniarz et al., 2022; Kong et al., 2023; Langer et al., 2023), for example,

examining their beliefs about the impact of AI on their current employability and job security in their existing job (Bhargava et al., 2021; Lin et al., 2024). However, the notion of prospective sensemaking (Gioia et al., 1994; Gioia & Thomas, 1996) suggests that responses to current experiences, such as AI interactions, are also strongly shaped by individuals' conceptions of what this might mean for them in the future. By emphasizing how future selves act as a "homing beacon," (Ashforth & Schinoff, 2016, p. 115), our study demonstrates that individuals interpret AI interactions not only in terms of immediate challenges and opportunities, but also in terms of how these interactions align with and inform their future career. We thus add a novel perspective to emerging research (Tang et al., 2023) that emphasizes that AI interactions have the potential to lead to both positive and negative outcomes (i.e., while some individuals may feel more control over their future when interacting with an AI, others may experience the opposite). As a result, our research provides a more comprehensive view of how work-related interactions with AI will impact employees.

Second, we expand theory on future work selves by introducing perceived control over the future work self as an important aspect of career-related future-oriented cognition. To date, research on future work selves has predominantly focused on their salience, and numerous studies have shown that FWSS promotes individuals' efforts to proactively shape their careers (Guan et al., 2017; Strauss et al., 2012; Taber & Blankemeyer, 2015). We introduce FWSC, individuals' perceived control over their future work self, as an important yet previously overlooked aspect of future work selves, reflecting "can do" motivation. Future work selves are a specific type of possible self (Strauss et al., 2012), and in the wider literature on possible selves, the amount of control an individual feels they have over their possible self has long been considered an important factor that determines individuals' efforts to bring about this possible self. For example, Oyserman and James (2009) highlight that the perceived controllability of a

possible self determines the effort individuals invest in realizing it. Yet, in relation to future work selves, individuals' sense that the attainment of their future work self is in their control has not been considered.

In addition, we extend research on FWSS by investigating it as a boundary condition. Studies to date have predominantly focused on the main effects of FWSS on career-related outcomes. However, some researchers have instead considered how FWSS can shape employees' reactions to their environment. For example, Yu et al. (2016) found that employees high in FWSS reported lower levels of affective commitment when their supervisor was abusive. Xu et al. (2021) found that for healthcare workers high in FWSS, supervisor career support had a less pronounced effect on career commitment. Lin et al. (2024) found that employees high in FWSS reported more proactive career behavior when their self-perceived employability was low. We contribute to this nascent stream of research, which shows that FWSS can shape individuals' reactions to averse (e.g., abusive supervision or reduced employability), positive (e.g., supervisor support), or ambiguous (e.g., AI) contexts in organizations. This is of particular importance as AI systems are increasingly integrated into human workplaces (Duan et al., 2019; Jarrahi, 2018) in what we may think of as a new industrial revolution (Pereira et al., 2023). Thus, our results offer valuable insights for leaders aiming to comprehend the influence of AI integrations on employees' career-related cognitions and behaviors (Budhwar et al., 2023).

1.1. Literature Review and Hypotheses

1.1.1. AI and individuals' careers

AI broadly refers to a wide range of computerized systems that "learn from experience, adjust to new inputs, and perform human-like tasks" (Duan et al., 2019, p. 63). As such, AI is an umbrella term that encompasses a range of technologies and tools (e.g., machine learning, deep learning, and natural language processing) enabling task automation, large-scale data analysis,

predictive modeling, and the emulation of human decision-making (H. Lu et al., 2018; von Krogh, 2018). Researchers propose that AI has the potential to augment human creativity (Berg et al., 2023; Epstein et al., 2023), boost productivity (Agrawal et al., 2023), and improve overall performance (Brynjolfsson et al., 2023). Consequently, integrating AI into the workplace is poised to profoundly affect the nature and trajectory of individuals' careers (Gati & Kulcsár, 2021; Kong et al., 2023; S. K. Parker & Grote, 2022). As described by Donald et al. (2024, p. 3), AI is a "disruptive force with a high potential to change the shape of the labor market and career ecosystem," posing both a threat and "new opportunities to careers in all industrial sectors".

Yet, the relationship between AI and individuals' perception of its influence on their careers is complex. Importantly, AI systems have the capacity to both automate and augment tasks – the former suggesting machine replacement of human labor, the latter indicating collaborative efforts between humans and machines (Raisch & Krakowski, 2021). While the "type of technology implemented" is likely to influence the automating vs. augmenting effect of the AI on labor, individual reactions to the impact of AI are "multifaceted" and also depend "on individual differences among workers" (Bankins et al., 2023, p. 11; see also Maragno et al., 2023). Thus, individuals differ in how they feel about the rise of AI (Kaya et al., 2024; Stein et al., 2024), and thus how they react to it.

For some individuals, encountering AI's capabilities may be associated with uncertainty about their future career, triggering feelings of a loss of control over their aspired-to future and negatively impacting their efforts to prepare for the future. In contrast, other individuals may interpret the same interaction as increasing their level of control over their professional future, viewing AI as an instrumental tool that empowers them to actively shape their career. By adopting a future-oriented perspective, we extend the current perspectives on individuals' present views toward AI and its impact on careers. Specifically, we examine how individuals'

interactions with AI, influenced by their perceptions of what it might mean for them in the future, may alter their sense of control over their future career. Below, we describe how encountering AI and its capabilities will interact with individuals' future work selves, specifically, how future work selves are impacted by AI and how they, in turn, shape individuals' reactions to it.

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[Insert Figure 1 about here]

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1.1.2. Future work selves as a lens for understanding reactions to AI

The rise of AI may affect individuals' career-related cognition and behavior in a multitude of ways; for example, it may trigger concerns about employability (Yam et al., 2022) and uncertainty about the future job market (Frank et al., 2019). We expand current work on individuals' reactions to AI by adopting a future-oriented perspective. In particular, we draw on the literature on prospective sensemaking (Gioia et al., 1994; Gioia & Thomas, 1996), which suggests that reactions to current experiences, such as interactions with AI, are also strongly shaped by individuals' conceptions of what this might mean for them in the future. Building on this framework, we suggest that the impact of AI on future-oriented career-related cognitions and behaviors can be best understood through the lens of future work selves. Future work selves are individuals' representations of who they want to become in the future, reflecting their hopes and aspirations regarding work (Strauss et al., 2012). They are a type of possible self (Markus & Nurius, 1986), reflecting individuals' cognitive manifestation of who they want to become at work. Future work selves are related to other concepts in the career literature such as occupational identity, "the clear perception of occupational interests, abilities, goals, and values" (Hirschi, 2012, p. 480), career aspirations, the desire to advance in one's chosen career field (O'Brien, 1996), or career commitment, "the development of personal goals, the attachment to,

identification with, and involvement in those goals" (Colarelli & Bishop, 1990, p. 159). Yet, future work selves are a distinct concept: they form part of the self-concept and are thus explicitly identity-oriented. As such, they "function as the personalized carriers (representations) of general aspirations, motives, and threats" (Markus & Nurius, 1986, p. 955). A focus on future work selves thus allows us to investigate the impact of AI on career-related threats and aspirations as they are embedded in the self. Future work selves make the future of work "personal" and relevant to individuals' identity, in contrast to more general beliefs such as uncertainty about the future labor market (e.g., "Will my planned occupation [e.g., accountant] disappear due to technological changes?"; (Gati & Kulcsár, 2021, p. 9) or perceived employability (e.g., will I be able to keep my job or get one I want; Rothwell & Arnold, 2007).

We propose that experiencing the powerful capabilities of an AI will affect the amount of control individuals feel they have over the attainment of their future work self. Norman and Aaron (2003) defined perceived control over a possible self as the extent to which its attainment is perceived as under one's control and showed its importance for individuals' efforts to achieve the respective possible self. Future work self control (FWSC) thus reflects individuals' control appraisal in relation to their future self, i.e., their perceived control over their future in relation to work considering their available resources (Lazarus & Folkman, 1984).

1.1.3. The moderating effect of future work self salience

A key feature that determines the motivational impact of a future work self is its salience: The degree to which the future work self is "clear and easy to imagine" (Strauss et al., 2012, p. 581). Strauss et al. (2012) suggest that the motivational potency of a salient future work self can be explained through episodic prospection, i.e., the mental simulation of the future (Bulley et al., 2016; Suddendorf & Moore, 2011). This mental simulation of possible future scenarios allows for the organization of current actions in anticipation of future events, consistent with the

principle that imagining future states optimizes goal-directed cognition and behavior (Seligman et al., 2013). Thus, by mentally simulating their future work selves, individuals can identify potential discrepancies between their current abilities and future demands (Strauss et al., 2012), which in turn motivates action to bridge these discrepancies (Schultz & Hernes, 2013).

According to Strauss et al. (2012), this mental simulation of the future allows individuals to identify obstacles as well as opportunities in relation to their future self. In support of this, Taylor et al. (1998) demonstrated that mentally simulating possible future events facilitates planning and problem solving (for a recent meta-analysis see Cole et al., 2021). Furthermore, simulating stressful events has been shown to increase the propensity to engage in problem-solving activities (Jing et al., 2016; Rivkin & Taylor, 1999). During periods of uncertainty, individuals with salient hopeful possible selves experience greater psychological adjustment and exhibit lower levels of anxiety and depression (Sweeny & Dunlop, 2020), highlighting the stabilizing effects of a well-defined future work self. Social cognitive theory also posits that mental simulation provides a vicarious experience that increases confidence in achieving desired outcomes (Bandura, 1989). Consequently, we argue that individuals with a salient future work self are able to mentally travel into the future and imagine possible uses of AI in their future working lives. Rather than seeing AI as a threat to their future work self, FWSS allows them to imagine its possible benefits, as well as ways around its potential negative impact, leaving individuals feeling more in control of their future work self. In contrast, when FWSS is low, individuals are likely to struggle to envision their future in relation to work (Strauss et al., 2012), providing them with limited opportunities to imagine possible advantages of AI for their future work. Instead, AI may seem as limiting their future opportunities, resulting in a perceived lack of control over the future self. Thus, we propose:

Hypothesis 1. *FWSS moderates the relationship between interaction with an AI (compared to a control group) and FWSC, such that the relationship is positive when individuals' FWSS is high and negative when individuals' FWSS is low.*

1.1.4. Effects on proactive career behavior

Future work selves have important self-regulatory functions in the context of careers (Fang & Saks, 2022) and motivate individuals' efforts to bring about their desired future in relation to work through proactive career behavior (Han & Hwang, 2022; Strauss et al., 2012; Taber & Blankemeyer, 2015). As S. K. Parker et al. (2010) argued, a salient future work self can provide "reason to" motivation for proactive career behavior. Proactive career behavior is defined as the self-initiated actions individuals undertake to shape their future career, such as setting goals, acquiring skills, and building professional relationships (Claes & Ruiz-Quintanilla, 1998; Strauss et al., 2012). Proactive career behavior has been proposed to comprise four dimensions: career planning, career consultation, skill development, and networking (Claes & Ruiz-Quintanilla, 1998; Strauss et al., 2012). Hence, proactive career behavior is an umbrella term that includes various career-related activities and behaviors, including career self-management, a specific form of proactive career behavior (Hirschi & Koen, 2021).

Prior research that has linked future work selves to proactive career behavior has focused on FWSS, drawing on Strauss et al. (2012), essentially concentrating on the "reason to" motivational aspect of future work selves. However, individuals' "can do" motivation in relation to their future work self, their perceived control, has received little attention. In the wider literature on possible selves, however, Norman and Aaron have shown that "the extent to which the attainment [of a possible self] is perceived as under one's control" (p. 500) predicts individuals' motivation to attain it. In their review of the possible selves literature, Oyserman and James (2009) emphasize that the perceived controllability of a possible self determines the effort

individuals invest in bringing it about. This is because control- or expectancy beliefs, individuals' expectations that their efforts can produce the desired outcome, determine their choices and behavior (Bandura, 1997; Eccles & Wigfield, 2002). In further support for this notion, Koen and Parker (2020) found, in a sample of workers in unstable jobs, a negative relationship between workers' perceived control (at work) and their proactive career behaviors. There is thus theoretical and empirical support for the argument that perceived control over the future self, in conjunction with FWSS, is likely to promote individuals' efforts to shape their career and that the interplay between FWSC and FWSS determines the impact of AI on proactive career behavior. In sum, we focus on both can-do and reason-to motivational aspects of future work selves and propose:

Hypothesis 2: *Individuals' FWSS moderates the indirect relationship between interaction with an AI (compared to a control group) and proactive career behavior through FWSC, such that the indirect effect is positive when individuals' FWSS is high and negative when individuals' FWSS is low.*

2. Overview of studies

We tested our hypotheses in three longitudinal online experiments in which participants interacted with the generative AI ChatGPT. While a myriad of AI technologies have already been incorporated into workplaces (von Krogh, 2018), the spotlight has recently shifted to generative AI systems (i.e., AI systems that "leverage deep learning models to generate human-like content (e.g., images, words) in response to complex and varied prompts (e.g., languages, instructions, questions", Lim et al., 2023, p. 2). Because of their potential to impact a wide variety of professions that have traditionally been seen as relatively unaffected by automation (Dwivedi et al., 2023), generative AI systems are a pertinent context for the study of the impact of AI on individuals' career-oriented cognition and behavior. Addressing recent calls to enhance the

realism of AI-related studies (Tang et al., 2023), our research involved genuine interactions with ChatGPT rather than merely asking individuals to imagine interacting with an AI. By developing a cooperation task with ChatGPT, we aimed to capture the nuances of real work experiences with AI (Tang et al., 2023). In Study 1, we investigated the moderating effect of FWSS on the relationship between experimental condition (interacting with an AI vs. control group) and FWSC at Time 1 and one week later at Time 2 in a sample of working adults in the UK who reported never having interacted with ChatGPT before. In Study 2, we used the same experimental design in a sample of business students in Germany. In Study 3, we used this experimental design to investigate the full moderated mediation model in a sample of full-time employees in Germany. The data of all studies, analyses code, and study materials are available at the Open Science Framework: https://osf.io/wpdy5/?view_only=316f232b7f4f49ea9e18fae7b58b9bc6.

3. Study 1

3.1. Method

3.1.1. Sample and procedure

The study was approved by the research ethics committee of the second author's institution ("ChatGPT and future work selves," Ref: 2023-05). We recruited full-time employees in the UK via Prolific Academic (Palan & Schitter, 2018). We first invited people to participate in a pre-screening survey using demographic filters that met the following criteria: Individuals who were employed full-time in the UK, fluent in English, and with a minimum of 90% approval rating on the platform. Approximately 1,000 pre-screening surveys were sent out (with a payment of £0.10, US$0.13). Participants answered the question if they had ever used the chatbot

ChatGPT[2]. 402 participants (40%) reported having used ChatGPT, and 608 participants (60%) reported not having used ChatGPT. Of the latter, we randomly selected 226 participants and invited them to participate in the experiment, which consisted of two surveys one week apart. Two hundred nineteen participants completed the Time 1 survey, and 179 completed the Time 2 survey. Participants received financial compensation of £4.75 (US$6.00) for the Time 1 survey participation and £0.75 (US$0.95) for the Time 2 survey.

Adhering to state-of-the-art guidelines (Ward & Meade, 2022; Zickar & Keith, 2023), we checked for careless responses using instructed response items (Meade & Craig, 2012) and for multivariate outliers applying Mahalanobis distance (cutoff p-value of 0.001, Tabachnick & Fidell, 2013). Five participants who failed more than one attention check were excluded, while no exclusions were made based on Mahalanobis distance. Therefore, our final sample consisted of 174 participants (36.8% identified as women, the remaining participants identified as men; age: $M = 42.16$ years, $SD = 9.94$).

Utilizing Strauss et al.'s (2012) procedure, participants were directed to mentally project themselves into the future and imagine the future work self they hoped to achieve. Following this, participants rated the salience of their future work self. Then, participants worked on a structured in-tray task (adapted by Chernikova et al., 2016; S. L. Parker et al., 2009, 2013). They were prompted to take on the role of Interim Retail Manager Alex Jennings at a struggling fictional Borough Bank branch, tasked with improving the branch's performance. The structured in-tray task consisted of three stages, each corresponding to a specific document: sales figures, survey results, and a customer complaint letter. For each document, participants were required to (1) draft a list of actions based on their analysis of the document's key issues, (2) assign priority

[2] We recruited participants who had never used ChatGPT to capture their initial reactions and interactions. This approach provided a unique opportunity to observe unbiased first impressions and the immediate impact of interacting with AI-powered conversational agents.

to these actions, and (3) suggest individuals to execute these actions.

All participants initially worked independently on the first document, the sales figures. Participants wrote their answers to the three tasks in three free-text fields. After submitting their responses to the first document, participants were randomly allocated to one of two conditions.

In the *AI-assisted condition*, participants were informed that an AI, ChatGPT, would support them with their upcoming tasks. Specifically, a separate browser window opened automatically for these participants, leading to the ChatGPT website.

As participants started working on the second document, they were prompted to input pre-constructed instructions into ChatGPT, entailing necessary background details about Alex Jennings, his role, and the organizational structure. Subsequently, they entered pre-formulated instructions (prompts)[3] into ChatGPT for each task and recorded ChatGPT's responses to each task in three free-text fields. After submitting their responses, they moved on to the third document. Participants were again reminded that they would maintain their roles as Alex Jennings and were free to continue utilizing ChatGPT. They were provided with sample instructions for this interaction but encouraged to write their own prompts.

In the *control condition*, participants independently completed the same tasks for the second and third documents without interacting with ChatGPT.

Following this experimental manipulation, participants were reminded of their previously imagined future work self and rated how much control they believed to have over attaining this

[3] We used pre-written prompts for the first task with ChatGPT for two main reasons: First, participants in Study 1 were completely unfamiliar with the technology. Given that inexperienced users often struggle to effectively use large language models due to lack of familiarity and training (Bašić et al., 2023), which typically leads to a trial-and-error process of developing prompts (Zamfirescu-Pereira et al., 2023), this approach was intended to simplify the initial interaction with the AI. Second, this structured process gave us more control over what happened between the participants and the AI, making it more likely that all participants would have a relatively similar experience.

future work self, using the measure by Norman and Aron (2003).

One week later, participants were invited to the second part of the study. Participants again reported their perceived control over their future work self and how much they had used ChatGPT during the past week. Figure 2 shows the study design.

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[Insert Figure 2 about here]

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3.1.2. Measures

Future Work Self Salience (Pre-test). Participants' FWSS was assessed prior to the experiment with three items (α = .93) by Strauss et al. (2012) (e.g., "I am very clear about who and what I want to become in my future work."; 1 = *strongly disagree*, 7 = *strongly disagree*).

Perceived Control over the Future Work Self (Post-test Time 1 and 2). Participants responded to six items (α = .88 and .88 for T1 and T2, respectively) developed by Norman and Aron (2003) to assess their perceived control over their future work self (e.g., ''How much control do you believe you have over attaining this particular hoped-for future self?''; 1 = *none at all*; 7 = *a great deal*).

Perceived control over the future work self is conceptually distinct, yet related to, concepts such as locus of control (Lefcourt, 1976; Rotter, 1966), career confidence (Hirschi et al., 2017), and career-related self-efficacy (Kossek et al., 1998). In order to establish its divergent and convergent validity in relation to related concepts, we conducted a separate validation study with 257 full-time employees in the UK recruited via Prolific (see Online Supplemental Material for a detailed description of Method and Results). We measured FWSC and FWSS as in Study 1, as well as career self-efficacy (10 items; Kossek et al., 1998), career-related confidence (4 items;

Hirschi et al., 2017), job-related control appraisal (4 items; S. K. Parker et al., 2006), participants' perceived control over their life and future (8 items; Infurna et al., 2011), the control dimension of career adaptability (6 items; Savickas & Porfeli, 2012), and internal and external locus of control (4 items; Nießen et al., 2022).

Both the average variance extracted (AVE) and composite reliability (CR) for FWSC surpassed the recommended thresholds of 0.50 (Hair et al., 2017) and 0.70 (Hair et al., 2014), respectively (see Table S1 in the Online Supplemental Material). In order to determine discriminant validity, we considered three metrics. First, the heterotrait-monotrait (HTMT) values were consistent with the conservative 0.85 cutoff proposed by Henseler et al. (2015) (see Table S2 in the Online Supplemental Material). Second, adopting the CI_{CFA} (sys) approach suggested by Rönkkö and Cho (2022), we inspected the 95% confidence intervals (CIs) for correlations between the FWSC measure and all related constructs. If either the upper or the lower limit of the CI surpasses 0.90, this is considered to indicate a potential issue in validity. No correlation between FWSC and associated constructs crossed this benchmark. Lastly, a CFA model distinguishing between the 9 different concepts significantly outperformed all alternative models (see Table S3 in the Online Supplemental Material). In conclusion, the results of the validation study provide robust support for both the convergent and discriminant validity of FWSC.

Control Variables. We controlled for participants' age, gender, and education, as prior research has shown that these variables are related to an individual's perception of control over future events (Darvill & Johnson, 1991; Elst et al., 2011; Infurna et al., 2016; Specht et al., 2013). Moreover, we considered self-reported knowledge about AI technology as a possible confounding variable, given that participants who are more knowledgeable about AI technology may better understand how to utilize AI in their work and thus perceive a higher degree of control over their future work self (Said et al., 2023). We used an item developed by Gaube et al. (2021)

("How would you consider your general knowledge of artificial intelligence (AI)?"; 1 = *I have no knowledge*; 2 = *Novice: I have heard of AI;* 3 = *Intermediate: I have read media articles or have listened to news about AI technologies*; 4 = *Advanced: I have used AI-based tools and have some understanding of how they work*; 5 = *Expert: For example, I am an academic or industry researcher in AI*). Lastly, at T2, we assessed ChatGPT usage in the past week ("Since the last survey, how much time did you spend using ChatGPT?"; *1 = none at all, 5 = a great deal*). We assumed that it was possible that participants in the experimental group who interacted with ChatGPT in our study and had not previously used it would continue using it, which could alter their perception of the influence of AI on their work-life (Gansser & Reich, 2021; Kim & Malhotra, 2005; Lu et al., 2019). The results retain the same pattern when these covariates are not included (Bernerth & Aguinis, 2016).

3.2. Results

Descriptive statistics and correlations of study variables can be found in Table 1. We followed Preacher et al. (2007) and Hayes's (2022) recommendations to examine our first hypothesis and used the SPSS PROCESS macro (Model 1, Hayes, 2022). FWSS was mean-centered before creating its interaction term.

First, we examined Hypothesis 1, which predicted that FWSS would moderate the relationship between the experimental condition (coded as 1 = *interacting with an AI*, 0 = *control group*) and FWSC, such that the relationship is positive when individuals' FWSS is high and negative when individuals' FWSS is low. As shown in Table 4 (Study 1), we regressed FWSC at T1 (Model 1) and at T2 (Model 2) on the experimental condition, FWSS, and the interaction term between experimental condition and FWSS.

The main effect of the experimental condition on perceived control over the future work self at T1 was not significant ($\beta = 0.09$, $p = .43$; Table 4, Study 1, Model 1). However, we found

a significant interaction effect between the experimental condition and FWSS on perceived control over the future work self at T1 (β = 0.26, $p < .05$; Table 4, Study 1, Model 1). Figure 3 illustrates the pattern of the interaction. A simple slope analysis (Aiken & West, 1991) revealed a positive and significant effect of experimental condition on perceived control over the future work self for individuals with high FWSS (1 *SD* above the mean; slope = 0.35, $p < .05$) while the effect was not significant for those with low FWSS (1 *SD* below the mean; slope = -0.16, $p = .32$). Moreover, these slopes differed significantly from one another, $z = 2.25$, $p < .05$ (Paternoster et al., 1998).

We performed the same analysis for perceived control over the future work self at T2. Again, the main effect of the experimental condition was not significant (β = -0.02, $p = .90$; Table 4, Study 1, Model 2). However, as expected, the interaction effect between the experimental condition and FWSS on perceived control over the future work self at T2 was significant (β = 0.25, $p < .05$; Table 4, Study 1, Model 2). We conducted a simple slope analysis which revealed that both slopes were in the expected direction but not significant (high FWSS: 1 *SD* above the mean, slope = 0.23, $p = .16$; low FWSS: 1 *SD* below the mean, slope = -0.26, $p = .12$). The difference between these slopes was significant ($z = 2.18$, $p < .05$).

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[Insert Figure 3 & Tables 1 & 4 about here]

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3.3. Discussion

The findings from Study 1 provided initial support for Hypothesis 1. Specifically, the relationship between interacting with an AI (versus the control condition) and perceived control over the future work self was positive for participants with high FWSS. Individuals with a salient

future work self seemed to have a greater sense of control over their future work self after interacting with ChatGPT for the first time, while those with less salient future work selves do not reap the same benefits.

Even though these findings are encouraging, Study 1 has a number of limitations. First, we specifically pre-screened and selected participants who had not previously used ChatGPT in order to be rule out that varying levels of prior experience with this AI would affect our results. However, the effects of interacting with ChatGPT on FWSC may be different for those who are already familiar with it, raising concerns about the generalizability of our findings to a population that increasingly uses this AI tool (Wojcieszak et al., 2021). In addition, the effects of FWSS may differ for groups in which concerns about their future career are more salient than they likely are for our sample of full-time employees. To address these constraints, we conducted Study 2 with a sample of university students with varying levels of prior ChatGPT use.

4. Study 2

4.1. Method

4.1.1. Sample and procedure

Participants were students at a large German business school. A total of 243 students participated in the first part of the experiment and 231 in the second part. We eliminated five incomplete and duplicate surveys and six participants who could not be matched between the two-time points. Moreover, following the same approach as in Study 1, we followed recent guidelines (Ward & Meade, 2022; Zickar & Keith, 2023) and checked for careless responses using instructed response items (Meade & Craig, 2012), and for multivariate outliers applying Mahalanobis distance (cutoff p-value of 0.001, Tabachnick & Fidell, 2013). Twelve participants were excluded due to failed attention checks, while no exclusions were made based on

Mahalanobis distance, leaving us with a final sample of 208 participants (44% identified as women, the remaining participants identified as men; age: $M = 22.41$ years, $SD = 3.39$)

The procedure for Study 2 mirrored that of Study 1 (see Figure 2), with a technical modification to the AI-assisted condition. In this study, we integrated ChatGPT directly into our experimental interface via an HTML chat window in Qualtrics, eliminating the need for participants to interact with ChatGPT in a separate browser window. This allowed communication between participants and ChatGPT, enabled by an API call through Javascript.

4.1.2. Measures

Future Work Self Salience (Pre-test) and Perceived control over the Future Work Self (Post-test Time 1 and 2). FWSS ($\alpha = .82$) and FWSC ($\alpha = .80$ and .86 for T1 and T2, respectively) were assessed with the same measures as in Study 1.

Control Variables. Consistent with Study 1, we controlled for age, gender, education (i.e., whether students already had a bachelor's degree or only a high school diploma), and self-reported knowledge about AI technology as possible controls at T1, and ChatGPT usage in the past week at Time 2. Additionally, as participants in this study may have already been familiar with ChatGPT, we included overall ChatGPT usage as a potential control variable ("How often do you use ChatGPT?"; *1 = never, 7 = every day*) because regular ChatGPT users may be less susceptible to our experimental manipulation. The pattern of results remains the same when these covariates are not included (Bernerth & Aguinis, 2016).

4.2. Results

Descriptive statistics and correlations of study variables can be found in Table 2. We again followed Preacher et al. (2007) and Hayes's (2022) recommendations to examine our first hypothesis and employed the SPSS PROCESS macro (Model 1, Hayes, 2022). The moderator (FWSS) was mean-centered before its interaction term was created.

As seen in Table 4 (Study 2), we conducted a similar analysis to Study 1 using FWSS as the moderator, experimental condition as the predictor, and control over future work self T1 (Model 1) and T2 (Model 2) as the dependent variable.

The main effect of the experimental condition on perceived control over the future work self at T1 was not significant (β = 0.14, p = .16; Table 4, Study 2, Model 1). Moreover, the interaction effect between experimental condition and FWSS on perceived control over the future work self at T1 was also not significant (β = 0.12, p = .23; Table 4, Study 2, Model 1).

We conducted the same analysis for control over the future work self at T2. Again, the main effect of the experimental condition on perceived control over the future work self at T2 was not significant (β = 0.14, p = .17; Table 4, Study 2, Model). However, as expected, there was a significant interaction between the experimental condition and FWSS on perceived control over the future work self at T2 (β = 0.26, p < .05; Table 4, Study 2, Model 2). A simple slopes analysis revealed that individuals with high FWSS (1 *SD* above the mean) showed a positive and significant effect of the experimental condition on perceived control over the FWS (slope = 0.37, p = .01) compared to those with low FWSS (1 *SD* below the mean; slope = -.08, p = .56; see Figure 4). The difference between these slopes was significant (z = 2.27, p < .05).

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[Insert Figure 4 & Table 2 about here]

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4.3. Discussion

The findings of Study 2 largely replicate those of Study 1 and support Hypothesis 1, demonstrating a significant positive relationship between interacting with an AI and perceived control over the FWS at T2 for participants with high FWSS, but not for those with low FWSS.

We next investigated the full moderated mediation model, including the effect of FWSC on proactive career behavior. Having established that FWSS moderates the impact of interacting with an AI on FWSC for working adults who had never before used ChatGPT, as well as for students with varying levels of ChatGPT usage, we sought to replicate this finding in full-time employees who have already used ChatGPT. Thus, in Study 3, we collected data from full-time employees in Germany with varying levels of ChatGPT use to test our full model.

5. Study 3

5.1. Method

5.1.1. Sample and procedure

Participants were full-time employees in Germany, recruited for study participation by students at a large German business school. One hundred eighty-one full-time employees participated in the first part of the experiment and 169 in the second part. We eliminated three participants whose surveys were incomplete and two participants who could not be matched between the two time points. In line with our approach in Studies 1 and 2, following recent guidelines (Ward & Meade, 2022; Zickar & Keith, 2023), we examined for careless responses with instructed response items (Meade & Craig, 2012) and multivariate outliers with Mahalanobis distance ($p < .001$ at the respective $\chi 2$ value, Tabachnick & Fidell, 2013). This led to the exclusion of eight participants who did not correctly respond to more than one attention check (Meade & Craig, 2012) and one participant who exceeded the threshold for the Mahalanobis distance, leaving a final sample of 155 (44.5% identified as women, the remaining participants identified as men; age: $M = 32.18$ years, $SD = 9.17$). When the data were analyzed, including this outlier, the pattern of results remained the same.

The procedure for Study 3 was the same as in Study 2, with the addition of proactive career behavior assessed at T2 (see Figure 2).

5.1.2. Measures

Future Work Self Salience (Pre-test) and Perceived control over the Future Work Self (Post-test Time 1). FWSS (α = .89) and FWSC (α = .88) were assessed with the same measures as in Study 1.

Proactive Career Behavior (Post-test Time 2). Proactive career behavior was assessed with a 13-item scale (Cronbach's α = .92) used in prior research (e.g., Strauss et al., 2012). The scale includes four sub dimensions: career planning, career consultation, skill development, and networking. Examples of items are: "I am planning what I want to do in the next few years of my career." (career planning); "I make my supervisor aware of my work aspirations and goals." (career consultation); "I develop skills which may not be needed so much now but in future positions." (skill development); "I am building a network of colleagues I can call on for support." (networking). All responses were given on a scale ranging from 1 (not at all) to 5 (a great deal).

Control Variables (Time 1 and 2). Consistent with Studies 1 and 2, we controlled for age, gender, education, knowledge of AI, and participants' overall ChatGPT usage in all analyses. We found the same pattern of results when these covariates are not included (Bernerth & Aguinis, 2016).

5.2. Results

Descriptive statistics and intercorrelations of study variables can be found in Table 3. To examine our complete model (see Figure 1), we employed first-stage moderated mediation analyses (Preacher et al., 2007) using the SPSS PROCESS macro (Model 7; Hayes, 2022). Again, the moderator (FWSS) was mean-centered before its interaction term was created.

The main effect of the experimental condition on perceived control over the future work self at T1 was not significant (β = -.01, p = .94; Table 4, Study 3, Model 1). Supporting Hypothesis 1, the interaction between experimental condition and FWSS on perceived control

over the future work self at T1 was again significant (β = .44, $p < .01$; Table 4, Study 3, Model 1). A simple slopes analysis revealed that for individuals with high FWSS (1 *SD* above the mean) there was a positive and significant effect of the experimental condition on perceived control over the future work self (slope = .45, $p < .05$). However, for those with low FWSS there was a negative and significant effect of the experimental condition on perceived control over the future work self (1 *SD* below the mean; slope = -.47, $p < .05$). The difference between these slopes was significant (z = 3.40, $p < .01$; see Figure 5).

To test Hypothesis 2, we conducted moderated mediation analyses (Preacher et al., 2007) using SPSS version 26.0 (IBM Corp., 2019) and the PROCESS macro (Model 7; Hayes, 2022). We examined our hypotheses using bootstrapping with 5,000 resamples (Preacher & Hayes, 2004) and 95% confidence intervals. In line with our hypothesis, perceived control over the future work self at T1 was positively related to proactive career behavior at T2 (β = .42, $p < .001$; Table 4, Study 3, Model 2), and FWSS moderated the indirect effect between experimental condition and proactive career behavior at T2 through control over future work self at T1 (index of moderated mediation = .20, 95% CI [.07; .34]). Specifically, the conditional indirect effect of experimental condition on proactive career behavior at T2 via control over the future work self at T1 was positive when FWSS was high (1 *SD* above the mean) (indirect effect = .20, 95% CI [.04; .36]), but negative when FWSS was low (1 *SD* below the mean) (estimate = -.23, 95% CI [-.43; -.02]). This difference was statistically significant (contrast = .43, 95% CI [.15; .73). These results fully support Hypothesis 2.

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[Insert Figure 5 & Table 3 about here]

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6. General Discussion

Although rapid advances in AI are poised to transform the world of work and impact individuals' career-related cognition and behavior, the ways in which individual differences shape these responses remain poorly understood. Using the proactive motivation model as our overarching theoretical framework, we developed a model of how future work selves shape individuals' reactions to interacting with a powerful generative AI. Across three studies, we found that FWSS shapes the effect of interacting with an AI on individuals' FWSC. Specifically, the relationship between interacting with an AI (versus the control condition) and FWSC was positive for participants with high FWSS (Studies 1, 2, and 3). Interacting with an AI seemed to boost individuals' sense of control over their future work self (a "can do" motivational factor), but only when they had a clear vision of their future work self (a "reason-to" motivational factor (S. K. Parker et al., 2010)). For participants with low FWSS, the results were somewhat less consistent. Interacting with an AI did not affect their perceived control over their future work self in Studies 1 and 2. However, in Study 3, participants low in FWSS felt less in control of their future work self after interacting with an AI. Study 3 further extended the findings of Studies 1 and 2 by providing evidence for our proposed moderated mediation model. Specifically, the indirect relationship between interacting with an AI and proactive career behavior via FWSC was moderated by FWSS such that the indirect effect was positive when individuals' FWSS was high and negative when individuals' FWSS was low. Participants who interacted with an AI thus reported higher levels of proactive work behavior when their future work self was salient, but lower levels when it was not.

7. Theoretical Implications

Our paper highlights future work selves as a useful theoretical lens to explore the impact of AI on individuals' careers. Our results reconcile contradictory findings on individuals'

reactions to artificial intelligence. Specifically, we identify FWSS as an important individual difference that determines whether AI is seen as a threat, taking control over their future career away from individuals, or as an opportunity, increasing their sense of control.

We contribute to burgeoning research on the impact of AI on individuals' career-related cognition and behavior by adopting a future-oriented perspective. To date, studies of employees' views of AI have predominantly taken a "present" perspective (e.g., Bochniarz et al., 2022; Kong et al., 2023; Langer et al., 2023), for instance, by investigating their perceptions of the impact of AI on their current employability (Bhargava et al., 2021). Yet the concept of prospective sensemaking (Gioia et al., 1994; Gioia & Thomas, 1996) implies that reactions to current experiences, like AI interactions, are also strongly shaped by individuals' conceptions of what this might mean for them in the future. By highlighting the stabilizing effects of a salient future work self, our research shows that individuals interpret AI interactions not only in terms of immediate challenges and opportunities, but also in terms of how these interactions align with and inform their future careers. We thus add a new perspective to recent findings (Tang et al., 2023) that interactions with AI can yield both positive and negative outcomes. By introducing FWSS as an important individual difference, we illuminate why some individuals perceive AI as an ally in shaping their future, while others view it as a challenge to their career aspirations. A clear and easily accessible image of who they want to become in their future career may allow individuals interacting with an AI to mentally simulate possible future scenarios that enable them to see AI as an opportunity rather than a threat.

Drawing on social psychological research on the broader concept of possible selves (Norman & Aron, 2003; Oyserman & James, 2009), our research extends the literature on future work selves by focusing not only on their salience, the extent to which a future work self is easily accessible and clear (Strauss et al., 2012), but also on the perceived control over the future work

self. As suggested by the proactive motivation model (S. K. Parker et al., 2010), salience and perceived control interact in predicting proactive career behavior, reflecting reason-to and can-do factors, respectively.

While our validation study demonstrated that individuals' can-do motivation in relation to their future work self, FWSC, is distinct from other control related concepts in the careers literature, such as career confidence or career-related self-efficacy, our findings contribute to this wider body of research, which highlights the centrality of control beliefs in relation to career management. For example, Kossek et al. (1998) demonstrated that individuals' beliefs about their ability to control career-related outcomes are a key mechanism translating contextual factors into career self-management behavior. Similarly, social cognitive career theory suggests that contextual supports and barriers shape individuals' career-related control beliefs, which in turn determine their career-oriented actions and outcomes (Lent & Brown, 2013). In our theoretical model, AI, which can be seen as both a support or a barrier to individuals' careers, either positively or negatively affects their career-related control beliefs, depending on future work self salience. Future work self salience is thus an individual difference that moderates the influence of context on individuals' control beliefs in relation to their future career. In the face of uncertainty caused by interaction with a powerful AI, a salient future work self seems to act as a personal resource that allows individuals to maintain a sense of control over their desired future career. In addition to providing support for the interaction of can-do and reason-to motivational factors proposed by the proactive motivation model (S. K. Parker et al., 2010), the findings of Study 3 also align with the conceptual framework of whole-life career self-management (Hirschi et al., 2020) which similarly argues that the interplay between the valence of a goal (in our case, a salient vision of a highly valued future work self) and expectancy (in our case, the perceived control over the future work self) shapes individuals' career-related action regulation.

8. Limitations and Future Research

While our studies have a number of strengths, they also have limitations. First, even though we find consistent support for the buffering effect of high FWSS, in Studies 1 and 2, participants with *low* FWSS did not perceive less control over their FWS after AI interaction. Yet, in Study 3, participants with low FWSS reported lower FWSC after interacting with the AI, as we had predicted. It may be that the differing characteristics of our three samples account for these differences. For example, the lack of experience with ChatGPT of participants in Study 1 and the limited professional experience of participants in Study 2 may have made it less likely for the absence of a clear vision of their future work self to have a detrimental effect. From a theoretical perspective, this may suggest that experience with AI and with managing one's career may be potential moderators of the relationships we proposed. Missing out on the benefits of mental simulation of the future may be particularly detrimental when participants also have little past experience to draw on. Future research is needed to explore this possibility and replicate our finding regarding the negative impact of low FWSS in other samples.

Likewise, it is plausible that confounding factors such as the field of work may impact both individuals' future work self and the extent to which their job is vulnerable to being replaced by technology (Balsmeier & Woerter, 2019; Michaels et al., 2014). Because participants were randomly allocated to conditions in our experimental design, individual differences are unlikely to account for differences in FWSC and proactive career behavior. Yet, to account for the possibility that the interaction with ChatGPT may have seemed less relevant to some participants' daily work, we included three items adapted from Kelly et al. (2020) to measure the similarity between the experimental task and individuals' daily work as a control variable. The inclusion of this control variable did not change the overall pattern of results across the three studies, reinforcing the robustness of our findings and supporting the argument that our results

are not biased by differences in task relevance across job types (see Online Supplemental Material for the results of these post-hoc analyses). In addition, we found no significant correlations between dummy variables representing the five most common industries our participants worked in and our dependent variables in Studies 1-3 (see Tables 1-3). Furthermore, multivariate analyses of variance revealed no significant effects of industry on our dependent variables across the three studies, suggesting that industry does not significantly affect the dependent variables (see Online Supplemental Material for the results of these post-hoc analyses). Nevertheless, future research may explore whether our findings generalize to professional settings that are particularly impacted by the rise of AI.

It is also plausible that interacting with ChatGPT could trigger AI aversion, leading participants to perceive AI as a threat (e.g., Dietvorst et al., 2015). To account for this possibility we measured participants' attitudes towards AI with two items developed by Gaube et al. (2021) in Studies 2 and 3. We found no differences between control and experimental conditions in either study[4]. We also included attitudes toward AI as an additional control variable in our analyses, but did not find that this changed the pattern of results (see Online Supplemental Material for the results of the post-hoc analyses). This finding aligns with recent studies suggesting that aversion may not be a universal response to interactions with generative AI (Böhm et al., 2023; Chu & Liu, 2023), and suggest that it was perceived control over the future work self, rather than a negative attitude towards the AI, that accounted for our results.

Another possible limitation is that we did not include a manipulation check in our studies. While manipulation checks are necessary when experimental manipulations aim to alter participants' affect or psychological states, "researchers should not run manipulation checks

[4] Study 2: Control condition: $M = 4.24$, $SD = 1.28$; experimental condition: $M = 4.24$, $SD = 1.28$; $t(206) = -.02$, $p = .98$. Study 3: Control condition: $M = 4.27$, $SD = 1.17$; experimental condition: $M = 4.15$, $SD = 0.98$; $t(153) = 0.73$, $p = .46$.

when the experimental treatment consists of objective variations of parameters" (Lonati et al., 2018, p. 22). In our case, interaction with an AI as part of the experimental task was a parameter that varied objectively between conditions. Nevertheless, we sought to establish that our experimental manipulation was indeed effective. We conducted an additional study with 119 full-time employees in the United Kingdom, recruited through Prolific, using the same experimental manipulation as in Studies 1-3. The results provided strong support for the effectiveness of our experimental manipulation[5] (see Online Supplemental Material for details).

A further possible limitation may be that participants in the AI condition could have felt less in control because by providing prompts, the experiment limited their autonomy in interacting with the AI and potentially their sense of control over how they would use the AI in their future careers. We provided prompts in the early stages of the experimental task because, particularly in Study 1, we recruited participants who were reportedly using ChatGPT for the first time during our experiment. Because prompting is challenging for novices (Bašić et al., 2023) and often involves a trial-and-error process even for experts (Zamfirescu-Pereira et al., 2023), we first showed them how to use prompts before giving them the opportunity to write their own prompts. However, there were no significant differences in FWSC between the experimental and control conditions in any of the three studies, which speaks against this possibility (see Tables 1-3).

Moreover, the exclusive use of self-report measures may introduce potential limitations to our research due to common method bias (Podsakoff et al., 2003). However, due to three key

[5] Participants were asked to rate the following two statements adapted from Man Tang et al. (2022) on a 7-point Likert scale, ranging from 1 = "Strongly Disagree" to 7 = "Strongly Agree": "I worked on this in-tray task independently" (reverse coded) and "I worked on this in-tray task with the help of ChatGPT3" (α = .80) after the experimental manipulation. Responses to the manipulation check were significantly different between participants in the experimental group (M = 5.00, SD = 1.17) and the control group (M = 1.22, SD = 0.67), $t(117) = -21.46$, $p < .001$, $d = -3.93$, indicating that participants could clearly identify whether or not they had interacted with an AI in completing the task.

factors, common method variance (CMV) is less likely to impact our findings. First, we used an experimental design, where participants were randomly allocated to a condition, which is an effective method of eliminating CMV (Antonakis et al., 2010; for a review, see Cooper et al., 2020). Second, we measured our outcome variable at two time points in Studies 1 and 2 and separated the measurement of our mediator and outcome in Study 3. This reduces the effects of common method variance (CMV) (Johnson et al., 2012). Finally, the relationships in our study are dependent on a moderator. Research by Siemsen et al. (2009) demonstrates that interactive relationships cannot be inflated by CMV. Nevertheless, we encourage future research to employ rigorous longitudinal designs such as experience sampling methodologies (ESM) that allow for multiple data collection points (Cooper et al., 2020), e.g., to shed light on how continuous interaction with AI influences FWSS, FWSC, and proactive career behaviors over time.

Additionally, while we have focused on perceived control over one's future work self in addition to its salience, future research may investigate how the content of future work selves changes in the face of rapidly evolving AI landscapes. Consider a radiologist who invested in years of specialized training with a vivid and salient image of what their future will entail. As AI technologies increasingly assume diagnostic tasks, their clear vision might be at odds with the dynamic realities of the AI-driven job market (Brynjolfsson & Mitchell, 2017). Indeed, while a salient future work self can be a driving force, rigidly clinging to such a future work self could become detrimental. Future research could thus investigate the interplay between the salience of a future work self and its flexibility, offering insights into how individuals can adeptly reconcile their career aspirations with the rapidly evolving work environment, ensuring both career progression and personal well-being.

Last, a possible limitation is that the majority of the employees sampled in Studies 1 and 3 were relatively young. Their future work selves may have been more salient to these

comparatively young samples than they would have been to older workers. While this makes them appropriate samples to explore our research question, future research is needed to examine whether these findings hold true for older employees (e.g., those nearing retirement).

9. Practical Implications

Our findings hint at a potentially dangerous downward spiral where those who do not have a clear sense of who they would like to be in their future career are more vulnerable to the detrimental effects of AI on their sense of control in relation to their future career, making it in turn less likely for them to develop skills and networks that would allow them to prepare for an uncertain future. Importantly, our findings also imply that a clear picture of one's future work self allows individuals to envision the benefits of AI for their future work, leaving them feeling more in control and thus promoting their proactive career behavior. Hence, our study equips organizations with insights into why certain employees might struggle with AI integration. Consequently, organizations can take proactive steps by integrating deliberate career development endeavors, such as career counseling or mentoring, to foster employees' future work self salience (Kao et al., 2020; Strauss et al., 2012). For example, organizations could expose employees to focused interventions, like mental imagery exercises (Blouin-Hudon & Pychyl, 2017), that can assist employees in creating vivid representations of their future work selves (Strauss & Parker, 2018). In this context, as the majority of jobs will be impacted by AI in some way, individuals should be encouraged to visualize how AI might present opportunities to advance or explore their own careers (Cai et al., 2015).

Moreover, leaders likely have an essential role in helping their employees to develop a clear picture of their professional future. Leaders, as key influencers of employees' self-concept (Avolio et al., 2004), can promote FWSS through vision communication, which enables employees to imagine themselves in the future (Guo et al., 2022).

Finally, given that the participants in Study 2 were university students, our findings highlight the critical role of higher education in preparing students for the AI-impacted job market (Kshetri, 2024). Like organizations, universities should adapt proactive strategies such as career counseling (van der Horst et al., 2021) and potentially integrate mental imagery exercises (Strauss & Parker, 2018) to enhance students' FWSS. In addition, educators, similar to business leaders, can use their influence to inspire and shape students' visions of their future careers.

10. Conclusion

We are in the midst of an AI revolution that is fundamentally changing the way we work. It is thus critical to understand how individual differences influence people's perceptions of the impact of AI on their future career. Our research highlights the role of FWSS in moderating the impact of AI on individuals' perceptions of control over their professional future. Individuals who interact with AI and have a salient future work self experienced a greater sense of control over their future career, which encourages proactive career behavior. In contrast, individuals with a less salient future work self experienced a decrease in control and exhibit less proactive career behavior, at least in some circumstances. As the integration of AI becomes more widespread, this research provides important insights into the role of AI in shaping the future-oriented career-related cognitions and behaviors of individuals.

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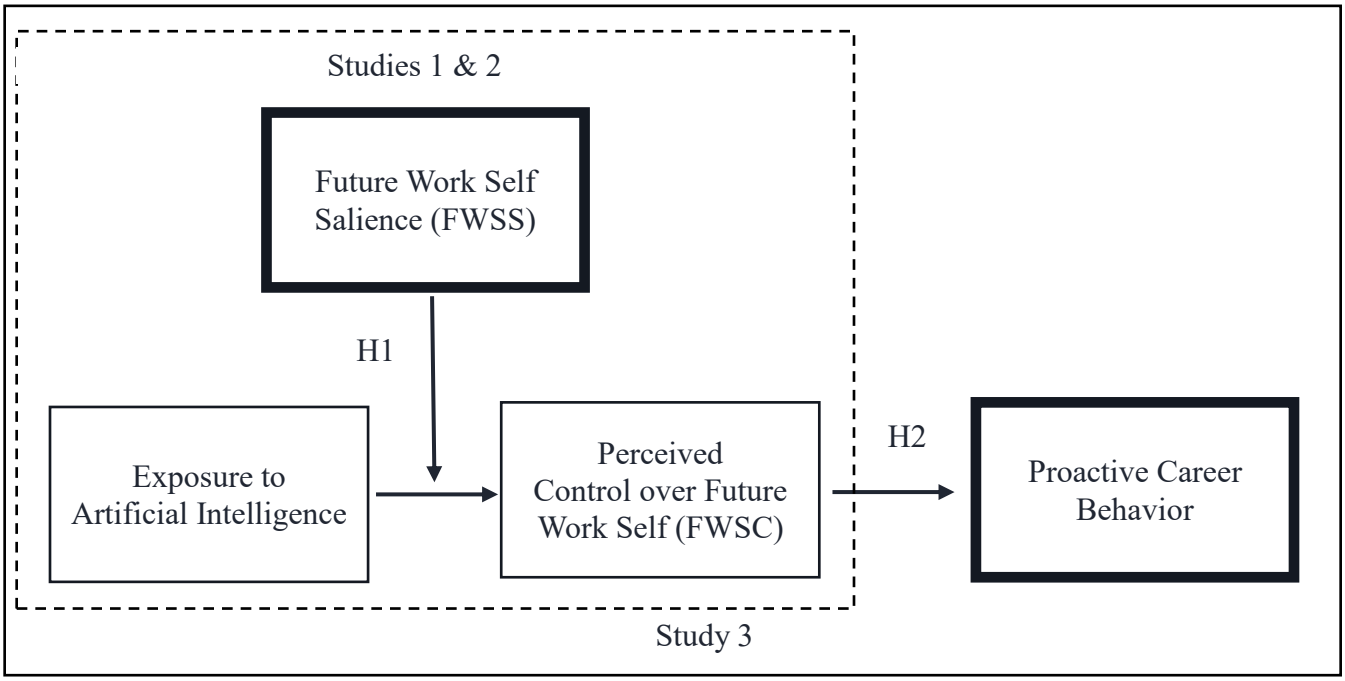

Figure 1. Theoretical Model.

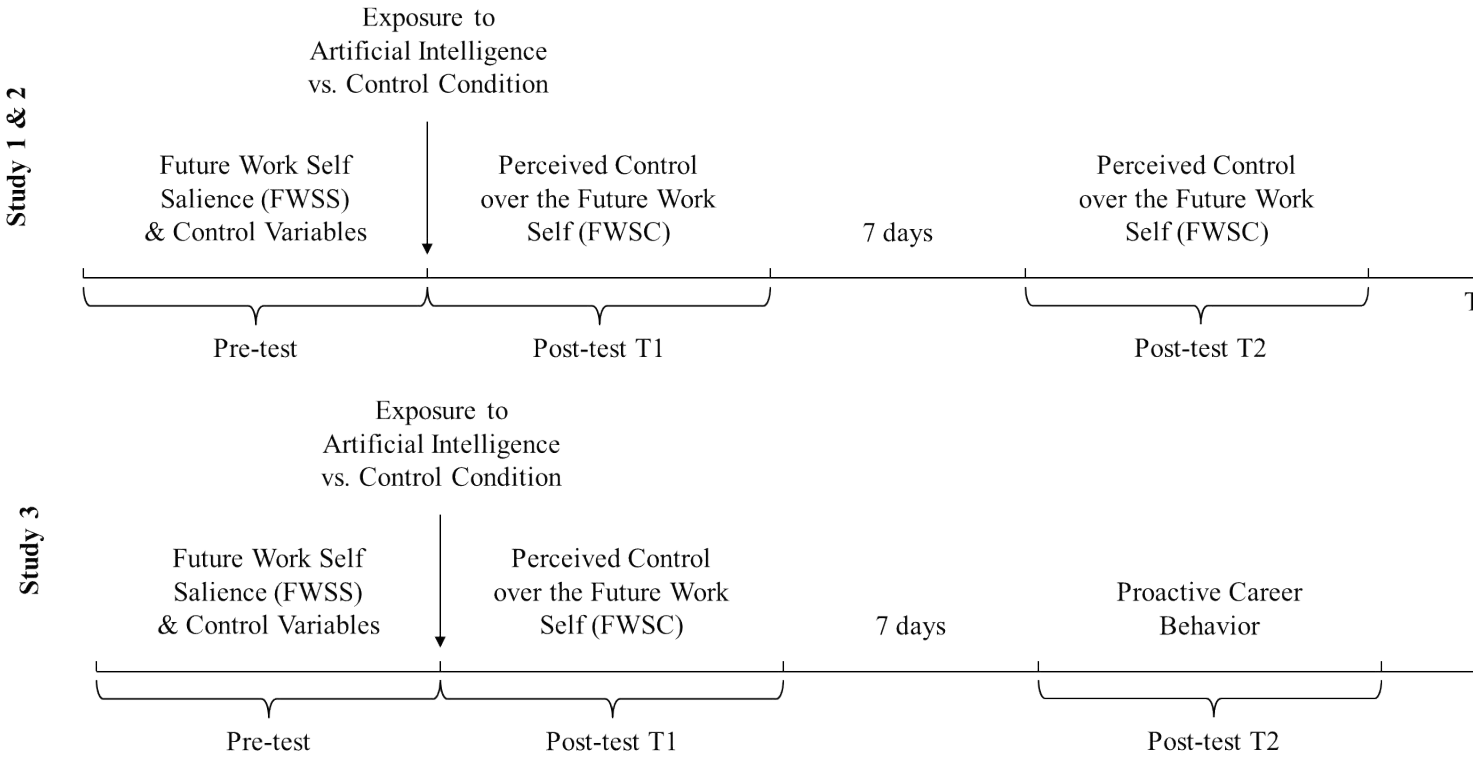

Figure 2. Schema of the study designs.

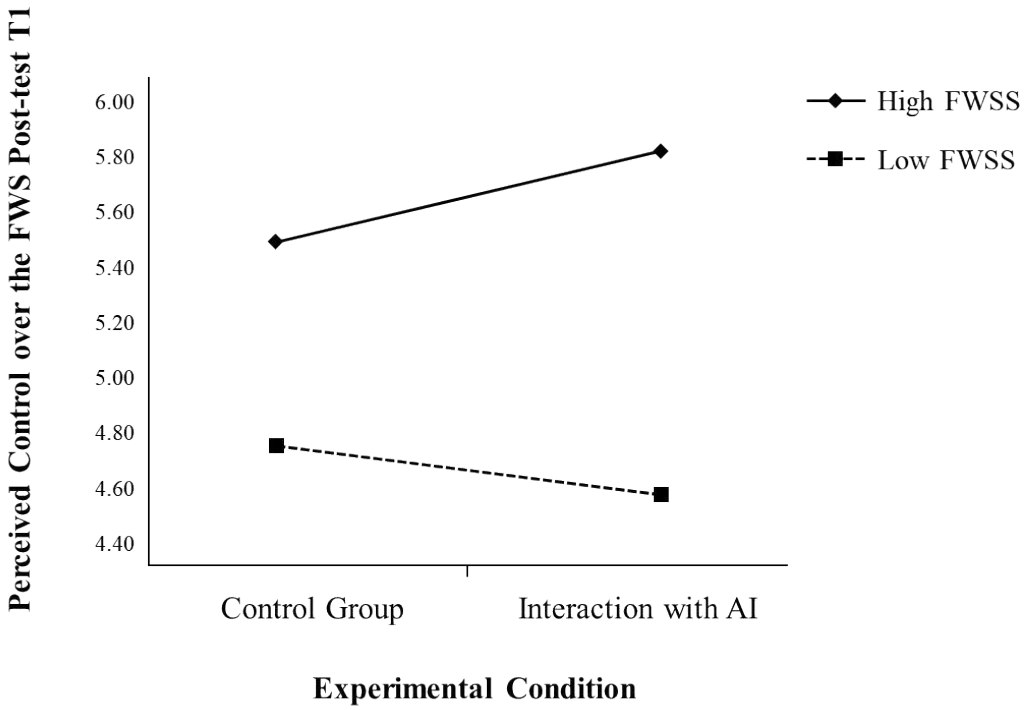

Figure 3. Study 1: Moderating effect of FWSS on the relationship between experimental condition and perceived control over the FWS T1.

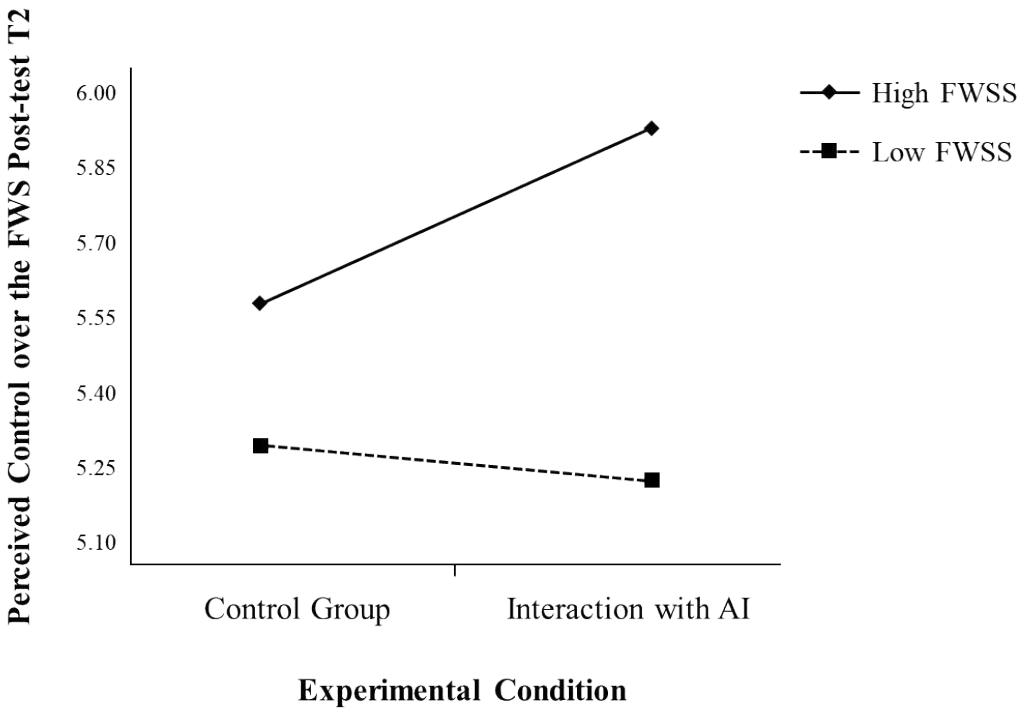

Figure 4. Study 2: Moderating effect of FWSS on the relationship between experimental condition and perceived control over the FWS T2.

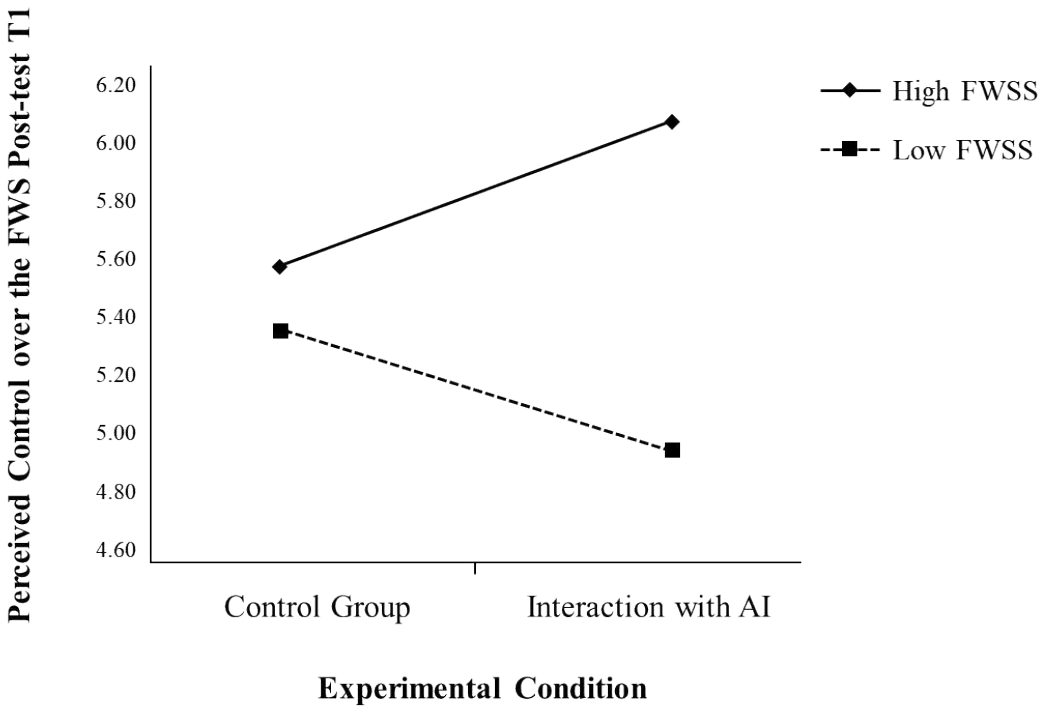

Figure 5. Study 3: Moderating effect of FWSS on the relationship between experimental condition and perceived control over the FWS T1

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Table 2

Descriptive Statistics and Correlations Between Study Variables (Study 1)

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Condition	0.49	0.50	—													
2. FWSS	3.47	1.04	-.01	—												
3. Perceived control over the FWS T1	5.46	0.95	.03	.54**	—											
4. Perceived control over the FWS T2	3.35	0.79	-.00	.54**	.80**	—										
5. Age (years)	32.2	9.16	-.14	.19*	.06	.06	—									
6. Gender	0.37	0.48	-.13	-.12	-.00	-.00	-.03	—								
7. Education	5.72	0.72	-.05	-.09	.00	-.01	-.18*	.07	—							
8. Industry – Business services	0.23	0.42	-.08	-.08	-.13	-.14	-.15	.25**	.01	—						
9. Industry – Management	0.04	0.21	-.06	-.09	-.05	-.05	.06	.00	.04	-.12	—					
10. Industry – IT	0.13	0.33	.14	-.08	.05	.04	.01	-.05	-.06	-.22**	-.08	—				
11. Industry – Engineering	0.08	0.28	.05	.14	.05	.05	.26**	-.19*	-.04	-.17*	-.06	-.12	—			
12. Industry – Medical	0.05	0.23	.04	.18*	-.00	.04	-.03	.01	-.01	-.14	-.05	-.09	-.07	—		
13. Knowledge of AI	3.10	0.86	.07	.14	.10	.12	-.04	-.17*	.03	.03	-.02	.12	-.01	-.02	—	
14. ChatGPT usage in the past week	1.89	0.90	.25**	.03	.02	.07	-.13	-.18*	.04	-.05	-.04	.06	-.04	.12	.23**	—

Note. $N = 174$. 1 = AI condition; 0 = control condition. Gender was dummy coded with 0 = male and 1 = female. Education was coded with 1 = Left high school without a formal qualification; 2 = Completion of compulsory basic primary or secondary schooling; 3 = Completion of GCSEs or equivalent qualifications; 4 = Completion of A-Levels or equivalent qualifications; 5 = Completion of apprenticeship or training; 6 = Technical college or university degree/Ph.D./postdoctoral qualification. Industry variables are dummy coded, with "other" as the reference category. Knowledge about AI was coded with 1 = I have no knowledge; 2 = Novice: I have heard of AI; 3 = Intermediate: I have read media articles or have listened to news about AI technologies; 4 = Advanced: I have used AI-based tools and have some understanding of how they work; 5 = Expert: For example, I am an academic or industry researcher in AI.

* $p < .05$. ** $p < .01$.

Table 3

Descriptive Statistics and Correlations Between Study Variables (Study 2)

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Condition	0.48	0.50	—														
2. FWSS	3.35	0.88	-.07	—													
3. Perceived control over the FWS T1	5.52	0.90	.03	.25**	—												
4. Perceived control over the FWS T2	5.49	0.90	.04	.30**	.73**	—											
5. Age (years)	22.4	9.94	.10	.00	-.23**	-.16*	—										
6. Gender	0.44	0.49	-.05	.00	-.05	-.03	.08	—									
7. Education	4.49	1.20	.12	-.07	-.14*	-.10	.57**	.11	—								
8. Aspired-to industry – Business services	0.32	0.47	-.04	-.05	.00	.00	-.15*	.08	-.10	—							
9. Aspired-to industry – Management	0.31	0.46	.06	-.01	.10	.08	-.05	-.09	-.01	-.48**	—						
10. Aspired-to industry – IT	0.08	0.28	-.02	.03	-.06	-.09	.09	.07	.15*	-.22**	-.21**	—					
11. Aspired-to industry – Engineering	0.05	0.23	.05	.08	.02	.04	.06	-.09	-.01	-.17*	-.17*	-.07	—				
12. Aspired-to industry – Medical	0.02	0.16	.06	.07	.02	-.03	.02	.19**	.02	-.12	-.11	-.05	-.04	—			
13. Knowledge of AI	3.20	0.78	-.08	.04	.20**	.10	-.04	-.15*	.07	-.06	.10	.12	-.03	.03	—		
14. Overall ChatGPT usage	3.73	1.98	-.04	-.02	-.02	-.05	-.08	-.23**	-.10	.04	.12	.07	-.07	-.12	.46**	—	
15. ChatGPT usage in the past week	1.88	1.11	.13	.06	.03	-.03	.01	-.29**	-.08	.04	.01	.20**	-.03	-.14*	.39**	.60**	—

Note. $N = 208$. 1 = AI condition; 0 = control condition. Gender was dummy coded with 0 = male and 1 = female. Education was coded with 1 = Left high school without a formal qualification; 2 = Completion of compulsory basic primary or secondary schooling; 3 = Completion of GCSEs or equivalent qualifications; 4 = Completion of A-Levels or equivalent qualifications; 5 = Completion of apprenticeship or training; 6 = Technical college or university degree/Ph.D./postdoctoral qualification. Industry variables are dummy coded, with "Other" as the reference category. Knowledge about AI was coded with 1 = I have no knowledge; 2 = Novice: I have heard of AI; 3 = Intermediate: I have read media articles or have listened to news about AI technologies; 4 = Advanced: I have used AI-based tools and have some understanding of how they work; 5 = Expert: For example, I am an academic or industry researcher in AI.

* $p < .05$. ** $p < .01$.

Table 4

Descriptive Statistics and Correlations Between Study Variables (Study 3)

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Condition	0.49	0.50	—														
2. FWSS	3.47	1.04	-.06	—													
3. Perceived control over the FWS T1	5.46	0.95	.00	.39**	—												
4. Proactive Career Behavior T2	3.35	0.79	.00	.37**	.51**	—											
5. Age (years)	32.2	9.16	-.06	.19*	-.14	-.15	—										
6. Gender	0.45	0.49	-.10	-.00	-.11	.02	-.03	—									
7. Education	5.72	0.72	.11	-.07	.03	.12	-.10	-.01	—								
8. Industry – Business services	0.23	0.42	-.06	-.11	-.11	-.05	.00	.04	-.08	—							
9. Industry – Management	0.21	0.41	-.07	.05	.12	.11	.01	-.05	.02	-.29**	—						
10. Industry – IT	0.08	0.27	.17*	-.21**	-.02	-.05	-.02	-.18*	.02	-.17*	-.15	—					
11. Industry – Engineering	0.07	0.25	.08	-.01	.02	-.05	-.03	-.04	.00	-.15	-.14	-.08	—				
12. Industry – Medical	0.11	0.32	.05	.03	-.03	-.04	-.06	.16*	.00	-.20*	-.19*	-.11	-.10	—			
13. Knowledge of AI	3.10	0.86	.03	.04	.25**	.11	-.20*	-.16*	.08	-.11	.04	.24**	.17*	-.20*	—		
14. Overall ChatGPT usage	3.25	1.84	-.00	.00	.11	.12	-.31**	-.22**	.16*	.14	.04	.06	.13	-.18*	.43**	—	
15. ChatGPT usage in the past week	1.89	0.90	.03	-.02	.12	.06	-.26**	-.27**	.06	.20*	-.04	.08	.14	-.16*	.23**	.66**	—

Note. $N = 155$. Condition was coded with 1 = AI condition and 0 = control condition. Gender was dummy coded with 0 = male and 1 = female. Education was coded with 1 = Left high school without a formal qualification; 2 = Completion of compulsory basic primary or secondary schooling; 3 = Completion of GCSEs or equivalent qualifications; 4 = Completion of A-Levels or equivalent qualifications; 5 = Completion of apprenticeship or training; 6 = Technical college or university degree/Ph.D./postdoctoral qualification. Industry variables are dummy coded, with "Other" as the reference category. Knowledge about AI was coded with 1 = I have no knowledge; 2 = Novice: I have heard of AI; 3 = Intermediate: I have read media articles or have listened to news about AI technologies; 4 = Advanced: I have used AI-based tools and have some understanding of how they work; 5 = Expert: For example, I am an academic or industry researcher in AI.

* $p < .05$. ** $p < .01$.

Table 5

Regression Results With Interaction Terms (Studies 1, 2, and 3)

Dependent variable	Perceived control over the FWS										Proactive Career Behavior	
	Study 1				Study 2				Study 3			
	Model 1		Model 2		Model 1		Model 2		Model 1		Model 2	
Predictors	*β*	*SE*	*β*	*SE*	*β*	*SE*	*β*	*SE*	*β*	*SE*	*β*	*SE*
Age	-.00	.01	-.00	.01	-.04*	.02	-.03	.02	-.02**	.01	-.01	.01
Gender	.14	.12	.14	.13	-.05	.10	-.05	.11	-.20	.14	.12	.12
Education	.04	.05	.02	.05	-.03	.05	-.02	.05	.03	.10	.10	.08
Knowledge of AI	.05	.08	.05	.09	.25**	.07	.16*	.08	.28**	.09	-.06	.07
Overall ChatGPT usage					-.06*	.03	-.05	.03	-.04	.04	.03	.04
ChatGPT usage in the past week			.09	.08								
Condition	.09	.12	-.02	.12	.14	.10	.14	.11	-.01	.14	-.00	.11
Perceived control over the FWS											.42**	.06
FWSS	.39**	.08	.39**	.08	.13	.08	.14	.08	.14	.10		
Condition x FWSS	.26*	.12	.25*	.12	.13	.11	.26*	.12	.44**	.13		
R^2	.32**		.32**		.18**		.16**		.30**		.28**	
ΔR^2	.02*		.02*		.01		.02*		.05**			

Note. $N_{Study\ 1} = 174$. $N_{Study\ 2} = 208$. $N_{Study\ 3} = 155$. Condition was coded with 1 = AI condition and 0 = control condition. Gender was dummy coded with 0 = male and 1 = female. Education was coded with 1 = Left high school without a formal qualification; 2 = Completion of compulsory basic primary or secondary schooling; 3 = Completion of GCSEs or equivalent qualifications; 4 = Completion of A-Levels or equivalent qualifications; 5 = Completion of apprenticeship or training; 6 = Technical college or university degree/Ph.D./postdoctoral qualification. Knowledge about AI was coded with 1 = I have no knowledge; 2 = Novice: I have heard of AI; 3 = Intermediate: I have read media articles or have listened to news about AI technologies; 4 = Advanced: I have used AI-based tools and have some understanding of how they work; 5 = Expert: For example, I am an academic or industry researcher in AI.

* $p < .05$. ** $p < .01$. *** $p < .001$.

5 General Discussion

Organizational scholars (Dries et al., 2023; van Knippenberg & Stam, 2014) and practitioners (Ashkenas & Moore, 2022; Collins & Porras, 1996; Johnson & Suskewicz, 2020) agree that one of the most important elements for motivating individual and collective effort is a clear vision of the future. However, academic research on the specific mechanisms and boundary conditions of visions is still in its infancy, and empirical studies remain scarce (Kearney et al., 2019; Venus et al., 2019). Although some studies have begun to examine visions as a boundary condition, the majority of studies so far have investigated the main effects of visions in motivating behavior. An important reason for the limited progress is that previous research has conflated visions and visionary leadership with broader leadership concepts such as transformational leadership (Buss & Kearney, 2024; Carton, 2022). To this end, this dissertation aimed to examine visions at the individual level (Kehr et al., 2021; Stam et al., 2014; Strauss et al., 2012) to better understand the mechanisms, boundary conditions, and the situations in which visions shape behavior. Based on three overarching research questions derived in the introductory Chapter 1.1, the dissertation presents eight studies with 1888 participants in Chapters 2 to 4 that provide answers to the research questions using rigorous experimental designs and different quantitative methods to explore the proposed hypotheses. To conclude this dissertation, Section 5.1 summarizes the main findings of Chapters 2 through 4, Section 5.2 outlines the contributions to the literature, Section 5.3 discusses the practical implications, and Section 5.4 presents limitations and future research directions before concluding in Section 5.5.

5.1 Summary of Findings

In Chapter 2, I focused on the potential mediators of the motivational effects of visions. Specifically, I examined the role of positive affective reactions as a mediator between visions

and vision-related goal pursuit. The results are consistent with my theorizing. First, I demonstrated that visions evoke more positive affective reactions than simply listing a superordinate goal. Second, I showed that visions, through positive affective reactions, are positively related to the pursuit of vision-derived goals. Thus, these findings provide the first empirical support for the idea that visions motivate by eliciting positive emotional responses that increase motivation for vision-related behavior.

In Chapter 3, building on the results of the previous chapter, I focused on better understanding the unique boundary conditions that shape the effects of visions on vision-related goal pursuit. Specifically, I found that vision self-concordance, i.e., the degree of alignment or congruence between an individual's vision and his or her implicit motives, shapes the extent to which a vision evokes positive affect and subsequent vision-related goal pursuit. Specifically, I found that high self-concordance (as opposed to low self-concordance) resulted in increased positive affect and greater commitment and progress toward a goal derived from the vision. These findings support the idea that the degree to which a vision resonates with a person influences the amount of positive affect and motivation that is elicited.

In Chapter 4, I examined the moderating role of salient future work selves, conceptualized as personal career visions as done by previous research (Strauss et al., 2012; Strauss & Parker, 2018), on the relationship between interacting with an AI and career-related attitudes and behaviors. Specifically, I found that a salient future work self shapes the effects of the relationship between interacting with an AI (versus a control group) on perceived control over one's FWS, such that individuals with a salient FWS experience more perceived control than those with a less salient FWS. Furthermore, I demonstrated that these results extend to proactive career behaviors. Specifically, individuals with a salient FWS who interact with an AI perceive more control over their FWS, which in turn promotes proactive career behaviors, compared to those with a less salient FWS. These results provide support for the notion that

high FWSS buffers the effect of AI interaction on perceived control over the FWS and proactive career behavior.

5.2 Theoretical Implications

The results of this dissertation make significant contributions to several areas within the literature. I will detail these contributions across five topics: the organizational literature on visions, the goal-setting literature, self-concordance theory, the literature on future work selves, and the literature on interactions with artificial intelligence. This structured approach allows for a comprehensive assessment of the theoretical implications generated across the three chapters included in this dissertation.

The results of Chapters 2 and 3 contribute to the organizational literature on visions. First, both chapters provide insight into the motivational process of visions. Scholars have repeatedly argued that the processes of how visions operate motivationally are not yet well understood (Boyatzis et al., 2015; Kohles et al., 2012; Strauss et al., 2012; Venus et al., 2019), especially when visions are reduced to simply communicating an image of the future (Kearney et al., 2019). Drawing on findings from clinical psychology (e.g., Schubert et al., 2020) and organizational research (Fiset & Boies, 2019; Naidoo & Lord, 2008), the findings in Chapters 2 and 3 indicate that visions evoke positive affect which, in turn, motivates vision-related goal pursuit. By doing so, I complement the findings of earlier research that highlighted the important role of imagery in visions (Carton et al., 2014; Carton & Lucas, 2018; Masuda et al., 2010) by identifying the power of visions to evoke positive affect, as one potential pathway of visions motivational effect (see Rawolle et al., 2017). In doing so, I advance the understanding of positive affect as a key mediating mechanism in how visions influence motivation and behavior, in response to the recent call by Paine et al. (2023). Developing a vision and imagining it vividly evokes positive affective reactions that are associated with the anticipation of the realization of that vision. This positive response is then transferred to one's current

emotional state, thereby giving the vision a positive valence (Fishbach et al., 2004). Thus, beyond demonstrating the potential motivational impact of a simple 'vision intervention,' our research also builds on FWS research, which encourages future researchers to address the effects of future images on emotional states (Strauss et al., 2012).

Second, Chapter 2 adds to the organizational research on visions by examining previously neglected individual-level factors in the effectiveness of visions. The importance of individual-level factors has been largely neglected in the literature (Berson et al., 2016), as most research has mainly focused on organizational-level factors to investigate the ways in which visions affect performance (Halevy et al., 2011; Vanderstukken et al., 2019). This is somewhat surprising considering that researchers have long hypothesized that the congruence between visions and individual values enhances motivation (Lewis & Clark, 2020; Shamir et al., 1993). Only recently, Fan et al. (2022) have tested this hypothesis. Building on these findings, Chapter 2 demonstrates the role of visions self-concordance as a moderator of visions' effects on goal commitment and progress. These findings not only provide empirical support for the long-standing hypothesis that aligning visions with personal values is essential for vision effectiveness (Shamir et al., 1993), but also refine this perspective by demonstrating that aligning with more implicit aspects of the individual self, such as basic psychological needs and intrinsic values, influences the power of visions (Kehr et al., 2021). In this way, my findings add to recent work that encourages aligning visions with employees' identities (Lewis & Clark, 2020) and promoting personal ownership of visions (Kearney et al., 2019) to foster both internalized and identified motivation. By highlighting the crucial importance of self-concordance in the link between visions and vision-related goal pursuit, our study advances existing research by considering the role of the person in the successful implementation of visions, highlighting the importance of considering individuals' unique characteristics and value orientations when creating visions.

Third, both Chapters 2 and 3 add to the literature on visions by taking an individual-level perspective on the motivational effects of visions. Although scholars have noted that visions are individual-level cognitions that begin at the individual level by motivating and influencing a person's behavior (Kehr et al., 2021) and have emphasized the importance of taking a personal perspective on visions (Preller et al., 2020), most research has examined visions at the collective level (Kipfelsberger et al., 2022). Our study provides new insights into how individual visions may be an important tool to help individuals pursue career-related goals and, thus, their own careers, building on theorists (Fiset & Robinson, 2020) who speculate that individual-level visions may be an important factor in career development. Moreover, given the recent scholarly emphasis on the importance of organizations taking into account employees' individual visions (Preller et al., 2020) and increasing employees' personal connection to their visions (Carton, 2022), a better understanding of such individual-level visions may be particularly important.

Moreover, the results of Chapters 2 and 3 contribute to the literature on goals. On the one hand, Chapters 2 and 3 investigate in which way visions are related to hierarchically related goals. Although scholars have called for the integration of research on visions and goals (Berson et al., 2015) and suggested that visions should be translated into concrete goals (Carton & Lucas, 2018; Stam et al., 2014), to the best of my knowledge, no studies have empirically examined this question. To this end, Chapters 2 and 3 draw on work on emotion spillover in goal systems theory (e.g., Fishbach et al., 2004) and theoretical propositions by Stam et al. (2014), who define vision pursuit as all "goal-directed actions that are hierarchically related to the vision". Specifically, I add to these works by demonstrating that positive affect evoked by visions spills over to vision-derived goals, which in turn motivates the pursuit of vision-derived goals. Thus, I suggest that these chapters suggest a possible process by which visions exert their motivational impact, even though understanding the precise mechanism by which visions enable this affective transfer requires future research. I offer a new angle in the study of visions

by examining how vision-derived goals become affectively charged and, in turn, individuals seem to pursue them more intensely. Although some studies (Oettingen, 2012) have shown that images of a positive future lead to only moderate goal commitment, the current studies have demonstrated that visions and vision-evoked positive affect promote goal pursuit. Consistent with research showing that images of a desired future promote proactivity (e.g., Strauss et al., 2012), I suggest that a vision can illuminate an existing gap between the positive future and the status quo.

On the other hand, the findings in Chapters 2 and 3 provide important insights into the ongoing discussion of the effects of positive affect on goal pursuit. In my dissertation, I build my argument around the literature that has shown positive affect to be beneficial for goal pursuit (e.g., Aarts et al., 2008; Custers & Aarts, 2005). However, another body of work has reported that positive affective responses can also lead to coasting (i.e., people invest less effort) or switching to alternative goals (e.g., Louro et al., 2007; Thürmer et al., 2020). In this vein, some have speculated that positive affect may only be detrimental to goal pursuit when goals are nearly completed or when there are conflicting goals (Fishbach & Dhar, 2005; Orehek et al., 2011; Thürmer et al., 2020). I add to these findings by showing that when individuals engage in the pursuit of a novel goal that they deem important for the attainment of their vision, vision-evoked positive affect is implicitly linked to that goal (Fishbach et al., 2004; Fishbach & Finkelstein, 2011) and serves as an essential resource (Fredrickson, 2004) that energizes the pursuit of this newly identified goal and helps to sustain the early stages of goal pursuit (Custers & Aarts, 2005; Fishbach & Labroo, 2007; Orehek et al., 2011). Thus, the findings in Chapters 2 and 3 illustrate the important role of goal structure and goal stage in shaping the motivational consequences of positive affect and highlight that the relationship between positive affect and goal pursuit is context-dependent.

Furthermore, Chapter 3 of my dissertation also provides new insights into the literature on self-concordance (Sheldon & Elliot, 1999), which has demonstrated the association between

self-concordance and positive affective responses in personal goal contexts (Gillet et al., 2014; Levine et al., 2021; Sheldon et al., 2004). However, until now, research has not examined the effects of self-concordance in the context of visions. While a number of researchers have suggested that a similar effect should extend to visions (e.g., Kehr et al., 2021; Rawolle et al., 2017), suggesting that visions are best at eliciting positive affect when they are more self-concordant with the deeper self or values, there is still little empirical evidence to support this proposition. I fill this gap in the literature by showing that visions are more effective at eliciting positive affect when they are more self-concordant. In particular, my findings are consistent with recent findings that demonstrated that self-concordant future events have a distinct phenomenological status, are characterized by more intense and positive emotions, and are more closely associated with autobiographical knowledge (Ernst et al., 2018). This relationship between self-concordance and the experiential nature of imagined future events provides a convincing explanation for my findings that self-concordant visions are more successful at generating positive affect.

In addition, Chapter 4 of my dissertation adds to the literature on FWS. First, studies examining FWS and their salience have largely focused on the main effects. Only a few studies have examined the salience of a FWS as a boundary condition (Xu et al., 2021; Yu et al., 2016). I contribute to this research by demonstrating that the salience of a FWS can shape individuals' responses to interacting with AI. This finding is particularly relevant as the integration of AI systems into human jobs is on the rise (Duan et al., 2019; Jarrahi, 2018), in what can be considered a new technological revolution (Pereira et al., 2023). As such, my findings provide crucial insights for managers seeking to understand the impact of AI integration on employees' work-related cognitions and behaviors (Budhwar et al., 2023).

Second, I extend the FWS literature by incorporating research from social psychology on the broader construct of possible selves (Oyserman & James, 2009) and examining perceived control over the FWS. In particular, I show that, as proposed by the proactive motivation model

(Parker et al., 2010), both salience, a "reason-to" factor, and perceived control, a "can-do" factor, jointly predict proactive career behavior. In the validation study, I show that individuals' FWS-control, i.e., their can-do motivation with respect to their future work self, differs from a number of control-related concepts in the career literature, such as the control dimension of career adaptability or job-related control appraisals. Our findings add to this broader line of research that emphasizes the importance of control beliefs in the context of career management (Kossek et al., 1998; Lent & Brown, 2013). In my model, AI, which can be viewed as either supporting or constraining individuals' career trajectories, affects their career-related perceptions of control either positively or negatively, depending on the salience of the FWS. Thus, FWS salience is an individual-level factor that differs across individuals and shapes the effect of context on individuals' future career control beliefs. In light of the uncertainty created by interacting with a sophisticated AI, a clear FWS seems to act as a personal resource that helps individuals maintain a sense of control over their desired future careers.

Finally, Chapter 4 of my dissertation adds to the general literature that examines the impact of interacting with artificial intelligence on career-related attitudes and behaviors by taking a future-oriented perspective. So far, research on employees' views of AI has largely taken a "present" perspective (e.g., Kong et al., 2023), for example, by examining their views of the effects of AI on their present job performance (e.g., Bhargava et al., 2021). Specifically, my research shows that individuals interpret AI interactions not only in terms of their immediate challenges and opportunities, but also in terms of how these interactions might fit into and influence their future careers. I thus add a novel angle to recent insights (Tang et al., 2023) that interactions with AI can have both positive and negative outcomes. By presenting FWSS as a crucial individual difference, I shed light on why some individuals see AI as an asset in helping to shape their future, while others see it as a threat to their career aspirations. Having a clear and easily accessible picture of who they want to be in their future career might allow

individuals interacting with an AI to simulate possible future scenarios in their minds, enabling them to experience AI as an opportunity rather than a threat.

5.3 Practical Implications

The findings of my dissertation also offer several valuable practical implications for visions at both the individual and organizational levels. In Chapters 2-4, I demonstrate the importance of visions that affectively resonate, are perceived as self-concordant, and are salient. At the individual level, organizations could seek to integrate interventions into formal career management practices, career development, training opportunities, or coaching and mentoring to help employees develop self-concordant and salient visions. For example, organizations could incorporate reflective exercises such as mindfulness meditation (Brown & Ryan, 2003) or goal imagery techniques (Job & Brandstätter, 2009) to help employees identify visions that align with their personal values and motivations. To increase the clarity of these visions, these interventions should also include mental imagery exercises (Blouin-Hudon & Pychyl, 2017), which can help employees create vivid images of their work in the future (Strauss & Parker, 2018).

In addition, leaders can play an important role in aiding employees to create a clear and vivid picture of their future. Avolio et al. (2004) have shown that leaders have a profound effect on how employees see themselves. For example, when leaders demonstrate that they have high expectations and confidence in their employees' abilities and potential, they can inspire and encourage employees to develop a clear personal vision (Avolio et al., 2004).

At the organizational level, visions are often used in day-to-day corporate life to derive goals that employees work toward. However, if the corporate vision does not evoke positive affect in employees, it can also be counterproductive to the pursuit of personal goals at work. For example, when it is communicated in a rather abstract and less vivid manner (Carton & Lucas, 2018; Naidoo & Lord, 2008). Therefore, leaders should evaluate how the vision can

evoke positive affective responses in employees. If positive affective responses in employees are weak, leaders could reframe the vision in more vivid and pictorial language (Carton & Lucas, 2018; Kehr et al., 2021). Similarly, given the role of self-concordance, leaders have an important role to play in helping employees by presenting opportunities and rationales for decisions, championing workplace values, and addressing affective needs (Bono & Judge, 2003).

In addition, organizations should seek to engage employees in the vision-building process, for example, by holding workshops and events in which employees collaboratively explore and design the organization's future aspirations. This collaborative method not only strengthens the alignment between the organization's vision and employees' deeper selves, but also increases their commitment and motivation to pursue the goals derived from such vision (Lewis & Clark, 2020).

5.4 Limitations and Directions for Future Research

Although the results of this dissertation advance our understanding of visions, it also has a number of limitations. First, the mediator, moderator, and outcome variables in Chapters 2-4 were assessed using self-report measures only. Thus, future studies should aim to incorporate multiple sources of data by assessing objective indicators of goal-related behaviors (e.g., grades, workload) for Chapters 2 and 3 or actual proactive career behaviors (e.g., reported by subjects' supervisors) for Chapter 4 to strengthen the validity of the findings.

Second, although Chapters 2-4 all use time-lagged designs in one or more of the studies, overcoming the shortcomings of cross-sectional designs, all studies only used one additional measurement point. In order to adequately capture the dynamic processes that are likely to be at play, future studies should measure the goal-related variables (commitment and progress toward goals) and the proactive career behaviors multiple times at regular intervals over a longer period of time (Ployhart & Vandenberg, 2010). For example, future studies could use

experience sampling methods to examine whether the influence of a vision on the pursuit of goals derived from it remains constant (Chapters 2-3), or whether people become more or less proactive over time (Chapter 4). In addition, researchers might examine the extent to which reminding participants of their vision for their future work between the days of data collection might affect their goal pursuit (Chapters 2 and 3) or proactive career behavior (Chapter 4).

Third, in Chapters 2-3, I used the vision construct from organizational research as our theoretical lens, conceptualizing visions as positive (Rawolle et al., 2017). This was also the case in Chapter 4, where I used future work selves, which are similarly defined as positive (Strauss et al., 2012). However, recent literature has theorized about the potential impact of negative visions on motivation (Kehr et al., 2021). Negative visions, which depict negatively valenced future scenarios, may serve to motivate employees to increase their efforts or modify their behaviors to avoid undesirable outcomes (Kehr et al., 2021). Similarly, the FWS literature has speculated that negative FWS, although rare, may be associated with negative emotions such as threat and worry (Strauss et al., 2012). Although empirical evidence on negative visions is scarce, it is conceivable that such visions may elicit negative emotions and, in turn, avoidance behaviors (Elliot & Sheldon, 1997) as a means of preventing the adverse event. Thus, future studies could empirically investigate whether thinking about a negative vision of one's future might also foster goal pursuit (Chapters 2 and 3) or proactive career behavior (Chapter 4).

Finally, in Chapter 4, I observed that participants who interacted with AI and had a clear vision of their professional future felt more in control of their future work. In addition to salience, however, future studies could explore how the nature of future work selves may be changing in light of rapidly advancing AI technologies. Think of a software developer who has spent years investing in professional training with a clear and salient image of what his or her future will entail. As AI technology takes over more and more programming tasks, their clear vision may conflict with the real-world dynamics of an AI-influenced labor market (Brynjolfsson & Mitchell, 2017). In fact, while salient FWS can be motivating, rigid adherence

to such FWS may be harmful. Thus, future studies could examine the interaction between the salience of a FWS and its degree of flexibility, providing new insights into how individuals can skillfully balance their career ambitions with the quickly changing work landscape in order to ensure both career advancement and personal well-being.

5.5 Conclusion

Although extensive research has documented the benefits of visions in motivating behavior, the specific mechanisms by which visions exert their influence, the boundary conditions of these effects, and the extent to which visions shape behavior remain poorly understood. In this dissertation, I focused on individual-level visions to shed light on these gaps in research. I found that visions elicit positive affective responses, which in turn promote the pursuit of vision-derived goals. In addition, I found that perceived self-concordance of visions shaped the effect of visions on vision-related goal pursuit, such that when self-concordance was high (vs. low), visions led to increased positive affect and commitment, as well as progress toward vision-derived goals. Finally, I found that the clarity of one's vision of one's FWS moderates the effect of interacting with an AI on perceptions of control over one's future career. Specifically, individuals who interact with an AI and have a salient (vs. less salient) vision of their FWS perceive a greater sense of control over their future career, which promotes proactive career behaviors. As such, I hope that my dissertation has advanced our understanding of individual-level visions, provided actionable insights for organizations seeking to effectively leverage these visions, and encouraged further efforts to investigate how visions can enhance workplace motivation and proactive behaviors.

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6 Appendix

6.1 Appendix A (Chapter 3)

Supplemental Online Materials

Sensitivity Analyses

We examined the robustness of our findings by conducting sensitivity analyses, controlling for age and gender (Studies 1–3) as well as employment status (Study 3) in our hypotheses tests.

Study 1

Hypotheses Tests

To examine our first two hypotheses we followed recommendations by Preacher et al. (2007) and Hayes (2022) and used the SPSS PROCESS macro (Model 1; Hayes, 2022). In order to examine these hypotheses, we predicted positive affect (dependent variable) based on group (independent variable, coded as 0 = superordinate goal and 1 = vision), self-concordance (moderator), and the interaction term of group and self-concordance. Hypothesis 1 posited that visions as compared to superordinate goals would evoke more positive affect. As expected, we found that visions evoke more positive affect compared to superordinate goals ($\beta = 0.46$, $p < .001$), supporting Hypothesis 1. Next, we examined Hypothesis 2 which predicted that self-concordance would moderate the relationship between group (coded as 0 = superordinate goal and 1 = vision) and positive affect, such that this relationship would be stronger when self-concordance is high than when self-concordance is low. As expected, we found a significant interaction effect between group and self-concordance on positive affect, $\beta = 0.03$, $p = .04$, supporting Hypothesis 2. A simple slope analysis (Aiken & West, 1991) illustrated that for high self-concordance (1 *SD* above the mean), the relationship between

group and positive affect is stronger (simple slope = 0.60, $p < .001$) than for low self-concordance (1 *SD* below the mean) (simple slope = 0.32, $p < .001$). Additionally, these slopes differed significantly from one another, $z = 2.20$, $p = .02$ (Paternoster et al., 1998). This further supports Hypothesis 2.

Study 2

Hypotheses Tests

We applied moderated mediation analyses (Preacher et al., 2007) with the SPSS PROCESS macro (Model 7; Hayes, 2022) to test our hypotheses. By doing so, we were able to generate the confidence intervals (CI) for the indirect effects in Hypothesis 3 and 4a as well as for the index of moderated mediation, which tests the equality of the conditional indirect effects, through bootstrapping (Hayes, 2022; Preacher & Hayes, 2004). We examined the hypotheses in SPSS version 26.0 (IBM Corp., 2019) with the PROCESS macro (Model 7; Hayes, 2022) utilizing bootstrapping with 5,000 resamples (Preacher & Hayes, 2004) and 95% confidence intervals. Hypothesis 1 posited that visions as compared to superordinate goals would evoke more positive affect. As expected, we found that visions compared to superordinate goals evoke more positive affect ($\beta = 0.49$, $p < .001$). Hypothesis 2 proposed that self-concordance would moderate the relationship between group (coded as 0 = superordinate goal and 1 = vision) and positive affect. Supporting Hypothesis 2, we found a significant moderation effect of self-concordance on the relationship between group and positive affect ($\beta = 0.03$, $p = .04$) (Model 1, Table S6). Simple slope analyses (Aiken & West, 1991) revealed that the relationship between group and positive affect was positive and significant when self-concordance was high (1 *SD* above the mean) (estimate = 0.63, $p < .001$), but less positive when self-concordance was low (1 *SD* below the mean) (estimate = 0.36, $p < .001$). Moreover, these slopes differed significantly from one another, $z = 2.12$, $p = .03$ (Paternoster et al., 1998). Thus, Hypothesis 2 was fully supported.

Hypothesis 3 stated that positive affect mediates the effect of group on goal commitment. The indirect effect was significant at a 95 % confidence level (estimate = 0.13, [0.048; 0.240]), providing support for Hypothesis 3. Next, we examined Hypothesis 4a, which proposed the influence of group on goal commitment via positive affect and a moderating effect of self-concordance on this indirect effect. To examine this hypothesis, we incorporated the estimates from Model 1 (Table S6) and, moreover, the estimates from a second model where the goal commitment (dependent variable) was posited to be influenced by positive affect (mediator) while considering group (independent variable), self-concordance (moderator), and the interaction term of group and self-concordance (Model 2, Table S6). These model estimates may then in turn be employed to compute the index of moderated mediation, which, if it differs significantly from zero, supports Hypothesis 4a (Hayes, 2022). The concrete structure of the moderated indirect effect can be determined by estimating indirect effects and their corresponding confidence intervals across different values of self-concordance (Hayes, 2022). Supporting Hypothesis 4a, our results revealed a significant effect of positive affect on goal commitment ($\beta = 0.27$, $p = .01$) (Model 2, Table S6). We then utilized bootstrapping with 5,000 resamples (Preacher & Hayes, 2004) to estimate the 95% confidence intervals for both, the index of moderated mediation as well as the indirect effects at high (1 *SD* above the mean) and low (1 *SD* below the mean) values of self-concordance (Hayes, 2022). The index of moderated mediation was different from zero and therefore significant (index = 0.010, 95% CI [.0004; 0.025]), indicating that positive affect served as a mediator in the indirect effect of group on goal commitment, and this mediating effect was found to vary across different values of self-concordance. Concretely, the conditional indirect effect of group on goal commitment via positive affect was more positive when self-concordance was high (1 *SD* above the mean) (estimate = 0.17, 95% CI [0.058; 0.310]) compared to when self-concordance was low (1 *SD* below the mean) (estimate = 0.10, 95%

CI [0.028; 0.199]). This difference was statistically significant (difference = .075, 95% CI [0.003; 0.237]). Hence, Hypothesis 4a was supported.

Study 3

Hypotheses Tests

To test our hypotheses, we used the same moderated mediation model (Hayes, 2022) as in Study 2 using the SPSS PROCESS macro (Model 7; Hayes, 2022). Hypothesis 1 posited that visions as compared to superordinate goals would evoke more positive affect. As expected, we found that visions compared to superordinate goals evoke more positive affect ($\beta = 0.43$, $p < .001$). Hypothesis 2 postulated that self-concordance would moderate the relationship between group (coded as 0 = superordinate goal and 1 = vision) and positive affect. As anticipated we found a significant interaction between group and self-concordance, predicting positive affect ($\beta = 0.05$, $p = .01$) (Model 1, Table S7). Simple slopes indicated that the slope of group on positive affect was positive and significant when self-concordance was high (+ 1 *SD*) ($\beta = 0.62$, $p < .001$), but less positive when self-concordance was low (- 1 *SD*) ($\beta = 0.25$, $p = .01$); moreover both slopes differed significantly ($z = 2.90$, $p = .003$) (Paternoster et al., 1998).

Hypothesis 3 predicted that positive affect mediates the effects of group on goal progress. The indirect effect was significant at a 95 % confidence level (estimate = 0.13, [0.034; 0.260]), thus supporting Hypothesis 3. Hypothesis 4b predicted an indirect effect of group on goal progress through positive affect, with a more positive indirect effect expected under high self-concordance compared to low. Analogous to Study 2, we investigated a mediation effect contingent on a moderator, employing the index of moderated mediation (Hayes, 2022) and calculating the same two models as in Study 2. Model 2 demonstrated a significant effect of positive affect on goal progress ($\beta = 0.32$, $p = .005$) (Model 2, Table S7), supporting our hypothesis. We then utilized bootstrapping with 5,000 resamples (Preacher & Hayes, 2004) to estimate the 95% confidence intervals for the index of moderated mediation

as well as the indirect effects at high (1 *SD* above the mean) and low (1 *SD* below the mean) values of self-concordance (Hayes, 2022). The index of moderated mediation was statistically significant (index = 0.017, 95% CI [.0017; 0.039]), indicating that positive affect mediated the effect of group on goal progress as well as that the indirect effect varied across different self-concordance values. Concretely, the conditional indirect effect of group on goal progress via positive affect was more positive when self-concordance was high (1 *SD* above the mean) (estimate = 0.19, 95% CI [0.048; 0.372]) than when self-concordance was low (1 *SD* below the mean) (estimate = .08, 95% CI [0.091; 0.187]). This difference was statistically significant (difference = 0.11, 95% CI [0.011; 0.264]). Hence, Hypothesis 4b was supported.

Table S6

Moderated Mediation Analyses Testing Hypothesis 4a (Study 2)

	Mediator = Positive Affect		Dependent Variable = Goal Commitment	
	Model 1		Model 2	
Predictors	*β*	*SE*	*β*	*SE*
Group	.49***	.06	-.26*	.12
Positive Affect	—	—	.27**	.10
Self-Concordance	.01	.00	—	—
Group x Self-Concordance	.03*	.01	—	—
Age	-.00	.00	-.01	.01
Gender	-.06	.06	-.16	.11
R^2	.43		.05	
Indirect effects		Effect	LL	UL
Conditional indirect effect of Group on Goal Commitment at:				
Low Self-Concordance (-1 *SD*)		.102	[.028	.199]
High Self-Concordance (+1 *SD*)		.177	[.058	.310]
Difference		.075	[.003	.237]

Note. N = 286. The 95% confidence intervals for the conditional indirect effects and the conditional indirect effect difference were calculated using 5,000 bootstrapping resamples. LL = lower limit; UL = upper limit. Group was coded as 0 = superordinate goal and 1 = vision. Gender was coded with 1 = female, 2 = male.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Table S7

Moderated Mediation Analyses Testing Hypothesis 4b (Study 3)

	Mediator = Positive Affect		Dependent Variable = Goal Progress	
	Model 1		Model 2	
Predictors	*β*	*SE*	*β*	*SE*
Group	.43***	.07	-.26	.14
Positive Affect	—	—	.32**	.11
Self-Concordance	.00	.01	—	—
Group x Self-Concordance	.05*	.02	—	—
Age	.00	.00	.00	.00
Gender	-.17*	.08	.17	.14
Employment Status	-.01	.08	-.05	.15
R^2	.39		.05	

Indirect effects	Effect	LL	UL
Conditional indirect effect of Group on Goal Progress at:			
Low Self-Concordance (-1 *SD*)	.081	[.091	.187]
High Self-Concordance (+1 *SD*)	.197	[.048	.372]
Difference	.116	[.011	.264]

Note. N = 253. The 95% confidence intervals for the conditional indirect effects and the conditional indirect effect difference were calculated using 5,000 bootstrapping resamples. LL = lower limit; UL = upper limit. Group was coded as 0 = superordinate goal and 1 = vision. Gender was coded with 1 = female, 2 = male. Employment Status was coded with 0 = unemployed and 1 = full-time employed. Age was measured in years
* $p < .05$. ** $p < .01$. *** $p < .001$

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6.1 Appendix B (Chapter 4)

Supplemental Online Materials

Validation Study: Discriminant and Convergent Validity of Perceived Control over the Future Work Self

Numerous concepts in the careers literature tap into individuals' sense of control over their career and highlight its importance for career-related behavior and outcomes. For example, career confidence, individuals' belief that they are capable of successfully developing their career, is positively related to salary (Ng & Feldman, 2014), and the control dimension of career adaptability is related to career planning, networking, and skill development (Taber & Blankemeyer, 2015). More general, individuals' sense that they can control what happens in their life has a range of positive outcomes, including better mental and physical health (Infurna & Mayer, 2015) and lower mortality risk (Infurna et al., 2011). In order to establish that perceived control over the future work self is distinct from these related concepts, we conducted a validation study.

Method

Sample and Procedure

The validation study received approval from the research ethics committee of the second author's institution (Ref: 2023-29: "Perceived control over the future work self – scale validation"). We recruited 275 full-time UK-based employees with an approval rate of 90% or higher via Prolific Academic. Of these, 18 failed one or more of three attention check items (e.g., "To ensure data quality, please choose 'strongly agree' for this item" (Meade & Craig, 2012, p. 452), leaving a final sample of 257 participants in the final sample (40.1% identified as women, the remaining participants identified as men; age: M = 39.29, SD = 10.46).

Measures

Unless otherwise indicated, items were rated on a 5-point scale ranging from 1 “strongly disagree” to 5 “strongly agree”. Internal reliabilities of all measures are shown in Table S1.

Future Work Self Salience (FWSS). Participants’ FWSS was assessed with three items (α = .93) by Strauss et al. (2012) (e.g., “I am very clear about who and what I want to become in my future work.”).

Perceived Control over the Future Work Self (FWSC). Participants responded to six items by Norman and Aron (2003) to assess their perceived control over their future work self (e.g., ‘‘How much control do you believe you have over attaining this particular hoped-for future self?’’; 1 = *none at all*; 7 = *a great deal*).

Career self-efficacy. Career self-efficacy reflect an individual’s belief that they are able to effectively self-manage their career. We administered ten items capturing participants' career self-efficacy by Kossek et al. (1998). A sample item is “When I make plans for my career, I am confident I can make them work.”

Career confidence. Career confidence was measured with four items developed by Hirschi et al. (2017). to capture this concept (e.g., “I am capable of successfully managing my career”; 1 = *not true at all*; 5 = *completely true*). While Kossek et al.’s (1998) measure of career self-efficacy reflects self-reliance in relation to one’s career, career confidence taps specifically in individuals’ confidence in their ability to manage their career, and prior research found the two measures to be only moderately related (Hirschi et al., 2017).

Job-related control appraisals. Control appraisals in relation to individuals’ jobs were assessed with the four-item measure by Parker et al. (2006). A sample item is “The same problems keep happening again and again, regardless of what I do.” Items are rated on a 5-point scale ranging from 5 “Very True” to 1 “Not true at all.”

Perceived control. Individuals’ perceived control over their life and future, i.e., their belief that what happens in their life is contingent on their own actions and choices, was

measured with eight items by Infurna et al. (2011). A sample item is “I determine what happens to me in life.” Items are rated on a 4-point scale ranging from 4 “Applies completely” to 1 “Does not apply”.

Career adaptability – Control. The control dimension of career adaptability reflects the self-regulatory resources that allow individuals “to become responsible for shaping themselves and their environments to meet what comes next by using self-discipline, effort, and persistence” (Savickas & Porfeli, 2012, p. 663). It was assessed with the widely validated measure by Savickas and Porfeli (2012), which captures individuals’ belief that they possess career-related strengths (e.g., “Making decisions by myself”). Items are rated on a 5-point scale ranging from 5 “Strongest” to 1 “Not strong.”

Locus of control. Internal locus of control, the general belief that events are contingent on one's actions, and external locus of control, the belief that events are the result of external factors such as luck or fate, were assessed with the validated short measures by Nießen et al. (2022). Sample items are “If I work hard, I will succeed” (internal locus of control) and “Fate often gets in the way of my plans” (external locus of control).

Methods and Findings. Analyses were performed in R (R Development Core Team, 2013). We used the package *lavaan* (Rosseel, 2012) to conduct the confirmatory factor analyses (CFA). Further, we utilized the *semTools* package (Jorgensen et al., 2022) to assess the heterotrait-monotrait (HTMT) ratio of correlations using the ‘HTMT’ function and implemented the CI_{CFA} (sys) methodology by Rönkkö & Cho (2022) through the ‘discriminantValidity’ function. We evaluated a number of indices (see Table S1) to assess the convergent validity of the FWSC measure, i.e., how closely related FWSC scale is to other theoretically linked constructs (i.e., orbiting constructs). First, the FWSC measure demonstrated a high degree of internal consistency ($\alpha = .90$). Moreover, all FWSC items showed significant standardized factor loadings of above 0.60 and, therefore, loaded on the hypothesized factor, indicating item-level convergent validity (Anderson & Gerbing, 1988).

Finally, the measure exceeded the thresholds for composite reliability (CR) at 0.70 (Hair et al., 2017) and average variance extracted (AVE) at 0.50 (Hair et al., 2014), attesting to the factor-level convergent validity of FWSC.

In addition, we used three methods to assess discriminant validity (i.e., if the FWSC scale is empirically different from the scales used to measure the orbiting constructs). First, we considered the HTMT values, whereby all values satisfied the conservative 0.85 cut-off criterion defined by Henseler et al. (2015; see Table S2). Second, we employed the CI_{CFA} (sys) approach by Rönkkö & Cho (2022), inspecting the 95% confidence intervals (CIs) for every correlation between the FWSC scale and our orbiting constructs (e.g., FWSC and FWSS). Rönkkö and Cho (2022) propose that if the value of the upper or lower limit CI exceeds 0.90, then there is a "moderate problem." Employing this technique, we found that none of the upper or lower limits of all FWSC-orbiting constructs correlations were less than this cutoff (see Table S3).

Third, we employed a robust maximum likelihood (MLM) estimator (Finney & DiStefano, 2013) to conduct a series of CFA. This was done to evaluate the fit of a nine-factor model distinguishing between FWSC and the eight orbiting concepts and compare it against several alternative models. For model evaluation, we relied on the established indices: $\chi 2/df \leq 3$ (Kline, 2016), CFI ≥ 0.90 (Bentler, 1990), RMSEA ≤ 0.08 (Marsh et al., 2004), and SRMR ≤ 0.08 (Hu & Bentler, 1999). Our primary nine-factor measurement model yielded largely acceptable fit statistics ($\chi 2/df = 2.1$, RMSEA = 0.05, and SRMR = 0.07), although the CFI of 0.87 was somewhat below the cutoff criterion, which may be caused by the high number of items (47) in our model (Kenny & McCoach, 2003). However, this model fit the data significantly better than a series of alternative model, which included a one-factor model in which all of the constructs loaded on a single factor. We also defined eight different eight-factor models, each of which combined a different orbiting construct and FWSC in one factor. The remaining orbiting constructs each loaded on separate factors. Chi-squared tests of

difference revealed that the nine-factor model was a significantly better fit than all of the alternative eight-factor models and the one-factor model (all p values < .001), as shown in Table S4. These results support the discriminant validity of perceived control over the future work self.

Additional Study: Effectiveness of the Experimental Manipulation

Method

Sample and Procedure

The study received approval from the research ethics committee of the second author's institution (Ref: 2023-50: "ChatGPT and future work selves - additional variables"). We recruited 123 full-time UK-based employees with an approval rate of 90% or higher via Prolific Academic. Of these, one failed more than one of two attention check items (e.g., "To ensure data quality, please select 'strongly agree' for this item" (Meade & Craig, 2012, p. 452)) and three prematurely terminated the questionnaire, leaving a final sample of 119 participants (37 % identified as female, the remainder identified as male; age: $M = 39.21$, $SD = 10.20$).

The procedures and manipulations were identical to Studies 2 and 3 of our main paper, with the addition of a manipulation check at the end of the study.

Measures

Manipulation Check. For our manipulation check, we adapted two items from Man Tang et al. (2022) to ask participants whether they worked independently or with an AI on their experimental task. The items were "I worked on this in-tray task independently" (reverse coded) and "I worked on this in-tray task with the help of ChatGPT3" (Coefficient alpha = .80). Items were rated on a 7-point Likert scale (1 = "strongly disagree" to 7 = "strongly agree").

Results

As expected, responses to the manipulation check were significantly different between participants in the experimental group ($M = 5.00$, $SD = 1.17$) and the control group ($M = 1.22$, $SD = 0.67$), $t(117) = -21.46$, $p < .001$, $d = -3.93$, indicating that participants could clearly identify whether or not they had interacted with an AI in completing the task.

Supplementary Post-hoc Analyses of Studies 1, 2, and 3 Data: Robustness Checks

We examined the robustness of our findings by conducting post-hoc analyses in which we additionally controlled for the similarity of the experimental task to the individuals' daily work (Studies 1-3) as well as individuals' general perceptions of AI (Studies 2 and 3) when testing our hypotheses.

Method

Measures

Task similarity. We included three items (Study 1: α = .80; Study 2: α = .76; Study 3: α = .86) adapted from Kelly et al. (2020) to measure the similarity between the experimental task and individuals' daily (Studies 1 and 3) and future (Study 2) work as a control variable ("My work tasks are similar to this activity"; "I require similar skills and abilities to be successful in my job and to complete this activity"; "The mental demands of this activity are similar to my work role"; 1 = *strongly disagree*, 5 = *strongly disagree*). In Study 2, the items were rephrased to assess the similarity of the experimental task to the individuals' future work.

Attitude towards AI. We included two items developed by Gaube et al. (2021) to measure individuals' attitudes towards AI ("AI is dangerous to society"; "AI poses a threat to my career"; 1 = strongly disagree, 7 = strongly agree).

Study 1

Results

To test Hypothesis 1, we regressed FWSC on the experimental condition (coded as 1 = interacting with an AI, 0 = control group), FWSS, and the interaction term between experimental condition and FWSS, as well as on the two additional control variables task

similarity and attitude towards AI. The main effect of the experimental condition on perceived control over the future work self at T1 was not significant (β = 0.09, p = .43). However, we found a significant interaction effect between the experimental condition and FWSS on perceived control over the future work self (β = 0.26, p < .05; Table S5, Study 1, Model 1). Figure 3 illustrates the pattern of the interaction. A simple slope analysis (Aiken & West, 1991) revealed a positive and significant effect of experimental condition on perceived control over the future work self for individuals with high FWSS (1 *SD* above the mean; slope = 0.35, p < .05) while the effect was not significant for those with low FWSS (1 *SD* below the mean; slope = -0.16, p = .33). Moreover, these slopes differed significantly from one another, z = 2.25, p < .05 (Paternoster et al., 1998).

We performed the same analysis for perceived control over the future work self at T2. Again, the main effect of the experimental condition was not significant (β = -0.01, p = .89). However, as expected, the interaction effect between the experimental condition and FWSS was significant (β = 0.25, p < .05; Table S5, Study 1, Model 2). We conducted a simple slope analysis which revealed that both slopes were in the expected direction but not significant (high FWSS: 1 *SD* above the mean, slope = 0.23, p = .16; low FWSS: 1 *SD* below the mean, slope = -0.26, p = .12). The difference between these slopes was significant (z = 2.18, p < .05).

Study 2

Results

We conducted a similar analysis to Study 1 using experimental condition and control variables as predictors, FWSS as the moderator, and control over future work self T1 and T2 as the dependent variable. For control over future work self at T1, the main effect of the experimental condition was not significant (β = 0.14, p = .17; Table S5, Study 2, Model 1).

The interaction effect between experimental condition and FWSS was also not significant (β = 0.12, p = .22).

We conducted the same analysis or control over the future work self at T2, one week later. Again, the main effect of the experimental condition on perceived control over the future work self at T2 was not significant (β = 0.14, p = .17). However, as expected, there was a significant interaction between the experimental condition and FWSS (β = 0.26, p < .05; Table S5, Study 2, Model 2). A simple slopes analysis revealed that individuals with high FWSS (1 *SD* above the mean) showed a positive and significant effect of the experimental condition on perceived control over the FWS (slope = 0.39, p < .01) compared to those with low FWSS (1 *SD* below the mean; slope = -.10, p = .48). The difference between these slopes was significant (z = 2.47, p < .05).

Study 3

Results

For control over future work self at T1, the main effect of the experimental condition was not significant (β = -.01, p = .93; Table S5, Study 2, Model 1). However, supporting Hypothesis 1, the interaction between experimental condition and FWSS was again significant when controlling for the two additional control variables (β = .44, p < .01; Table S5, Study 3, Model 1). A simple slopes analysis revealed that for individuals with high FWSS (1 *SD* above the mean) there was a positive and significant effect of the experimental condition on perceived control over the future work self (slope = .42, p < .05). However, for those with low FWSS there was a negative and significant effect of the experimental condition on perceived control over the future work self (1 *SD* below the mean; slope = -.44, p < .05). The difference between these slopes was significant (z = 3.37, p < .01).

To test Hypothesis 2, we conducted moderated mediation analyses (Preacher et al., 2007) using SPSS version 26.0 (IBM Corp., 2019) and the PROCESS macro (Model 7;

Hayes, 2022). We examined our hypotheses using bootstrapping with 5,000 resamples (Preacher & Hayes, 2004) and 95% confidence intervals. In line with our hypothesis, perceived control over the future work self was positively related to proactive career behavior ($\beta = .44$, $p < .001$; Table S5, Study 3, Model 2) when controlling for task similarity and attitude towards AI, and FWSS moderated the indirect effect between experimental condition and proactive career behavior through control over future work self (index of moderated mediation = .18, 95% CI [.06; .32]). Specifically, the conditional indirect effect of experimental condition on proactive career behavior via control over the future work self was positive when FWSS was high (1 SD above the mean) (indirect effect = .18, 95% CI [.03; .36]), but negative when FWSS was low (1 SD below the mean) (estimate = -.20, 95% CI [-.40; -.02]). This difference was statistically significant (contrast = .38, 95% CI [.13; .68). These results fully support Hypothesis 2.

In summary, the pattern of findings remains the same when controlling for two important potential confounds: the similarity between the experimental task and individuals' current or anticipated future work tasks, and their attitude towards AI.

Supplementary Post-hoc Analyses of Studies 1, 2, and 3 Data: Impact of Industries on Dependent Variables

To account for potential differences in our dependent variables across industries, we conducted three separate multivariate analyses of variance (MANOVAs) for each study. Specifically, we examined the effect of industry by including the effect of five dummy coded variables representing the five most common industries and an "other" category on our dependent variables across three studies. For Study 1, in the MANOVA the multivariate main effect of industry on perceived control over the FWS at T1 or T2 was not significant (Wilks' $\Lambda = .968$, $F(10, 334) = 0.543$, $p = .859$, $\eta^2 = .032$). In addition, the univariate main effects showed no significant differences across industries for perceived control over the FWS at T1 ($F(5, 168) = 0.786$, $p = .561$, $\eta^2 = .023$, or at T2, $F(5, 168) = 0.891$, $p = .488$, $\eta^2 = .026$). In Study 2, the MANOVA again showed a non-significant multivariate main effect of the industry participants aspired to work in on both dependent variables (Wilks' $\Lambda = .965$, $F(10, 402) = 0.733$, $p = .694$, $\eta^2 = .018$), with the univariate main effects also showing no significant differences across industries for perceived control over FWS at T1 ($F(5, 202) = 0.912$, $p = .474$, $\eta^2 = .022$, or at T2, $F(5, 202) = 0.750$, $p = .587$, $\eta^2 = .018$). Finally, for Study 3, the MANOVA showed once again a non-significant multivariate main effect of industry on both dependent variables (Wilks' $\Lambda = .969$, $F(10, 294) = 0.460$, $p = .915$, $\eta^2 = .015$), with univariate main effects indicating no significant differences across industries for perceived control over FWS at T1 ($F(5, 148) = 0.571$, $p = .722$, $\eta^2 = .019$), or for proactive career behaviors at T2 ($F(5, 148) = 0.616$, $p = .687$, $\eta^2 = .020$). Taken together, these results suggest that industry does not significantly affect the dependent variables in all three studies.

Table S1

Convergent Validity (Validation Study)

Constructs	Mean	SD	Cronbach's alpha	AVE	CR
FWSC	5.32	1.01	0.90	0.61	0.89
FWSS	3.40	1.02	0.92	0.79	0.92
Career Self-Efficacy	3.71	0.58	0.86	0.36	0.83
Career Confidence	3.67	0.90	0.94	0.82	0.95
Job-related control appraisals	2.89	0.88	0.83	0.56	0.83
Perceived Control	2.98	0.43	0.78	0.32	0.79
Career Adaptability - Control	3.47	0.67	0.79	0.38	0.79
External Locus of Control	2.09	0.81	0.63	0.46	0.61
Internal Locus of Control	3.07	0.98	0.57	0.54	0.68

Note. FWSC = Perceived Control over the Future Work Self; FWSS = Future Work Self Salience; *SD* = Standard Deviation; AVE = Average Variance Extracted; CR = Composite Reliability.

Table S2

Intercorrelations and Heterotrait-Monotrait Ratios of Constructs (Validation Study)

Constructs	FWSC	FWSS	Career Self-Efficacy	Career Confidence	Control Appraisal	Perceived Control	C Adap
FWSC	—	0.65	0.64	0.81	0.52	0.62	0
FWSS	0.68	—	0.66	0.70	0.38	0.42	0
Career Self-Efficacy	0.74	0.69	—	0.80	0.53	0.59	0
Career Confidence	0.85	0.68	0.86	—	0.56	0.51	0
Job-related control appraisals	0.56	0.43	0.65	0.59	—	0.58	0
Perceived Control	0.68	0.43	0.70	0.67	0.59	—	0
Career Adaptability - Control	0.52	0.51	0.68	0.57	0.38	0.54	
External Locus of Control	-0.27	-0.04	-0.24	-0.20	-0.24	-0.56	-
Internal Locus of Control	0.73	0.45	0.63	0.70	0.40	0.54	0

Note. FWSC = Perceived Control over the Future Work Self; FWSS = Future Work Self Salience. Values below the diago constructs. Values above the diagonal are HTMT values.

Internal Locus of Control	0.728	[.584, .872]

Note. FWSC = Perceived Control over the Future Work Self; FWSS = Future Work Self Salience. Correlations between factors are based on our nine-factor model and are provided outside of brackets. 95% confidence intervals are given next to each estimate in parentheses.

Table S4

Alternative Structural Models (Pilot Study)

Model	Fit Measures							Chi² Difference Tests	
	CFI	RMSEA	SRMR	AIC	BIC	χ2	df	Δχ2	p
Nine-factor model	0.87	0.05	0.07	25797	26248	2008.72	953	—	—
Eight-factor model A	0.84	0.06	0.07	25980	26404	2208.38	961	684.35	< .001
Eight-factor model B	0.81	0.06	0.07	26119	26543	2347.08	961	90.99	< .001
Eight-factor model C	0.86	0.06	0.07	25827	26250	2054.94	961	32.21	< .001
Eight-factor model D	0.86	0.05	0.07	25894	26317	2121.60	961	48.98	< .001
Eight-factor model E	0.84	0.06	0.07	25997	26421	2224.62	961	123.33	< .001
Eight-factor model F	0.82	0.06	0.08	26080	26504	2307.59	961	298.9	< .001
Eight-factor model G	0.83	0.06	0.07	25994	26418	2221.92	961	80.27	< .001
Eight-factor model H	0.84	0.06	0.07	26021	26444	2248.44	961	292.54	< .001
One-factor model	0.64	0.08	0.08	27084	27408	3367.66	989	885.76	< .001

Note. CFI = Comparative Fit Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Square Residual; AIC = Akaike's Information Criteria; BIC = Bayesian Information Criteria. Eight-factor model A model denotes a model in which FWSC and career confidence items load onto one factor. Eight-factor model B denotes a model in which FWSC and FWSS items load onto one factor. Eight-factor model C denotes a model in which FWSC and internal locus of control items load onto one factor. Eight-factor model D denotes a model in which FWSC and external locus of control items load onto one factor. Eight-factor model E denotes a model in which FWSC and career self-efficacy items load onto one factor. Eight-factor model F denotes a model in which FWSC and job-related control appraisal items load onto one factor. Eight-factor model G denotes a model in which FWSC and perceived control items load onto one factor. Eight-factor model H denotes a model in which FWSC and career adaptability - control items load onto one factor. The Chi² difference tests compare all models with the nine-factor model.

Table S5

Regression Results With Interaction Terms (Studies 1, 2, and 3)

Dependent variable	Perceived control over the FWS										Proactive Career Behavior	
	Study 1				Study 2				Study 3			
	Model 1		Model 2		Model 1		Model 2		Model 1		Model 2	
Predictors	*β*	*SE*	*β*	*SE*	*β*	*SE*	*β*	*SE*	*β*	*SE*	*β*	*SE*
Age	-.00	.00	-.00	.01	-.04*	.02	-.04	.02	-.01*	.00	-.00	.00
Gender	.14	.12	.14	.13	-.03	.10	-.04	.11	-.14	.13	.13	.11
Education	.03	.05	.02	.08	-.04	.05	-.02	.05	.02	.09	.09	.08
Knowledge of AI	.03	.08	.04	.03	.25**	.07	.16*	.08	.30**	.08	-.06	.07
Task Similarity	.03	.03	.04	.08	.04	.03	.02	.03	-.03	.03	.05	.03
Overall ChatGPT usage					-.06*	.03	-.05	.03	-.01	.04	.02	.03
ChatGPT usage in the past week			.10	.08								
Attitude towards AI					.07*	.03	.10*	.04	.23**	.06	-.00	.05
Condition	.08	.12	-.02	.12	.13	.10	.14	.11	-.01	.14	-.00	.11
Perceived control over the FWS											.44**	.06
FWSS	.38**	.08	.38**	.08	.12	.08	.14	.08	.10	.10		
Condition x FWSS	.26*	.12	.25*	.12	.13	.11	.26*	.12	.44**	.13		
R^2	.33**		.33**		.20**		.19**		.38**		.30**	
ΔR^2	.02*		.02*		.01		.02*		.05**			

Note. $N_{Study\ 1} = 174$. $N_{Study\ 2} = 208$. $N_{Study\ 3} = 153$. Condition was coded with 1 = AI condition and 0 = control condition. Gender was dummy coded with 0 = male and 1 = female. Education was coded with 1 = Left high school without a formal qualification; 2 = Completion of compulsory basic primary or secondary schooling; 3 = Completion of GCSEs or equivalent qualifications; 4 = Completion of A-Levels or equivalent qualifications; 5 = Completion of apprenticeship or training; 6 = Technical college or university degree/Ph.D./postdoctoral qualification. Knowledge about AI was coded with 1 = I have no knowledge; 2 = Novice: I have heard of AI; 3 = Intermediate: I have read media articles or have listened to news about AI technologies; 4 = Advanced: I have used AI-based tools and have some understanding of how they work; 5 = Expert: For example, I am an academic or industry researcher in AI.

* $p < .05$. ** $p < .01$. *** $p < .001$.

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