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Longitudinal Trajectories of Affective Commitment to the Occupation Among School Principals: A Person-Centered Perspective

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Abstract

Affective occupational commitment (AOC) can be conceptualized as an indicator that ones' occupation has been adequately internalized within one's professional identity. From this perspective, the present study relies on the organismic integration component of Self-Determination Theory to: (1) investigate the distinctive shapes (or profiles) taken by school principals AOC trajectories; (2) test the role of work characteristics related to the satisfaction of principals' basic needs for relatedness, competence and autonomy as core drivers of their AOC trajectories; (3) document the outcome implications of these trajectories in relation to principals' job satisfaction, turnover intentions, and burnout. Using a sample of 661 established (tenure= 6 months to 38 years) school principals (*Mage* = 44.94; 58% females) measured four times over a two-year period, growth mixture analyses revealed five profiles characterized by distinct AOC trajectories. Three profiles displayed *High*, *Moderately High*, or *Very Low* stable levels of AOC. The other profiles displayed *Slowly Increasing* or *Slowly Decreasing* levels of AOC. Higher AOC levels were also anchored in more stable trajectories, and were accompanied by higher job satisfaction and lower burnout and turnover intentions. Satisfaction of the need for autonomy, competence, and relatedness had differential short-term and long-term effects on AOC trajectories. The current study provides evidence for the malleability of AOC from a longitudinal perspective and highlights the necessary conditions to foster ideal AOC trajectories for high-level managers.
Keywords. Affective occupational commitment, trajectories, profiles, longitudinal, interpersonal relationships, autonomy, managerial self-efficacy, burnout, job satisfaction, turnover intentions.

Occupational commitment, a psychological bond between an employee and his or her occupation (e.g., Klein et al., 2012; Meyer & Herscovitch, 2001), is a core component of employees' professional identity throughout their career and a key mechanism underlying their motivation to engage in goal-directed behavior (Meyer et al., 2004, 2006, 2008; Spurk et al., 2019). Occupational commitment is particularly relevant for public sector employees (e.g., nursing, police, teaching), who usually remain in the same occupation for a significant part of, if not all, their career, and provide valued services to society in the process. These occupations often require years of training and socialization, which limits mobility across occupations, even though the typical career path of many public servants may take them across a variety of organizations (Houle et al., 2020). Moreover, as the true value of public servants lies in the service that they provide to society, irrespective of the organization in which they perform these duties, fostering and maintaining occupational commitment amongst public sector employees should be a top priority for society in general. Despite the recent interest in considering occupational commitment from a lifespan perspective (Spurk et al., 2019), little is currently known about the factors that contribute to influence the development of occupational commitment as it evolves over time, and the psychological and organizational implications associated with different AOC trajectories for high-level public sector managers. This is preoccupying when we consider that a primary purpose of commitment research should be to provide actionable information to help employees develop, maintain and even improve their commitment over time. Rather, a significant part of commitment research seems to have stagnated on studying the intricacies of how commitment is experienced at any given point in time, without giving much thought to its dynamic evolution.

The present study was designed to address these limitations through the investigation of AOC trajectories experienced by a sample of school principals followed over the course of two years. Specifically, through the adoption of a person-centered approach (Meyer & Morin, 2016; Morin et al., 2018), the present study seeks to identify subpopulations (i.e., profiles) of school principals following qualitatively distinct AOC trajectories. This approach makes it possible to obtain a finer-grained understanding of the dynamic nature of AOC trajectories (Spurk et al., 2019), their drivers (e.g., basic psychological need satisfaction), and their implications for psychological and work-related outcomes (e.g., burnout, job satisfaction, turnover intentions). By helping us to achieve a better understanding of AOC trajectories from a motivational perspective, as well as their key determinants and outcomes, this study hopes to help guide organizations in fostering the development of strong and resilient occupational identities among key public sector employees (Meyer et al., 2008; Spurk et al., 2019).

AOC as an Evolving Component of Identity Involved in Goal-Directed Behaviors

Occupational commitment can be experienced as a sense of emotional attachment to one's occupation (affective), as a perceived obligation to remain in this occupation (normative), or as an impression of lack of choice or need to remain in this occupation (continuance) (Meyer et al., 1993). However, research generally indicates that affective occupational commitment (AOC) carries the greatest benefits in terms of work-related intentions, attitudes, and behaviors (Cooper-Hakim & Viswesvaran, 2005; Spurk et al., 2019; Wang et al., 2019). As a core component of employees' social identities at work (Meyer et al., 2006), commitment has been theoretically proposed to play a central role in employees' motivation to engage in goal-related behavior of relevance to the target of the commitment (e.g., the occupation in the present context) (Meyer et al., 2004). From this perspective, we rely on the Organismic Integration Theory (OIT) component of Self-Determination Theory (SDT: Deci & Ryan, 1985; Ryan & Deci, 2000) to better understand the nature and implications of AOC (Meyer et al., 2004). OIT, as a sub-theory of SDT, focuses on the process of internalization whereby initially externally driven motives or objectives become progressively integrated into one's professional identity. Within OIT, the process of internalization is specified to vary along a continuum, going from purely externally controlled behaviors (entirely driven by external contingencies, such as seeking rewards or avoiding negative consequences), to introjected forms of behavioral regulations (when behaviors are driven by internal contingencies, such as the avoidance of negative emotions, such as guilt, or the pursuit of positive emotions, such as pride). The next position on the continuum entails identified forms of behavioral regulations (when behaviors are volitionally undertaken because employees want to achieve objectives that are aligned with their personal goals and values) and is then followed by integrated forms of behavioral regulations (when behaviors come to be integrated to employees' identity and seen as fully consistent with their other goals and values). Although SDT also acknowledge that some behaviors might be driven by purely intrinsic motives (i.e., pleasure), intrinsic motivation is seen as distinct from

the process of internalization whereby externally driven behaviors come to be progressively integrated to one's professional identity.

Due to its affective nature, AOC has been theoretically proposed to reflect a sense of complete internalization (Gagné, & Howard, 2016; Meyer et al., 2004). More precisely, employees who feel that their occupation serves an important purpose (i.e., identified regulation) which they come to share as their own to become a core part of their professional identity (i.e., integrated motivation) should develop a stronger emotional bond to their occupation. Empirical evidence supports the idea that self-determined goal-directed behaviors share significant positive associations with AOC (Fernet et al., 2012, 2017, 2021). However, despite the theoretical expectation that AOC is a dynamic and malleable construct (Klein et al., 2012) influenced by employees' adaptation to ongoing changes occurring in their professional (Sullivan & Baruch, 2009) or personal (Spurk et al., 2019) situations, very little is known about how this dynamic bond truly evolves over time.

To our knowledge, only three sources of evidence support a representation of AOC as a dynamic, malleable, construct. First, in their review of AOC research, Spurk et al. (2019) reported rank-order stability coefficients supporting both stability and change in AOC levels over periods ranging from 7 weeks to 3 years. Second, Salzmann et al. (2018) investigated intra-individual AOC trajectories among vocational trainees followed over a period of three years. Their results indicated a small average decreasing tendency in the entire sample, but revealed substantial inter-individual variability in initial levels of AOC (i.e., the intercept of the trajectories) and in the evolution of these trajectories over time (i.e., the slope of the trajectories). This last observation suggests that average tendencies are incapable of appropriately capturing AOC evolution, and that alternative methods (i.e., person-centered analyses, see Morin et al., 2018) would be better suited to uncovering subpopulations of employees for whom AOC levels increase, decrease, or remain stable over time. Lastly, Houle et al. (2020) identified distinct profiles of school principals characterized by qualitatively distinct configurations of affective, normative, and continuance commitment to their occupation separately at two time points, two years apart. Their results revealed that average and higher levels of AOC might be more prone to long term (e.g., 2-years) changes (i.e., showing an increase or decrease over time) compared to lower levels of AOC or to levels of normative or continuance commitment. These results suggests that AOC might display some malleability at the trait level over longer periods of time, and thus that more desirable AOC profiles might be fostered by proper intervention. This interpretation reinforces the need to better grasp the work-related drivers of stability or change in AOC trajectories.

To date, no study has yet attempted to explicitly study inter-individual heterogeneity in the shape of AOC trajectories. Importantly, the presence of a substantial level of inter-individual heterogeneity in the shape of AOC trajectories (e.g., Salzmann et al., 2018) highlights the importance of considering the possible presence of distinct subpopulations of employees characterized by qualitatively distinct AOC trajectories, as these subpopulations may potentially react differently to their work environment and display differentiated patterns of adjustment. The present study addresses this issue by relying on person-centered analyses (Meyer & Morin, 2016; Morin et al., 2018). More precisely, we rely on growth mixture analyses (GMA) to identify profiles of school principals following qualitatively and quantitatively distinct longitudinal trajectories of AOC over a period of two years (4 measurement occasions). By focusing on a sample of school principals already established in their occupation, this approach allows us to uncover whether and how AOC levels normatively fluctuate over time among distinct subpopulations of workers engaged in an occupation where changes are slow to unfold. Moreover, GMA make it possible to partition AOC into a trait-like component, reflecting principals' average AOC trajectories over time, and into a state-like component, reflecting principals' deviations from their average trajectory at each specific point in time. This differentiation allows us to achieve a more in-depth representation of AOC trajectories more aligned with the theoretically dynamic nature of this construct (e.g., Klein et al., 2012; Spurk et al., 2019), and allowing us to differentiate between factors able to influence AOC trajectories in a more (trait: factors able to influence individual trajectories) or less (state: factors able to predict temporary deviations from one's trajectory) persistent manner. To guide our hypotheses, we first consider the unique characteristics of the school principal occupation and draw upon OIT/SDT to position the existence of profiles characterized by distinct AOC trajectories (trait). We then introduce the self-equilibrium hypothesis to further guide our expectations in terms of within-profile deviations (state).

Expected Trait-Like Trajectories of AOC Among School Principals: A SDT Perspective

The journey to becoming a school principal (in the Canadian province of Quebec, but also in many developed countries) entails a lengthy process. First, almost all school principals hold an academic degree that typically corresponds to a Master's, although some older school principals only completed an undergraduate degree. Second, most school principals previously worked as teachers for a number of years and obtained a position as a principal in a school different from the one in which they worked as a teacher. Third, becoming a principal involves entering an occupation that is far more administrative in nature than teaching, even though the bulk of training required to occupy this position remains teaching focused for most principals. Yet, becoming a principal remains a logical progression in the educational system for any teacher aspiring to climb the ranks. In Canada, the average age of principals is approximately 50 years old, and their average occupational tenure is approximately 22 years (Cattonar et al., 2007). For many principals, this will be their final occupation prior to retirement. However, some principals might also use this occupation as a stepping-stone toward hierarchically higher public occupations (e.g., school board or ministry administrators). As a dynamic bond that lasts for the duration of one's occupational tenure, AOC has been positioned as an important indicator of how well employees are able to adapt to their occupational careers (Baltes et al., 2014; Spurk et al., 2019) and is thus uniquely suited to provide a glimpse (i.e., 2 years) of how well school principals have adapted to an occupation that they are likely to hold for a long time.

Positioning AOC as an indicator that the bond between a principal and his/her occupation has been properly internalized (Gagné, & Howard, 2016; Meyer et al., 2004) suggests that employees experiencing diverse, and changing, levels of internalization and adaptation to the changing nature of their occupational career could experience qualitatively and quantitatively distinct AOC trajectories. Indeed, a successful process of internalization of an occupation that is able to fulfill principals' expectations should result in a stable trajectory characterized by moderate to high levels of AOC, whereas being in an occupation that systematically fails to meet their expectations should lead to an incomplete process of internalization, resulting in trajectories characterized by persistently low levels of AOC. Given the lengthy process involved in becoming principal, which typically represents a change relative to one's prior professional trajectory, as well as the many social and economic benefits associated with this new role, it may be particularly difficult for principals to change occupation yet again (Houle et al., 2020), thus allowing them to persist in a role with which they share no emotional connection. Beyond these two more stable trajectories, it is also important to consider scenarios within which principals' sense of connection with their occupation, and their resulting feelings of internalization, may also grow or decrease over time, leading to increasing or decreasing AOC trajectories (Spurk et al., 2019). Although many mechanisms may be involved in the emergence of these increasing or decreasing trajectories (e.g., external changes in the characteristics of the work environment, principals' efforts to modify their work environment, principals' progressive internalization of the characteristics of their role, principal's progressive rejection of their role), knowledge of these mechanisms is not necessary to support the expectation that trajectories reflecting progressively increasing, or decreasing, levels of internalization should also be evidenced. Work characteristics, just like individual expectations, are both known to evolve over time in a way that makes it likely for some principals to develop an increased level of affinity, or emotional bond, with their occupation and for some other principals to experience an increasing level of discomfort with this occupation (Spurk et al., 2019). However, for most principals, previous research suggests that changes are unlikely to be particularly quick or pronounced (Houle et al., 2020; Salzmann et al., 2018; Spurk et al., 2019). From this perspective, we propose the following hypothesis:

Hypothesis 1. At least four profiles will be identified reflecting *Slowly Increasing*, *Slowly Decreasing*, *Moderate to High*, and *Low* AOC trajectories.

The Self-Equilibrium Hypothesis and State-Like Within-Profile Fluctuations

Closely connected to SDT from its inception, the self-equilibrium hypothesis (Morin et al., 2013, 2017; Mund & Neyer, 2016) highlights the importance for individuals to achieve a form of balance or equilibrium with their environment to experience life positively (e.g., Ryan & Deci, 2017). From this perspective, the presence of a strong core sense of identity that remains stable over time is assumed to represent a key indicator of whether individuals have achieved this balance (Morin et al., 2013, 2017). More precisely, this hypothesis expects that more desirable trait-like trajectories (e.g., higher or increasing levels of AOC over time) should be closely associated with higher levels of stability in these trajectories (as expressed by smaller time-related fluctuations around participants' global "trait-like

levels), consistent with the idea that these trajectories reflect a process of ongoing adaptation to a well-internalized occupational situation. In contrast, less desirable trait-like trajectories (lower or decreasing levels of AOC over time) should also display more pronounced state-like fluctuations, consistent with an occupational environment that has not yet been fully internalized into a strong sense of professional identity. Although this hypothesis has traditionally been investigated in relation to adolescents (Morin et al., 2013, 2017) or adults (Mund & Neyer, 2016) self-concepts, emerging evidence suggests that it might also apply to job burnout, another construct known to be closely related to one's sense of professional identity (Gillet et al., 2022). As such, the self-equilibrium hypothesis appears to be highly relevant to the consideration of AOC, as conceptualized as a core component of employees' professional identity (Meyer et al., 2006) involved in goal-directed behavior (Meyer et al., 2004), to help explain how different school principals come to internalize their role.

GMA make it possible to achieve a state-trait disaggregation of school principals' dynamic trajectories of AOC, where the shape of these trajectories (*Slowly Increasing*, *Slowly Decreasing*, *Moderate to High*, and *Low*) reflects evolution occurring at the trait-level. Beyond these individual trait-like trajectories, GMA also estimate the extent to which principals' time-specific levels of AOC deviate from their own trait-like AOC trajectory (Morin et al., 2013, 2017). These state-like deviations (i.e., the within-profile time-specific residuals) reflect the extent to which time-specific circumstances, perceptions, emotions, or interpretations may lead principals to experience temporarily higher, or lower, levels of AOC than would be expected by the consideration of their own trait-like trajectories. Moreover, these levels of state-like deviations can themselves differ across profiles. As such, state-like deviations can be used as statistical evidence for, or against, the self-equilibrium hypothesis. From the perspective adopted so far, which positions AOC as a core component of school principals' occupational identity reflecting a high level of internalization, we propose that:

> **Hypothesis 2.** Profiles characterized by higher trait-like levels of AOC levels across time points will also be characterized by smaller time-specific residuals around their expected trajectory (i.e., less time-specific state-like fluctuations).

A Construct Validation Perspective

Although person-centered analyses can be used in both a confirmatory (i.e., anchored in specific hypotheses, as in the present study) or exploratory manner, they remain methodologically exploratory in nature (requiring the comparison of alternative solutions including differing numbers of profiles) (Morin et al., 2018). This exploratory nature makes it particularly important to document the construct validity of extracted GMA profiles by verifying their associations with theoretically relevant predictors and outcomes (Meyer & Morin, 2016; Morin et al., 2018). This verification makes it possible to document the construct validity of these profiles, and thus to ensure that they do not simply reflect a methodological abstraction emerging as a result of random sampling variations.

In GMA, two distinct layers of predictive relations can be investigated. On the one hand, time-invariant predictions can be tested whereby the initial levels of the predictors are used to predict the trait component of the AOC trajectories (i.e., principals' likelihood of membership into the various profiles, as well as the initial levels and rate of change of their individual AOC trajectories). In contrast, time-varying predictions can also be tested whereby the role of time-specific levels on each of the predictors can be used to predict time-structured fluctuations in principals' levels of AOC at each specific time point. In simpler terms, whereas the first component (time-invariant) represents the effects of the predictors on the trajectories themselves, the latter component (time-varying) seeks to explain why individuals deviate from their trajectory at any given point in time (i.e., the predictors are used to predict the time-specific residuals, which reflect state-like deviations from participant's trajectories). These distinctions are important, as they make it possible to differentiate predictors likely to have a lasting effect on principals AOC trajectories (i.e., time-invariant) relative to those that are only likely to be useful as a short-term fix to temporarily improve AOC levels (i.e., time-varying). Although associations involving outcomes are tested in a slightly different manner in GMA, they also differentiate associations between the profiles and the outcomes that are stable over time, versus those that fluctuate as a function of the shape of principals' AOC trajectories.

Need Satisfaction as Drivers of AOC Trajectories

OIT/SDT (Deci & Ryan, 2000; Ryan & Deci, 2017) posits that the process of internalization whereby an activity (such as the occupation) becomes integrated into one's professional entity (such as through the emergence of AOC; e.g., Gagné & Howard, 2016; Meyer et al., 2004) will be substantially

driven by the extent to which the occupational environment is able to satisfy employees' basic psychological needs. According to OIT/SDT (Ryan & Deci, 2017), these basic psychological needs entail relatedness (e.g., positive relationships with colleagues), competence (e.g., feeling confident about one's ability to perform their work), and autonomy (e.g., feeling of having control over one's work). From this perspective, we consider the role played by three work-related characteristics likely to be closely connected to participants' needs for relatedness (i.e., the quality of their relationships with the school personnel), competence (i.e., their managerial self-efficacy), and autonomy (i.e., their sense of professional autonomy) as possible predictors of AOC profiles and trajectories.

Autonomy. As a work condition, OIT/SDT defines autonomy as the extent to which employees experience a sense of being in control and have the ability to make their own decisions (Deci et al., 2017; Gagné & Deci, 2005). Autonomy might be even more important for managers, such as school principals, who have to lead their organization, mainly on their own, while having to navigate the constraints inherent in governmental policies and school board decisions. Relatively old meta-analytic evidence supports the presence of a positive association between employees' levels of autonomy and AOC (Lee et al., 2000), although this result is limited to cross-sectional studies. More recent studies have also demonstrated that fostering autonomy supportive work conditions may help to foster career commitment (Littman-Ovadia et al., 2013; Mabekoje et al., 2017), organizational commitment among various types of employees (Galletta et al., 2011; Holliman et al., 2021; Labrague et al., 2018; Sisodia & Das 2013, Van den Broeck et al., 2010) including school principals (Chang et al., 2015), and occupational commitment (Giffords, 2009; Satoh et al., 2017). Unfortunately, these results also remain cross-sectional. Nevertheless, from the perspective of OIT/SDT, these associations should be maintained longitudinally so that principals' sense of professional autonomy should help promote higher AOC trajectories (i.e., trait-like levels), whereas time-specific increases in their levels of autonomy should lead to time-specific increases in AOC levels (i.e., state-like fluctuations).

Hypothesis 3. (a) Higher initial levels of professional autonomy will predict membership into the *High* profile relative to all other profiles, and into the *Slowly Increasing* profiles relative to the *Low* and *Slowly Decreasing* profiles. (b) Higher initial levels of professional autonomy will predict higher initial levels (i.e., intercept factor) and higher increases over time in AOC levels (i.e., slope factor) in all profiles. (c) Higher time-specific levels of school principals' professional autonomy will predict state-like increases in AOC levels relative to their estimated trajectories (i.e., state-like fluctuations around one's trait-like trajectory).

Interpersonal Relationships with the Personnel. The ability to share positive social relationships at work has long been acknowledged as a core driver of relatedness satisfaction (Deci et al., 2017; Gagné & Deci, 2005; Ryan & Deci, 2017). Although research regarding the links between the quality of social relationships and AOC are still lacking, research has generally supported the role of this factor in the prediction of higher levels of affective commitment to the organization (Epitropaki, & Martin, 2005; Greguras & Diefendorff, 2009; Van den Broeck et al., 2010). Of direct relevance to our study, Houle et al. (2020) demonstrated positive association between the quality of school principals' relationships with other school managers and their likelihood of membership in more desirable occupational commitment profiles. This observation led them to suggest that future research should devote more attention to other types of social relationships, such as those shared between school principals and their personnel. This study thus expands upon Houle et al.'s (2020) results to consider the role played by the quality of social relationships shared between school principals and their personnel. Like for autonomy, OIT/SDT lead us to expect that:

Hypothesis 4. (a) More positive initial relationships with the school personnel will predict membership into the *High* profile relative to all other profiles, and into the *Slowly Increasing* profile relative to the *Low* and *Slowly Decreasing* profiles. (b) More positive initial relationships with the school personnel will predict higher initial levels and higher increases over time in AOC levels in all profiles. (c) Higher time-specific levels of school principals' quality of relationships with the school personnel will predict state-like increases in AOC levels relative to their estimated trajectories (i.e., state-like fluctuations around one's trait-like trajectory).

Managerial Self-Efficacy. Self-efficacy refers to individual's self-perceptions of their own ability to successfully complete specific tasks or to adequately play specific roles (Bandura, 2007), and is an important indicator of the extent to which one's need for competence is fulfilled in that context (Ryan & Deci, 2017). For school principals, managerial self-efficacy directly refers to their self-perceived

ability to successfully apply their competencies to manage their schools by adequately performing their administrative duties, providing instructional leadership to the personnel, and managing external relationships (e.g., Federici & Skaalvick, 2011; Fernet, 2011; Smith & Guarino, 2006; Tschannen-Moran, & Gareis, 2009). Meta-analytic evidence supports the presence of positive associations between self-efficacy and AOC among teachers (Chestnut & Burley, 2015), as well as between self-efficacy and affective commitment to the organization among members of other professional groups (Meyer et al., 2002; Rigotti et al., 2008). Houle et al. (2020) also highlighted the importance for future research to account for the impact of more proximal, or personal, indicators of need satisfaction, such as managerial self-efficacy, as possible drivers of commitment among school principals. We pursue this recommendation by testing the following hypothesis, aligned with OIT/SDT:

> **Hypothesis 5.** (a) Higher initial levels of managerial self-efficacy will predict membership into the *High* profile relative to all other profiles, and into the *Slowly Increasing* profile relative to the *Low* and *Slowly Decreasing* profiles. (b) Higher initial levels of managerial self-efficacy will predict higher initial levels and higher increases over time in AOC levels in all profiles. (c) Higher time-specific levels of school principals' managerial self-efficacy will predict state-like increases in AOC levels relative to their estimated trajectories (i.e., state-like fluctuations around one's trait-like trajectory).

AOC Trajectories: Implications for Burnout, Job Satisfaction, and Turnover Intentions

At the core of OIT/SDT (Ryan & Deci, 2017) is the proposition that individuals who achieve a greater level of internalization of their occupational role into their professional identity (as expressed by higher levels of AOC; e.g., Gagné & Howard, 2016; Meyer et al., 2004) should experience higher levels of psychological health and well-being, an idea also consistent with commitment theory (e.g., Meyer & Maltin, 2010). Supporting this proposition, research has demonstrated that higher levels of AOC tended to be associated with higher levels of psychological well-being at work, as operationalized by a variety of indicators, including higher levels of job satisfaction and lower levels of burnout or turnover intentions (Cooper & Viswesvaran, 2005; Lee et al., 2000; Meyer & Maltin, 2010). These outcomes thus seem to be natural candidates to verify the theoretical conformity and construct validity of the AOC trajectory profiles, which are hypothesized to represent differing degrees of internalization of the school principal occupation into one's professional identity.

Burnout. Burnout is a multidimensional syndrome whose core components encompass feelings of emotional exhaustion and cynicism (or depersonalization), and that is assumed to emerge as a result of prolonged exposure to work-related strain (Demerouti & Bakker, 2008; Maslach et al., 2001; Schaufeli, 2021). Burnout is typically conceptualized as a negative component of psychological well-being at work, indicating that employees suffering from burnout no longer have the capacity, or the desire, to invest efforts in their work (Bakker & de Vries, 2021). Burnout is theoretically assumed to develop in sequence, following a prolonged state of stress that has the effect of depleting employees' emotional resources (Leiter & Maslach, 2004; Maslach et al., 2001). A state of emotional exhaustion is assumed to occur first, followed by a sense of cynicism (i.e., interpersonal detachment from one's work) which is assumed to emerge as a way to protect oneself from job demands seen as increasingly unrealistic (Leiter & Maslach, 2004; Maslach et al., 2001). As a result of these manifestations, employees' progressively come to feel unable to adequately complete their work-related activities, leading to a widespread array of negative consequences (Byrne, 1993; Leiter & Maslach, 2004; Maslach et al., 2001). Importantly, although early conceptualizations of burnout suggested that it might also be relevant to consider employees' reduced sense of professional efficacy as a third core components of burnout (Maslach et al., 2001), more recent evidence has rather demonstrated that this component was conceptually and empirically distinct from burnout (Nadon et al., 2022; Sandrin et al., 2022; Schaufeli & Taris, 2005). As a result, and to minimize possible overlap with our measure of managerial self-efficacy, we do not consider this third component in the present study.

In the current study, failure to develop and maintain satisfactorily high AOC levels (i.e., reflecting a low level of internalization) is hypothesized to stem from the inability of this occupation to satisfy school principals' basic needs over a prolonged period of time, and is thus likely to lead to persistent levels of emotional exhaustion and cynicism. Although relatively rare, research has supported the presence of negative cross-sectional associations between AOC and burnout components among various types of employees (e.g., Cohen, 1998; Lee et al., 2000; Miller et al., 1990; Yeh et al., 2007), and demonstrated that profiles of teachers experiencing high levels of AOC tended to present lower levels

of burnout (Morin et al., 2015; Meyer et al., 2019). However, and contrary to their expectations, Sawhney et al. (2020) also found that higher levels of AOC tended to be associated with higher levels of burnout among nurses exposed to a higher number of stressful work-related events. According to the authors, employees highly invested in their occupation may thus be more vulnerable to burnout following the accumulation of stressful work-related events, perhaps because these stressors interfere with the ability to fully engage in their occupation. However, Sawhney et al. (2020) still reported that burnout levels remained the highest among nurses characterized by low levels of AOC. In the present study, we expand on these previous studies by adopting a longitudinal perspective. In accordance with OIT/SDT, we thus hypothesize that:

Hypothesis 6: Time-specific measures of emotional exhaustion and cynicism will be lower in profiles characterized by higher AOC at the matching time point, and higher in profiles characterized by lower AOC at the matching time point.

Job Satisfaction. As another component of employees' emotional well-being at work (Diener, 2000; Ryan & Deci, 2001), job satisfaction is typically defined as a desirable emotional state emerging from the positive appraisal of one's work reality (e.g., Locke, 1976). In the current study, school principals who manage to develop and maintain high levels of AOC, reflecting a higher level of internalization of their occupation into their professional identity, can be expected to find more enjoyment in their occupation, and thus higher levels of job satisfaction. Extensive research evidence supports the presence of positive associations between AOC and job satisfaction (Cooper & Viswesvaran, 2005; Lee et al., 2000), and emerging research also indicates that profiles of teachers (Meyer et al., 2019) and school principals (Houle et al., 2020) displaying higher AOC tend to show higher levels of job satisfaction. Building on these considerations, we thus hypothesize that:

Hypothesis 7: Time-specific measures of job satisfaction will be higher in profiles characterized by higher AOC at the matching time point, and lower in profiles characterized by lower AOC at the matching time point.

Turnover Intentions. Employees' intentions to leave their occupation has long been considered to be the key focal outcome of AOC (Lee et al., 2002; Meyer & Herscovitch, 2001). Indeed, the construct of commitment was initially proposed to explain retention (e.g., Meyer & Allen, 1991; Meyer et al., 1993). From the perspective of OIT/SDT, higher levels of internalization of an occupation into one's professional identity should also lead to substantial decrease in one's desire or intentions to leave this occupation (e.g., Gagné & Howard, 2016). Ample research evidence supports the existence of negative associations between AOC and turnover intentions (Cooper & Viswesvaran, 2005; Lee et al., 2000). Likewise, person-centered research also supports the idea that profiles of employees (Morin, Morizot et al., 2011), teachers (Morin et al., 2015; Meyer et al., 2019), and school principals (Houle et al., 2020) characterized by higher levels of AOC tend to report lower turnover intentions. Building on these considerations, we thus hypothesize that:

Hypothesis 8: Time-specific measures of turnover intentions will be lower in profiles characterized by higher AOC at the matching time point, and higher in profiles characterized by lower AOC at the matching time point.

The Present Study

From a conceptualization of AOC as a core motivational driver reflecting the extent to which an occupation has become internalized into one's professional identity, we rely on OIT/SDT to investigate school principals' AOC trajectories. We first seek to identify which quantitatively and qualitatively distinct profiles will best characterize school principals' trait-like AOC trajectories. Second, we investigate whether these trait-like trajectories possess self-equilibrium properties aligned with their representation as a core component of one's professional identity. Third, given their natural link with the satisfaction of the basic psychological needs for autonomy, relatedness and competence, we investigate the role played by principals' sense of professional autonomy, relationships with the school personnel, and managerial self-efficacy in the prediction of their AOC trajectories at the trait and state level. Finally, we document the role of these AOC trajectories in relation to principals' levels of job satisfaction, turnover intentions, and burnout.

Method

Sample and Procedures

An invitation letter was sent to all members of the Quebec Federation of School Principals (N = 2400). This letter presented the goals of the research and included a link to the online survey. A total of

441 school principals (18.38%) completed the first wave of data collection in June 2008. A first follow up invitation was sent to all members of the list in October 2008 (Wave 2), leading to a response rate of 415 at Wave 2 (17.29%). Finally, every school principal who participated at Wave 1 and/or 2 was sent to additional follow up invitations in June 2009 (Wave 3) and June 2010 (Wave 4). These follow up questionnaires were completed by 364 school principals at Wave 3, and 262 Wave 4. In total, 661 school principals (M_{age} = 44.94; SD_{age} = 7.19), including 42% males and 58% females, participated in at least one wave of data collection. On average, participants had 6.19 years of tenure (6 months to 38 years; SD = 4.90) in this function, were principals in schools including 69.67 employees (SD = 47.17) and rated the SES of their schools (on a 1 to 3 scale) 1.72 (SD = .70). In terms of education, 0.6% reported having obtained an undergraduate university degree, 25.6% a diploma higher than an undergraduate degree, 46% a master's degree, and 27.8% a doctorate degree.

Measures

All questionnaires were administered in French.

AOC. AOC was assessed using the relevant subscale from Meyer et al.'s (1993) questionnaire adapted and validated in French by Stinglhamber et al. (2002). This scale included six items (α_{t1} = .830; α_{t2} = .821; α_{t3} = .835; α_{t4} = .840; e.g., *I am proud to be in this occupation*), rated on a 5-point scale (1 = Completely Disagree to 5 = Completely Agree).

Autonomy. Participants' sense of professional autonomy was measured using a 5-item scale (α_{t1} = .793; α_{t2} = .738; α_{t3} = .772; α_{t4} = .780; e.g., *I have control over how I do my work*) derived from two separate measures. The first two items originate from the French version (Brisson et al., 1998) of the Job Content Questionnaire (JCQ; Karasek, 1985) assessing decisional latitude. The last three items originate from the job control subscale of the Areas of Worklife Survey (Leiter & Maslach, 1999, 2000). The factor validity and scale score reliability internal consistency of the French version of this subscale have been previously established (Fernet et al., 2012, 2014, 2016). All items were rated on a 5-point scale (1 = Completely Disagree to 5 = Completely Agree).

Quality of Interpersonal Relationships with Personnel. To assess the perceived quality of participants' interpersonal relationships with the school personnel, we relied on a 5-item subscale (α_{t1} = .948; α_{t2} = .953; α_{t3} = .964; α_{t4} = .966; e.g., *Presently, in my relationships with other personnel, I feel appreciated*) initially developed in French by Richer and Vallerand (1998). These items were rated on a 5-point rating scale (0 = Not at All to 4 = Extremely).

Managerial Self-Efficacy. Managerial self-efficacy was assessed with a 12-item scale (α_{t1} = .835; α_{t2} = .818; α_{t3} = .851; α_{t4} = .819; e.g., *I believe I can ensure that staff achieve their work objectives*) developed specifically in French for school principals (Trépanier et al., 2012). These items were answered on a 5-point scale (1 = Completely Disagree to 5 = Completely Agree).

Burnout. Burnout was measured using two subscales from the Maslach Burnout Inventory (MBI-GS; Maslach et al., 1996; French by Bocéréan et al., 2019): (a) Emotional exhaustion (five items; α_{t1} = .894; α_{t2} = .919; α_{t3} = .920; α_{t4} = .919; e.g., *working all day is really a strain for me*); (b) cynicism (five items; α_{t1} = .714; α_{t2} = .806; α_{t3} = .787; α_{t4} = .797; e.g., *I have become more cynical about whether my work contributes anything*). All items were rated on a 7-point scale (0 = Never to 6 = Every Day).

Job Satisfaction. Participants' job satisfaction was measured using a questionnaire originally developed in French by Blais et al. (1989) to assess life satisfaction. As commonly done in previous studies (e.g., Houlfort et al. 2015), the referent for this scale was changed from "life" to "job". All five items from this measure (α_{t1} = .842; α_{t2} = .830; α_{t3} = .848; α_{t4} = .864; e.g., *I am satisfied with my job*) were rated on a 7-point scale (1 = Completely Disagree to 7 = Completely Agree).

Turnover Intentions. Intentions to leave the occupation was assessed with three items developed by O'Driscoll and Beehr's (1994; French by Fernet et al., 2015) asking whether participants thought about: (i) leaving their occupation, (ii) looking for a new occupation within the next 12 months, and (iii) looking for a new occupation within the next 3 years. An additional item was added to account for the Quebec socio-economic context at the time of data collection (i.e., *If the economic context was favorable, I would actively seek a new occupation*). All four items (α_{t1} = .889; α_{t2} = .904; α_{t3} = .903; α_{t4} = .899) were rated on a 7-point scale (1 = Completely Disagree to 7 = Completely Agree).

Analyses

Model Estimation and Missing Data. All analyses were conducted using *Mplus* 8.2 Muthén & Muthén, 2018) robust maximum likelihood robust (MLR) estimator, and full information maximum likelihood (FIML) procedures to handle missing data. FIML relies on the assumption that missing data

is missing at random (MAR) and can be conditioned on all variables included in the analytical model, including the variables themselves measured at different time points in longitudinal models such as those used in this study, making FIML robust to attrition processes related to any of the variables included in the model (Enders, 2010, Graham, 2009). Research has demonstrated that FIML and multiple imputation have a similar accuracy, but that FIML should be favoured (for its computational simplicity) when large amounts of missing data (e.g., over 50%) are present (Enders, 2010; Graham, 2009). FIML made it possible to rely on the full sample of participants who completed at least one time point. These 661 participants provided a total of 1482 time-specific ratings (M=2.24 per participant), with 100 (15.13%) participants responding to all four time waves, 176 (26.63%) responding to 3 time waves, 169 (25.57%) responding to 2 time waves points, and 216 (32.68%) responding to a single time wave.

Preliminary Analyses. Factor scores from preliminary measurement models reported in the online supplements were used as profile indicators, predictors, and outcomes. To ensure that the measures were comparable over time, these factor scores were saved from invariant longitudinal models (Millsap, 2011) in standardized units with $M = 0$ and $SD = 1$. Although factor scores are not as robust to measurement errors as latent variables, they afford a partial control for unreliability and preserve the measurement structure (e.g., invariance) better than scale scores (Morin, Boudrias et al., 2016; Morin, Meyer et al., 2016). Due to the complexity of the current longitudinal analyses, separate models were estimated for AOC, for each of the predictors (autonomy, quality of interpersonal relationships with the personnel, and managerial self-efficacy), for burnout (emotional exhaustion and cynicism) and for job satisfaction and turnover intentions. Statistical fit indices for these models are reported in Table S1 of the online supplements, parameter estimates in Tables S2-S3 of the online supplements, variable correlations and reliability information in Table S4, and model fit information for additional tests of discriminant validity in Table S5 of the online supplements.

Growth Mixture Analyses (GMA). GMA are a person-centered extension of latent curve models (Bollen & Curran, 2006) seeking to identify subpopulations characterized by distinct longitudinal trajectories on a set of repeated measures (i.e., AOC in this study). GMA summarize a series of repeated measures by the estimation of random intercepts and slope factors reflecting, respectively, the initial level of the trajectories (the loadings of the time-specific measures on this factor are all fixed to 1), and the rate of change over time. To account for the possible non-linearity of these trajectories while allowing for the estimation of distinct functional shapes in each profile, we relied on a latent basis parameterization (Morin & Litalien, 2019; Ram & Grimm, 2009). Just like polynomial parameterizations (i.e., linear, quadratic), a latent basis parameterization assumes that time intervals are the same for all participants (which is the case for the present study). However, whereas polynomial parameterizations rely on time codes placed on the slope factor to reflect the passage of time, the latent basis parameterization only relies on two time codes that are independent from the true length of the time intervals. A time code of 0 is used at Time 1 to locate the position of the intercept, and a time code of 1 is used at the last time point to indicate that the slope factor reflects the total amount of change occurring within each profile over the course of the study (2 years). The remaining loadings are freely estimated and allowed to differ across profiles, so that their value reflects the proportion of the total change occurring between each adjacent time points, making it possible to estimate non-linear trajectories differing in shape across profiles (Morin & Litalien, 2019).

Statistical recommendations are that all GMA parameters (i.e., intercept mean and variance, slope mean and variance, intercept and slope covariance, time-specific residuals) should, ideally, be freely estimated in all profiles (Diallo et al., 2017; Morin, Maïano, et al., 2011). However, this is not always possible (e.g., non-converging or improper solutions), especially with sample sizes lower than 1000 (Diallo et al., 2017). When this happens, as in the present study, equality constraints should be progressively implemented across profiles on distinct subsets of model parameters to achieve a more parsimonious solution (Diallo et al., 2017; Morin & Litalien, 2019). We thus relied on the Mplus default parameterization, setting the latent variance-covariance matrix to be equal across profiles, but allowed the time-specific residuals to be freely estimated across time and profiles.

GMA including 1 to 8 profiles were estimated, using 10000 random sets of start values, 500 iterations, and 1000 final stage optimizations (Hipp & Bauer, 2006). To determine the optimal number of profiles, we considered their theoretical adequacy, meaningfulness, and the following statistical indicators (Marsh et al., 2009; Muthén, 2003): (i) the Akaïke Information Criterion (AIC), (ii) the Consistent AIC (CAIC), (iii) the Bayesian Information Criterion (BIC), (iv) the sample-size Adjusted

BIC (ABIC), (v) the adjusted Lo, Mendel and Rubin's (2001) Likelihood Ratio Test (aLMR), and (iv) the Bootstrap Likelihood Ratio Test (BLRT). Lower values for the AIC, CAIC, BIC, and ABIC value suggest a better-fitting solution. A statistically significant aLMR and BLRT supports a *k*-profile solution relative to a *k-1*-profile solution. Finally, the entropy provides a summary of classification accuracy (ranging from 0 to 1) for the assignment of cases to their respective profiles. The Mplus syntax used to estimate the final latent basis GMA, as well as subsequent models incorporating predictors and outcomes, are reported at the end of the online supplements.

Predictors and Outcomes of Profile Membership. Predictors were integrated to the final model in a sequence proposed by Diallo et al. (2017). First, we tested whether demographics (age, tenure, sex, highest educational degree, school's socio-economic status, and number of school personnel) were relevant to include as time-invariant predictors (TIP). We first specified a null effects model in which the effect of these controls on the likelihood of membership into the various profiles, as well as on the growth (intercept and slope) factors were constrained to be 0. Second, the demographics were allowed to predict profile membership. Third, the demographics were allowed to freely predict the intercept factor. Fourth, the demographics were allowed to predict both growth factors (intercept and slope). Finally, the last two models were re-estimated allowing for these effects to vary across profiles.

This sequence was then repeated for the Wave 1 predictors (autonomy, quality of interpersonal relationships with the personnel, and managerial self-efficacy), specified as TIP. Using the most optimal model from this sequence, we then added the remaining time-specific predictors (Waves 2 to 4) to estimate their role as time-varying predictors (TVP). We first estimated a null effects model in which all relations between the TVP and within-profile time-specific AOC levels were constrained to be 0. Second, the effects of the TVP on the repeated AOC measures were constrained to equality across time and profiles. Third, the effects of the TVP were allowed to vary across profiles but not across time points. Fourth, the effects of the TVP were allowed to vary across time points but not across profiles. Finally, the effects of the TVP were allowed to vary across time points and profiles. We compared the fit of these alternative models using the aforementioned information criteria (AIC, CAIC, BIC, ABIC) to select the optimal solution (Diallo et al., 2017; Morin, Meyer et al., 2016).

Finally, for the outcomes, we used a model-based weighted ANOVA approach (Bakk & Vermunt, 2016) implemented via the Auxiliary (BCH) function (Asparouhov & Muthén, 2015) to compare the time-specific outcome levels observed across each of the profiles. More specifically, at each time point, mean differences in outcome levels were contrasted across the profiles to determine whether, on average, individuals assigned to different AOC profiles also differed in a statistically significant manner on the time-specific outcome measures.

Results

The results from the alternative GMA solutions are reported in the top of Table 1. Although the aLMR nor the BLRT failed to converge on a solution, all four information criteria (AIC, CAIC, BIC, ABIC) reached their lowest value for the 5-profile solution. Inspecting this solution and the adjacent 4- and 6- profile solutions supported the value of adding a fifth profile (corresponding to Profile 4 in Figure 1), whereas the addition of a sixth profile resulted in the estimation of an empty profile. The five-profile solution was thus retained and is graphically illustrated in Figure 1[1]. The estimates from this solution are reported in Table 2. Classification accuracy is reported in Table 3 and is quite high, ranging from .712 to .956, matching the high entropy value associated with this solution (.745).

The first profile characterized 18.5% of the sample displaying *High* levels of AOC at the beginning of the study (.418 *SD*) showing slight, but negligible (+.124 *SD*) increases over the course of the study. Profile 2 characterized 27.8% of the sample displaying *Moderately High* levels of AOC at the beginning of the study (.293 *SD*) showing a slight, but again negligible (-.061 *SD*) decreasing tendency over the course of the study. Profile 3 characterized 13.6% of the sample displaying close to average levels of AOC at the beginning of the study (i.e., the intercept of .165 did not differ from the sample mean of 0 in a statistically significant manner) showing a *Slowly Increasing* tendency over the course of the study (+.344 *SD*). Looking at the freely estimated loadings (i.e., time codes) reported in Table 2 for Time 2 and Time 3 in this profile, we can tell that 32.1% of the total increase observed in this profile occurred by Time 2, and 95.6% of that total increased occurred by Time 3 (midway through the study). Another

[1] The profile indicators (repeated AOC measures) are factor scores estimated in standardized units (*M*= 0, *SD* = 1) in a longitudinally invariant model and are interpretable in SD units as deviations around the sample mean.

way of viewing this result is to multiply these freely estimated loadings by the mean of the slope factor, which reflect the total amount of change observed in this profile over time. In this profile, the total amount of change occurring between Time 1 and Time 4 is of +.344 SD units; 32.1% of that total change (i.e., +.110 *SD* unit) has occurred by Time 2, and 95.6% (i.e., + .329 *SD*) has occurred by Time 3. These values can be added to the mean of the intercept factor (.165 at Time 1) to indicate the average AOC value observed in this profile at each time point: .165 at Time 1, .275 at Time 2, .494 at Time 3, and .509 (100% of the change) at Time 4. This profile thus seems to reflect a trajectory that switches from roughly average levels of AOC at the start of the study to a level comparable to that of the *High* profile 12 months into the study. Profile 4 characterized 27.7% of the sample displaying close to average levels of AOC at the beginning of the study but presenting a *Slowly Decreasing* trajectory over the course of the study (corresponding, between Time 1 and Time 4, to a total decrease of -.220 *SD* relative to the intercept of -.031), with 34.8% of this total decrease occurring by Time 2, and 105.9% of it occurring by Time 3. This means that only a negligible amount of change (corresponding to a small increase of 5.9% between Time 3 and Time 4). In relation to the intercept factor, reflecting participants estimated scores of -.031 at Time 1 in this profile, estimated scores are thus of -.108 *SD* at Time 2 (-.031 + 34.8% of -.220), -.264 *SD* at Time 3 (-.031 + 105.9% of -.220), and -.251 *SD* at Time 4 (-.031 + 100% of -.220) in this profile. This profile thus presents a switching tendency that is diametrically opposite to that observed in the *Slowly Increasing* profile, although the levels of AOC observed in this profile at the end of study remain close to the average and quite distinct from those observed in the upcoming *Very Low* profile. The last profile characterized 12.4% of the sample displaying *Very Low* levels of AOC at the start of the study (-1.286 *SD*) which remained stable over time on the average (the slope factor mean was non-statistically significant). These profiles are aligned with, and thus support, Hypothesis 1, while highlighting the need to differentiate between *High* and *Moderately High* AOC trajectories.

Finally, examination of the time-specific residuals (the state component) showed that trajectories characterized by higher levels of AOC (i.e., *High* and *Moderately High* profiles) tended to fluctuate less over time (i.e., associated with smaller time-specific residuals, respectively $M_{SD(\varepsilon yi)}$ = .096 and .059), whereas trajectories characterized by lower levels of AOC (i.e., *Low* profile) tend to fluctuate more over time ($M_{SD(\varepsilon yi)}$ = .472). In addition, the *Slowly Increasing* profile displayed decreasing time-specific residuals as AOC levels increased over time ($M_{SD(\varepsilon yi)}$ =.277 at Waves 1 and 2 and .217 at Waves 3 and 4), while the *Slowly Decreasing* profile presented the opposite tendency ($M_{SD(\varepsilon yi)}$ =.183 at Waves 1 and 2 and .246 at Waves 3 and 4). These results support Hypothesis 2.

Predictors of AOC Trajectories

Results from the alternative predictive models are reported in the middle and bottom sections of Table 1. Regarding the demographic controls, the null effects model resulted in the lowest value on all information criteria (AIC, CAIC, BIC, and ABIC), thus supporting the superiority of this model. An examination of the parameter estimates associated with the alternative solutions was also consistent with this conclusion. These results are consistent with a lack of effects of the demographic variables.

The results of the models including the TIP (Time 1 predictors) are consistent with an effect on the likelihood of profile membership and on within-profile variations in the value of the intercept and slope factor that was identical across profiles, as this solution resulted in the lowest value on all four information criteria (AIC, CAIC, BIC, and ABIC). TVP were thus added to this solution. These subsequent analyses were consistent with the presence of time-varying effects of the TVP on time-specific levels of AOC that were equivalent across profiles and time points, as this model resulted in the lowest values on the CAIC and BIC. An examination of the parameters estimates from the alternative models also supported this conclusion. The results from this model are reported in Table 4.

Partially supporting Hypothesis 3a, school principals who reported greater levels of autonomy were more likely to belong to the *High* (1), *Moderately High* (2), *Slowly Increasing* (3), and *Slowly Decreasing* (4) profiles relative to the *Very Low* profile (5). Failing to support Hypothesis 3b, autonomy did not predict within-profile variations in the intercepts and slopes of the trajectories. Supporting Hypothesis 3c, higher time-specific levels of autonomy were associated with time-specific increases in school principals AOC levels relative to their estimated trajectory. These results suggest that autonomy may be relevant to help school principals stay away from *Very Low* AOC trajectories, and that fluctuations in autonomy may also help to temporarily increase AOC levels.

The quality of principals' interpersonal relationships with the personnel was not associated with their likelihood of profile membership, thus failing to support Hypothesis 4a. Partially supporting

Hypothesis 4b, the quality of these relationships was associated with higher initial levels of AOC (i.e., a positive association with the intercept), but with a reduction over time in these levels (i.e., a negative association with the slope). These associations were more pronounced in relation to the intercept factor than in relation to the slope factor, suggesting that school principals reporting more positive relationships remained likely to experience higher levels of AOC over time compared to those reporting poorer relationships. Failing to support Hypothesis 4c, time-specific levels of relationship were not associated with state-like deviations from principals' AOC trajectories.

Higher levels of managerial self-efficacy were associated with a higher likelihood of membership in the *High* profile (1) and *Moderately High* profile (2) relative to the *Slowly Decreasing* (4) profile, thus partially supporting Hypothesis 5a. Partially supporting Hypothesis 5b, higher levels of managerial self-efficacy were associated with higher initial levels of AOC, but with a decrease over time in the within-profiles levels of AOC (i.e., a negative association with the slope factor). Similar to the results obtained for interpersonal relationships, the initial boost in AOC levels associated with higher managerial self-efficacy remained greater than the subsequent decrease in AOC levels associated with these higher levels. However, in this case, higher time-specific levels of managerial self-efficacy were also associated with state-like increases in principals' estimated AOC trajectory, thus supporting Hypothesis 5c.

Outcomes of AOC Trajectories

The results of the outcome comparisons are reported in Table 5, and graphically illustrated in Figures 2 to 5. These results demonstrate that the statistically significant differences observed between profiles vary across time points for some outcomes but are stable for others.

Across all time waves, emotional exhaustion was highest in the *Very Low* profile (5), followed by the *Slowly Decreasing* profile (4), and lowest in the *High* (1), *Moderately High* (2), and *Slowly Increasing* (3) profiles which did not differ from one another. In contrast, associations between profile membership and cynicism differed over time. At Wave 1, cynicism was highest in the *Very Low* profile (5), followed by the *Slowly Decreasing* profile (4), and lowest in the *High* (1), *Moderately High* (2), and *Slowly Increasing* (3) profiles, matching the results obtained for emotional exhaustion. Although the pattern of results remained similar at Waves 2 to 4, the levels of cynicism observed in the *Moderately High* (2) profile became higher than those observed in the *High* (1) profile starting in Wave 2, as well as those observed in the *Slowly Increasing* (3) profile at Wave 4. These results generally support Hypothesis 6.

For job satisfaction, Figure 4 displays results that match the shape of the AOC trajectories, supporting Hypothesis 7. At Waves 1 and 2, job satisfaction was highest in the *High* (1), *Moderately High* (2), and *Slowly Increasing* (3) profiles, which did not differ from one another, followed by the *Slowly Decreasing* (4) profile (which did not differ from the *Slowly Increasing* one at Time 1), and then by the *Very Low* profile (5). At Waves 3 and 4, the pattern of results remains similar, except that job satisfaction was now higher in the *High* (1) profile than in the *Moderately High* (2) profile, a tendency that was maintained at Wave 4. At Wave 4, job satisfaction levels observed in the *Slowly Increasing* (3) profiles also became higher than those observed in the *Moderately High* (2) profile.

At Waves 1 and 2, turnover intentions were highest in the *Very Low* profile (5), followed equally by the *Slowly Decreasing* (4), *Slowly Increasing* (3), and *Moderately High* (2) profiles, and then by the *High* (1) profile (which did not differ from the *Slowly Increasing* one). By Wave 3, turnover intentions had become higher in the *Moderately High* (2) profile than in the *Slowly Increasing* (3) profile, but equivalent in the *High* (1) and *Moderately High* (2) profiles. Finally, at Wave 4, turnover intentions were still highest in the *Very Low* profile (5), followed equally by the *Moderately High* (2) and *Slowly Decreasing* (4) profile, and lowest in the *High* (1) and *Slowly Increasing* (3) profiles, which did not differ from one another. These changes mainly reflect the decrease in turnover intentions between Waves 2 and 3 in the *Slowly Increasing* (3) profile. These results support Hypothesis 8.

Discussion

As an affective bond describing the relationship between employees and their occupation (Klein et al., 2012; Meyer & Herscovitch, 2001), we positioned AOC as a core indicator of the extent to which the occupation has become internalized within employees' professional identity (Gagné, & Howard, 2016; Meyer et al., 2004, 2006, 2008). Reflecting this internalization process, this dynamic bond is expected to evolve as a function of employees' adaptation to the changing nature of their occupational role and personal goals throughout the course of their career (Baltes et al., 2014; Spurk et al., 2019).

From this perspective, it is not surprising to note that AOC has repeatedly been shown to positively contribute to shape work-related attitudes, values and behaviors (Cooper-Hakim & Viswesvaran, 2005; Spurk et al., 2019; Wang et al., 2019), and to nurture psychological well-being at work (Houle et al., 2020; Meyer & Maltin, 2010). Yet, despite this generally recognized dynamic nature, longitudinal investigations seeking to understand the evolution of this construct, and inter-individual differences in the shape of this evolution, remain a rare exception.

To address this gap, this study sought to document how AOC evolves over time among well-established public school principals, a socially valued occupation typically characterized by a long occupational tenure. In doing so, we considered the shape of this evolution, the distinct subpopulations (or profiles) of school principals characterized by qualitatively distinct AOC trajectories, and whether these distinctive profiles also differed in their propensity to display more or less pronounced time-specific fluctuations in AOC levels. To better grasp the work-related drivers of these AOC trajectories, we then considered the role played by three work characteristics closely related to principals' need for autonomy, relatedness, and competence, proposed by OIT/SDT to be core drivers of the process of internalization expected to characterize AOC. Finally, we sought to document the implications of these profiles by investigating how they related to principals' levels of burnout, job satisfaction, and turnover intentions. Beyond the generic implication of our results for our understanding of AOC in general, we also highlight their relevance to the recruitment and training of public school principals, as well as to the optimization of their work conditions to help foster more desirable AOC trajectories.

Affective Occupational Commitment Trajectories

Supporting Hypothesis 1 and providing further evidence suggesting the need to account for inter-individual heterogeneity when considering AOC trajectories (Salzmann et al., 2018), we identified five profiles of school principals following qualitatively distinct AOC trajectories. Specifically, 58.7% of our sample corresponded to one of three profiles characterized by slowly evolving, or relatively stable, trajectories characterized by persistently *High* (Profile 1), *Moderately High* (Profile 2), or *Very Low* (Profile 5) levels of AOC. Based on OIT/SDT, the *High* and *Moderately High* profiles (forming 46.3% of our sample) are thought to reflect a process of complete (integration), or at least advanced (identification), internalization of the occupational role into participants' professional identity in a way that has achieved some degree of persistence over time. More precisely, these profiles suggest a strong sense of occupational identity that is resilient to most internal or external changes unfolding in the life of these principals. In contrast, the *Very Low* profile (12.4% of our sample), rather seems to describe a more controlled form of regulation whereby the occupational role is rather seen as having little value or personal meaningfulness for the principals, and thus unlikely to become an internalized part of their identity. The remaining 41.3% of our sample were rather characterized by a process of internalization that was still evolving, either *Slowly Increasing* (Profile 3) or *Slowly Decreasing* (Profile 4). These principals thus seemed to be experiencing a change in the internalization of their occupational role into their professional identity, possibly as a result of a change in the characteristics of their work, of an evolution in their values or aspirations, or of a combination of both. For some of them, these changes seem to favor a better internalization (i.e., *Slowly Increasing* AOC levels that became more stable over time), whereas for others the occupational role became increasingly discrepant with their own goals, values, and aspirations (i.e., *Slowly Decreasing* AOC levels that became less stable over time).

These results thus provide preliminary evidence of continuity and change in the AOC trajectories observed among a sample of well-established employees, thus supporting the representation of AOC as a dynamic long-term bond between employees and their occupational roles (Spurk et al., 2019). However, in this regard, it is important to acknowledge that we monitor only a short period of time within school principal's lengthy career trajectories. Replication over longer periods of time covering important career milestones (e.g., onboarding, promotions) will thus be needed to increase our understanding of AOC from a true lifespan perspective. Moreover, although we provide theoretical explanations for the psychological mechanisms underpinning the stability and malleability of AOC trajectories, our results do not clearly allow us to support these propositions, at least beyond the role of the need-nurturing work characteristics to which we will come back later. Thus, future research will be needed to further the understanding of these mechanisms.

Interestingly, the two-year time frame considered in this study made it possible to observe that the changes occurring in the *Slowly Increasing* and *Slowly Decreasing* profiles remain modest, thus supporting our assertion that changes in AOC occurs progressively among established employees

(Houle et al., 2020; Salzmann et al., 2018; Spurk et al., 2019). However, our results also suggest that this change requires an initial period (6 months) of assessment of one's changing situation, before being expressed more drastically over the next six months and stabilizing thereafter. This observation supports the idea that important changes in AOC levels can occur within a period of six months (Solinger et al., 2013), while telling us that changes do not occur out of the blue but are preceded by a six-month period of precontemplation in which smaller changes can already be observed. From an intervention perspective, this result suggests that the careful monitoring of AOC trajectories can be used to identify initial decreases in AOC levels, making it possible to intervene before the crystallization of this decrease into a less desirable trajectory.

A Self-Equilibrium Perspective on AOC Trajectories

Supporting Hypothesis 2, our results provided evidence that self-equilibrium processes (e.g., Morin et al., 2013, 2017) were at play in principals' AOC trajectories. Thus, profiles characterized by higher AOC were also characterized by less fluctuations in AOC levels, suggesting a more consistently internalized sense of professional identity that is resilient to internal or external changes. This interpretation is aligned with the theoretical recognition of AOC as a dynamic, career-long bond that, when internalized (Meyer et al., 2004), becomes engrained within one's occupational identity (Spurk et al., 2019). In contrast, when internalization is weaker, and thus when principals' engagement in their occupation tends to be less driven by a sense of emotional connection, AOC should naturally be more permeable to the influence of time-specific fluctuations in their personal or professional context (Morin et al., 2013, 2017; Ryan & Deci, 2017). In plain language, these results indicate that lower levels of AOC seem to be more contingent on internal or external circumstances relative to higher levels of AOC, showcasing the indissociable nature of AOC levels and rates of fluctuations. This link appears particularly strong, as evidenced by the fact that profiles characterized by *Slowly Increasing* or *Slowly Decreasing* AOC trajectories were also characterized by increasingly or decreasingly stable AOC levels. From a practical perspective, these results suggest that interventions seeking to increase or support AOC would also need to account for the degree of contingency, or reactivity, of AOC trajectories. This implies that punctual interventions designed to boost commitment are unlikely to be efficient in the long run unless they are designed to generate a long-term fit between principals and their occupation that will facilitate more integrated forms of internalization and to nurture the psychological skills necessary to maintain a sense of balance in relation to one's identity.

From a theoretical perspective, it is interesting to note that the self-equilibrium hypothesis has not always been supported. Indeed, tentative evidence suggests that self-equilibrium processes might be reversed when work motivation is considered, suggesting that more extreme levels of motivation (high or low) tend to fluctuate more widely over time than average levels (Gillet et al., 2018). When we consider the various constructs for which the self-equilibrium hypothesis has been previously supported (e.g., Gillet et al., 2022; Morin et al., 2013, 2017; Mund & Neyer, 2016) or not (Gillet et al., 2018), these results suggest that AOC might be better conceptualized as a self-defining construct with motivational implications rather than as a purely motivational construct. Of course this tentative interpretation awaits replication of the present results, and further investigations of the self-equilibrium hypothesis involving a greater variety of motivational and identity-related constructs.

Need-Supportive Conditions and AOC Trajectories

From the perspective of OIT/SDT, the conceptualization of AOC as an affective bond (Meyer & Herscovitch, 2001) reflecting employees' adaptation to their work context (Baltes et al., 2014; Spurk et al., 2019) through a process of internalization (Meyer et al., 2004, 2006, 2008) suggests that AOC should be impacted by the extent to which their basic needs for autonomy, relatedness and competence are supported in their occupational life (Deci & Ryan, 1985; Ryan & Deci, 2017). To verify this proposition, we considered the role played by school principals' perceptions of professional autonomy (indicative of work conditions supportive of the need for autonomy), quality of relationships with the school personnel (indicative of work conditions supportive of the need for relatedness), and managerial self-efficacy (indicative that the need for competence has been met) as predictors of AOC profiles and trajectories. Considering the trait and state components of GMA, we hypothesized that principals reporting higher levels of satisfaction of these three needs would be more likely to report more desirable AOC profiles, higher initial levels of AOC and increasing AOC trajectories, as well as to undergo short-term increases in AOC as a result of increases in their levels of need satisfaction.

Partially supporting Hypothesis 3a, principals reporting a greater sense of professional autonomy

were less likely to correspond to the *Very Low* AOC profile. However, and failing to support Hypothesis 3b, their levels of professional autonomy did not predict increases in AOC levels over time. Finally, and supporting Hypothesis 3c, principals reporting higher time-specific levels of professional autonomy were also more likely to report short term boosts in their levels of AOC. These results suggest that professional autonomy might act as a safeguard against the emergence of a *Very Low* longitudinal AOC profile among school principals, while short term fluctuations in their levels of professional autonomy might also be more directly linked to the time-specific experiences of AOC. Despite these benefits, however, professional autonomy does not appear to play a role in the differentiation of profiles characterized by moderate to high levels of AOC, nor to directly shape the evolution of AOC trajectories. From the perspective of OIT/SDT (e.g., Ryan & Deci, 2017), these results suggest that the satisfaction of the need for autonomy may help protect school principals from engaging their occupational role AOC in a purely controlled fashion, but without being sufficient to support a complete process of internalization of this role in their professional identity.

Partially supporting Hypothesis 4b, principals' reporting more positive interpersonal relationships with the personnel were more likely to display higher initial levels of AOC, although this effect partially faded over time. In revealing that principals exposed to more positive relationships tended to display higher levels of AOC, this result supports the idea that they might be particularly sensitive to the quality of their work relationships (Houle et al., 2020; Trépanier et al., 2012). The observation that these higher initial levels tended to fade over time also suggests that benefits stemming only from the need for relatedness might be hard to maintain over time when they have not been fully integrated into a strong sense of professional identity (Fernet et al., 2012). This negative association can also indicate that principals who were initially negatively impacted by their exposure to poorer relationships seemed to experience a slight increase over time in their levels of AOC. This converse perspective suggests that these principals may come to downwardly adjust their relational expectations, which may help them to partly offset the initial negative impact of their poor relationships with the school personnel. Indeed, individuals are continuously creating and adjusting their expectations about their work life (e.g., Boswell et al., 2005; Solinger et al., 2013), such as the extent to which various needs can realistically be met at work. Such expectations, when proven wrong, lead to subsequent adaptation processes via which new expectations come to be slowly formed and tested against their ever-evolving work reality. This interpretation, aligned with the idea that interpersonal relationships slowly shape AOC trajectories via a progressive adjustment of one's expectations, is consistent with the observation that interpersonal relationships did not predict membership into profiles characterized by distinct AOC trajectories (thus failing to support Hypothesis 4a). It is also consistent with the additional observation that time-specific fluctuations in interpersonal relationships levels did not result in short-term fluctuations in AOC levels (thus failing to support Hypothesis 4c).

Partially supporting Hypothesis 5a, school principals reporting higher levels of managerial self-efficacy were more likely to belong to the most desirable *High* and *Moderately High* profiles relative to the *Slowly Decreasing* one. Furthermore, principals presenting higher levels of managerial self-efficacy also tended to display higher initial levels of AOC, although these benefits also seemed to partially fade over time, thus only providing partial support to Hypothesis 5b. This last result suggests that principals seeing themselves as highly effective from the start may come to feel less positively challenged by their occupation as time goes on, leading to slight decreases in their AOC levels. However, and supporting Hypothesis 5c, time-specific increases in managerial self-efficacy were also found to be positively associated with time-specific increases in AOC levels, suggesting that continuous efforts to maintain managerial self-efficacy over time may help to circumvent this fading away of the initial benefits of managerial self-efficacy. As school principals are continuously dealing with a range of novel situations, their sense of competence is likely to be regularly tested, leading to an ongoing adaptation of their managerial self-efficacy. Some may overestimate their managerial self-efficacy and be humbled by situations revealing gaps in their competencies, whereas others may unexpectedly find themselves able to solve novel issues in a way that exceeded their expectations.

When we consider these results together, they seem to be consistent with OIT/SDT assumption that satisfaction of all three needs is required for internalization to occur (Ryan & Deci, 2017). More precisely, these results highlight the complementary role of all three needs in a way that seems to be highly relevant for intervention. Thus, from a practical perspective, interventions focused on cultivating autonomy-supportive work conditions might be particularly relevant to help school principals stay away

from the most undesirable profile (*Low*), whereas those targeting managerial self-efficacy might support the emergence of more desirable profiles (*High* and *Moderately High*) relative to profiles characterized be *Slowly Decreasing* AOC trajectories. In a complementary manner, efforts to foster a work environment allowing for the development of positive relationships with the school personnel, as well as efforts to nurture managerial self-efficacy, may be particularly relevant to nurture higher trait-like levels of AOC across all profiles. Finally, interventions seeking to achieve short term boosts in AOC levels, such as in professional development training programs or workshops, would benefit from a focus on professional autonomy and managerial self-efficacy, which can even help to offset further decreases in AOC levels occurring because of principals' habituation to their occupation over time. Thus, interventions targeting all three needs appear necessary to maximize the likelihood of experiencing the most desirable AOC profiles, characterized by higher initial levels, less pronounced decreases over time, and to achieve short terms boost over time designed to help offset habituation. In addition, our results also clearly point toward managerial self-efficacy as a possibly potent lever of intervention to nurture AOC among school principals. These results are aligned with the self-equilibrium hypothesis (e.g., Morin et al., 2013, 2017) and OIT/SDT (Ryan & Deci, 2000, 2017) in suggesting that the most potent drivers of the ability to develop and maintain a strong core sense of professional identity (as reflected in AOC) are those reflecting an internalization of the benefits afforded by need nurturing conditions, such as managerial self-efficacy.

Outcomes Implications of AOC Trajectories

From the perspective of OIT/SDT (Ryan & Deci, 2017) and commitment theory (Meyer & Maltin, 2010), higher levels of internalization, as reflected in higher levels of AOC, should be closely related to higher levels of psychological health and well-being (e.g., Meyer & Maltin, 2010). Indeed, our results revealed that principals' time-specific levels of emotional exhaustion and cynicism inversely matched profile-specific levels of AOC observed at the same time point. However, the lowest levels of emotional exhaustion were found to be equivalent among members of the three profiles characterized by the highest AOC levels (*High*, *Moderately High*, and *Slowly Increasing*), suggesting that once AOC levels are high enough to limit the risk of burnout, their benefits reach a plateau. Likewise, although associations between levels of AOC and cynicism fluctuated slightly over time, the overall pattern of association remained the same as for emotional exhaustion, with one exception. Indeed, over the course of the study, levels of cynicism came to be slightly higher among school principals corresponding to the *Moderately High* profile relative to those corresponding to the *High* (by Time 2) and *Slowly Increasing* (by Time 4) profiles, suggesting that the aforementioned plateauing may not generalize to cynicism. As cynicism refers to a state of interpersonal detachment from work (Leiter & Maslach, 2004; Maslach et al., 2001), it is likely to be experienced through a stronger symbiosis with AOC, and thus more attuned to changes occurring at higher AOC levels. Overall, these results thus support the previous observation that membership into a profile characterized by high or increasing levels of AOC seem to be accompanied by a lower risk of burnout (e.g., Morin et al., 2015; Meyer et al., 2019). However, as noted by Houle et al. (2020), so long as commitment remains driven by an emotional attachment (AOC), its benefits will not necessarily be proportional, as illustrated by the plateauing effect identified here.

Supporting Hypotheses 7 and 8, our results also revealed that profile-specific levels of AOC observed at each time point corresponded to principals' levels of job satisfaction observed at the same time point, and inversely corresponded to their turnover intentions at the same time point. These benefits were not accompanied by any plateauing effect. However, observing that the *Moderately High* and *Slowly Decreasing* profiles displayed similar turnover intentions was more intriguing, suggesting that the *Moderately High* profile may not be entirely desirable. This effect, however, could be related to the fact that the overall within-profile AOC trajectories identified in both of these profiles was characterized by slight (*Moderately High*) to more pronounced (*Slowly Decreasing*) decreasing trajectories. Indeed, individuals who experience a steady decline in their AOC levels are likely to have a more negative outlook on their occupational future, and thus to consider alternative career paths. The present study suggests that this seems to be the case irrespective of how high these decreasing levels are to begin with. Thus, although there is ample variable- (Cooper & Viswesvaran, 2005; Lee et al., 2000) and person- (Houle et al., 2020; Meyer et al., 2019; Morin et al., 2015; Morin, Morizot et al., 2011) centered evidence indicating negative associations between AOC and turnover intentions, this study is the first to demonstrate a more complex reality in which turnover intentions may be better accounted for by considering both the level of AOC, but also the shape of AOC trajectories. In contrast, job satisfaction

levels seemed to be maintained over time irrespective of this slight decrease in AOC levels, and do not seem to plateau when AOC gets higher, thus highlighting unconditional benefits of AOC in terms of job satisfaction (e.g., Houle et al., 2020; Meyer & Maltin, 2010).

When considered together, these results shed some valuable insights for the development of interventions seeking to improve AOC and psychological functioning over time. First, due to the plateauing effect characterizing the benefits of AOC in relation to burnout, interventions seeking to prevent burnout could possibly benefit from efforts to improve AOC up to the level beyond which its benefits stop rather than trying to go all the way. In this regard, our previous results suggest that nurturing professional autonomy might help principals to stay away from the least desirable AOC profiles, in turn reducing their risk of experiencing burnout. Second, special care may be taken to target employees experiencing decreasing AOC trajectories to limit the risk of losing these employees to another occupation (i.e., turnover intentions). Finally, although it may not be necessary to invest extra efforts to nurture very high levels of AOC when the focus is placed on burnout prevention, it remains important to note that any effort to increase AOC should lead to matching benefits in terms of job satisfaction. Overall, our results thus support the notion that monitoring AOC levels at any given time point is not enough to adequately capture the dynamic interplay between AOC and psychological well-being as it evolves over time, thus reinforcing the need for more intensive longitudinal studies.

Limitations and Suggestions for Future Research

Despite its strengths, this study has limitations. First, we relied on self-report measures, which are known to be vulnerable to various forms of self-report biases. It would be important for future studies to consider more objective measures, such as actual turnover data, and multiple sources of information when evaluating the quality of school principals' work context (e.g., personnel reports or observational ratings of the quality of interpersonal relationships). Second, this study is the first to rely on person-centered analyses of AOC trajectories. As such, the generalizability of our results remains tentative pending replication. Person-centered evidence is built from an accumulation of studies allowing for the identification of profiles emerging systematically, of profiles emerging in some situations or in some occupational groups, and of profiles that only seem to reflect random sampling variations (e.g., Meyer & Morin, 2016; Morin & Litalien, 2019). In this regard, it would be important for future studies to expand upon our results by considering other types of managers, more diversified samples of public and private employees, as well as a distinct or more comprehensive set of predictors (e.g., personality, work conditions, person-organization value fit) and outcomes (e.g., performance, work-life balance).

Third, this study focused on AOC, thus ignoring the other commitment mindsets (e.g., normative and continuance: Houle et al., 2020) or targets (e.g., organization, supervisor, workgroup, customers or students: Morin, Morizot et al., 2011; Perreira et al., 2018). For instance, the equivalent levels of turnover intentions observed in *Moderately High* and *Slowly Decreasing* profiles might have resulted from other mindsets, which might have helped to reduce turnover intentions in the latter profile (high levels), or to increase these intentions in the former (low levels) (Houle et al., 2020). Additional studies will be required to verify this claim, as well as to enrich our understanding of longitudinal profiles of commitment defined while encompassing multiple targets and/or mindsets.

Fourth, although our two-year time interval is a strength (i.e., allowing us to detect changes in AOC trajectories), especially when considering the scarcity of longitudinal studies focused on AOC among any type of employees, it is also a limitation when it comes to our ability to draw inferences from a lifespan, or career-long perspective. Irrespective of the time interval selected for any specific study, results are always conditioned by that time interval (Cole & Maxwell, 2000). As such, the only way to obtain a complete picture of AOC trajectories is to rely on a diversity of studies relying on different time frames, on more or less established employees, and even on employees undergoing specific life changing transitions (i.e., promotion, change in occupation, etc.). Moreover, obtaining a complete picture of AOC from a lifespan perspective will require monitoring individuals over longer time intervals, covering major career milestones. As occupational commitment is thought to evolve fairly slowly for school principals (Houle et al., 2020), it made sense to focus on a two-year time interval in the current study in attempts to capture a glimpse of their lifespan trajectories. Yet, this may not be the case when investigating other targets of commitment that theoretically fluctuate more quickly (e.g., colleagues or supervisors) or when investigating less established employees. Moreover, even with a similar timeline, the generalizability of our findings may also be limited to populations with similar occupational characteristics (i.e., top manager, lengthy tenure, restricted occupational mobility, public system), thus

reinforcing the need for replication among more diverse samples.

Conclusion

The importance of AOC as a core component of one's professional identity and as a positive binding force tying employees to their occupation has long been recognized in organizational research (Lee et al., 2000; Meyer et al., 1993). However, it is only more recently that AOC has also been positioned as a dynamic construct reflecting employees ongoing process of adaptation to their professional career (Spurk et al., 2019; Sullivan & Baruch, 2009) via a process of internalization of their occupational role into their professional identity (e.g., Gagné, & Howard, 2016). This study sought to better document this emerging representation of AOC via the theoretical lens of OIT/SDT (e.g., Ryan & Deci, 217). Supporting this dynamic, longitudinal perspective, we found that AOC trajectories matched five distinct profiles, two of which were characterized by changing AOC levels over time. These profiles also seemed characterized by self-equilibration processes (i.e., more desirable levels tended to be more stable, reflecting a stronger process of internalization) identified in research on human identity (e.g., Morin et al., 2013, 2017), suggesting that AOC might be more self-defining and represent an integrated form of internalization of occupational values with long-term benefits for psychological health. In this regard, and matching OIT/SDT, these profiles differed in relation to job satisfaction, burnout, and turnover intentions in a way that generally matched the levels of AOC observed in the profiles. However, the benefits of AOC seemed to plateau in relation to emotional exhaustion, while decreasing trajectories seemed to be a main driver of turnover intentions.

From a practical perspective, our results indicated that managerial self-efficacy might represent a core driver of more desirable AOC trajectories, while job autonomy might serve to provide both a long-term protective mechanism against the adoption of a *Very Low* AOC trajectory and temporary boosts in AOC levels. In contrast, positive relationships with the school personnel seemed to be mainly helpful for nurturing higher initial levels of AOC. However, these initial increases could not be fully sustained over time in the absence of other interventions, thus supporting OIT/SDT assertion of the importance to simultaneously support the three basic psychological needs. These results also highlight highly diverse associations between work characteristics and AOC levels, thus helping to position AOC at the nexus of employees' adaptation to their occupational career. Understanding the subtle differences between work conditions that help foster temporary versus more permanent changes in AOC would thus greatly benefit organizations and practitioners whose resources are often limited.

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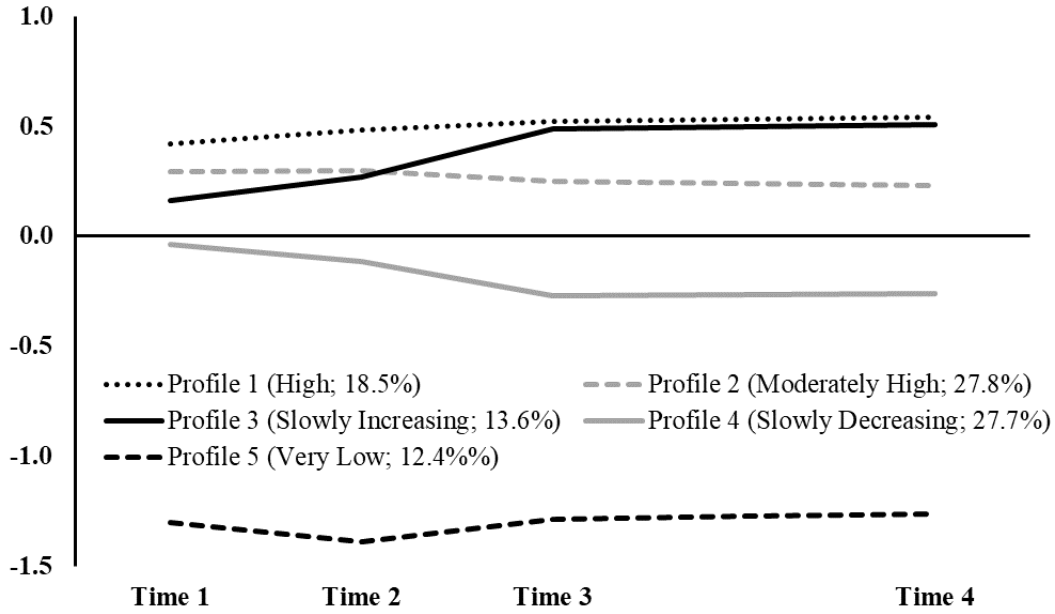

Figure 1. Final 5-Profile Solution: Affective Commitment to the Occupation Trajectories

Note. Profile indicators are factor scores with mean of 0 and a standard deviation of 1.

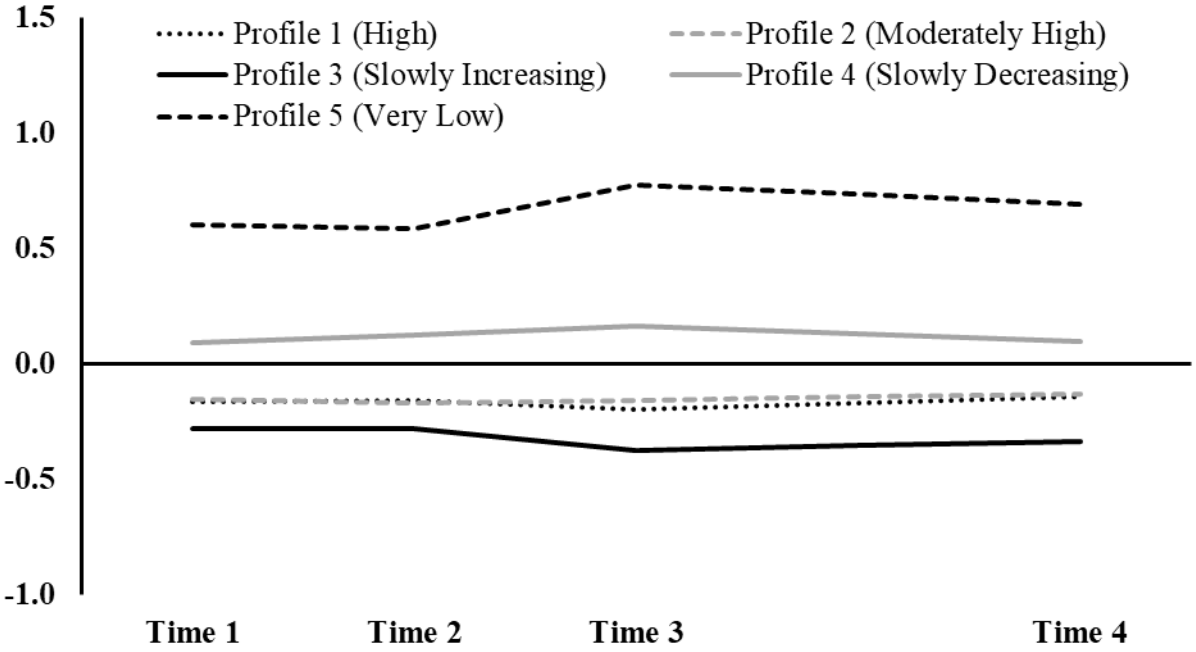

Figure 2. Emotional Exhaustion Trajectories within the Final 5-Profile Solution.

Note. Outcome indicators are factor scores with mean of 0 and a standard deviation of 1.

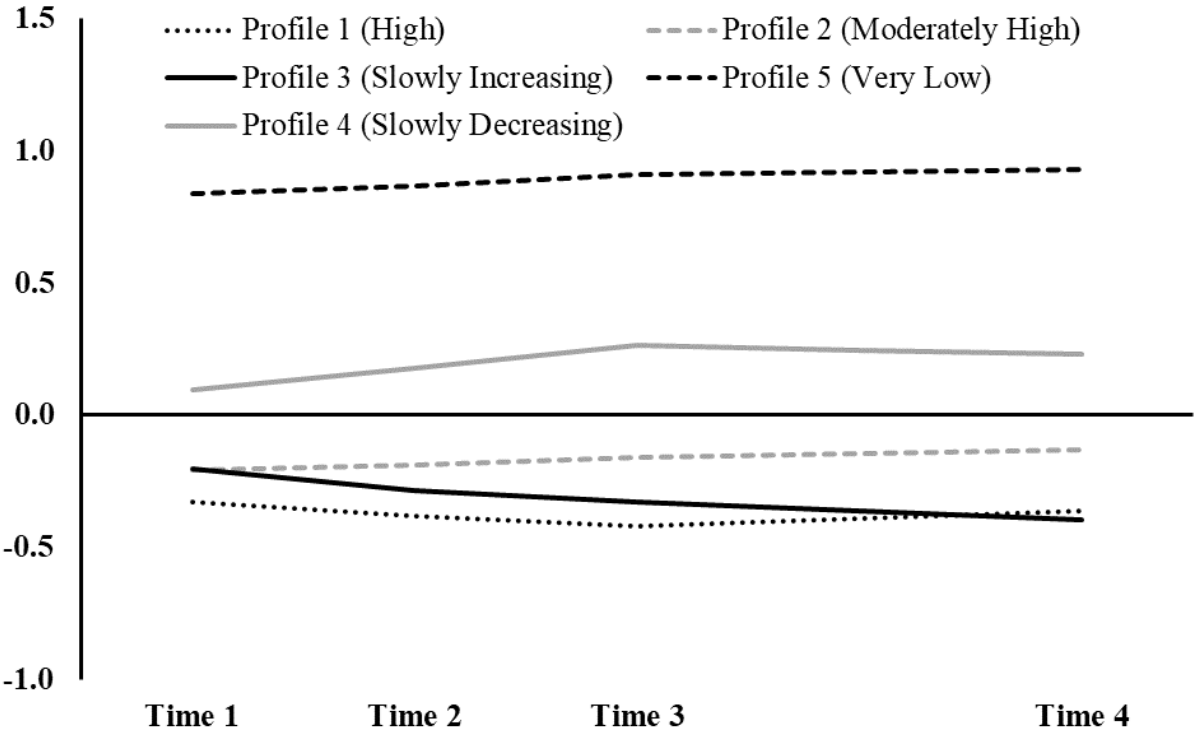

Figure 3. Cynicism Trajectories within the Final 5-Profile Solution.

Note. Outcome indicators are factor scores with mean of 0 and a standard deviation of 1

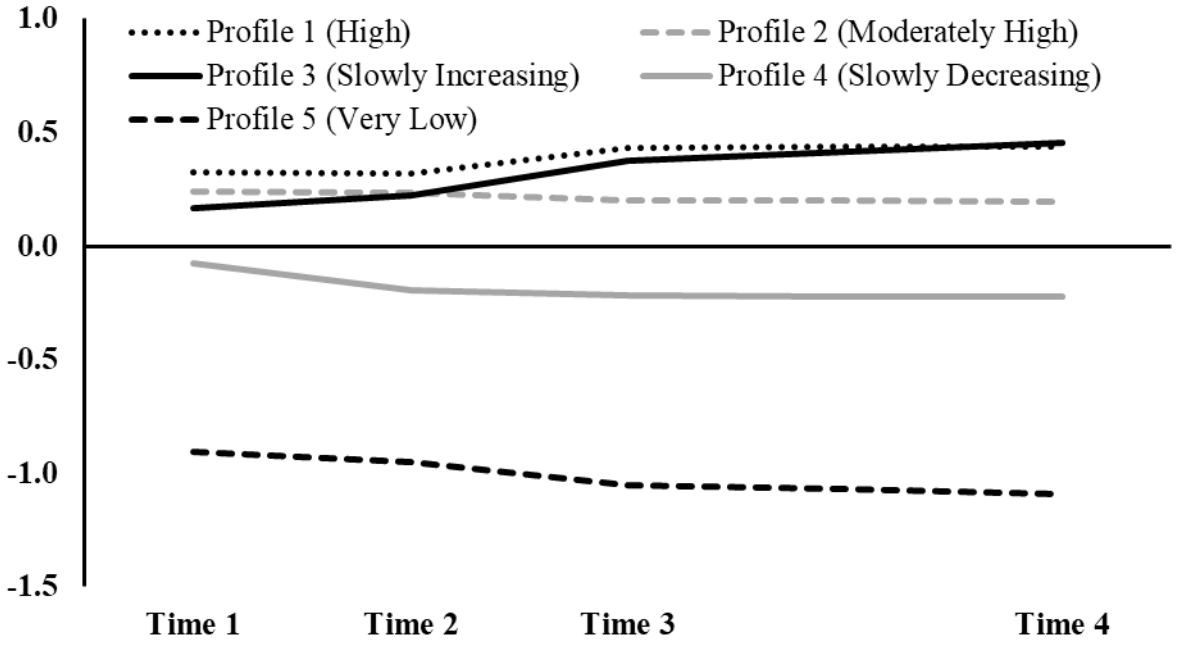

Figure 4. Job Satisfaction Trajectories within the Final 5-Profile Solution.

Note. Outcome indicators are factor scores with mean of 0 and a standard deviation of 1.

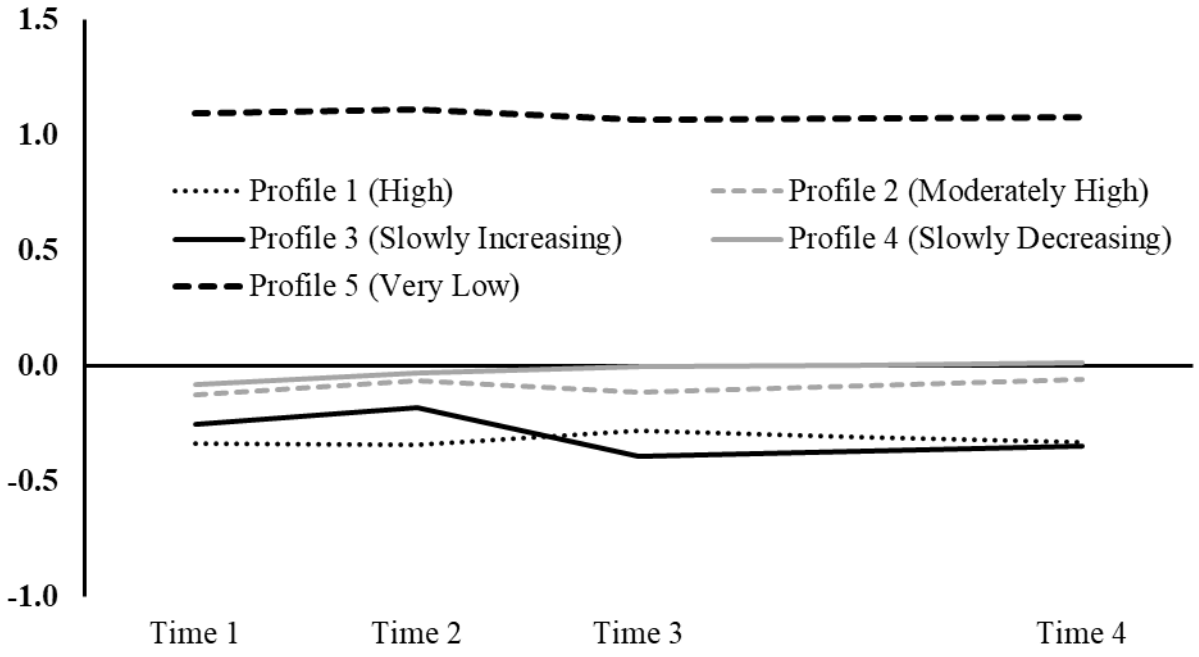

Figure 5. Turnover Intentions Trajectories within the Final 5-Profile Solution.

Note. Outcome indicators are factor scores with mean of 0 and a standard deviation of 1.

Table 1

Results from the Growth Mixture Analyses

	LogLikelihood	*#fp*	Scaling	AIC	CAIC	BIC	ABIC	Entropy	aLMR	BLRT
Unconditional Growth Mixture Analyses										
1 Class	-1328.078	11	2.455	2678.157	2738.588	2727.588	2692.662	Na	Na	Na
2 Class	-918.301	20	1.725	1876.601	1986.476	1966.476	1902.976	.759	≤ .01	≤ .01
3 Class	-787.115	29	1.299	1632.230	1791.549	1762.549	1670.473	.725	≤ .01	≤ .01
4 Class	-727.470	38	1.532	1530.941	1739.703	1701.703	1581.052	.758	≥ .05	≤ .01
5 Class	-686.300	47	1.346	1466.599	1724.806	1677.806	1528.579	.745	≥ .05	≤ .01
6 Class	-701.609	56	1.419	1515.219	1822.869	1766.869	1589.067	.727	≥ .05	≤ .01
7 Class	-696.351	65	1.070	1522.703	1879.797	1814.797	1608.420	.792	≥ .05	≥ .05
8 Class	-684.095	74	0.951	1516.191	1922.728	1848.728	1613.776	.818	≥ .05	≤ .01
Models with Time 1 Demographic Predictors										
Null Effects	-582.952	4	1.000	1173.905	1194.811	1190.811	1178.114	.739	Na	Na
Effects on C	-567.105	28	1.006	1190.211	1336.554	1308.554	1219.679	.751	Na	Na
Effects on C, I (inv.)	-562.959	34	1.006	1193.918	1371.620	1337.620	1229.701	.755	Na	Na
Effects on C, I, S (inv.)	-561.197	40	0.976	1202.394	1411.455	1371.455	1244.491	.756	Na	Na
Effects on C, I (free across profiles)	-552.232	58	1.036	1220.465	1523.604	1465.604	1281.506	.741	Na	Na
Effects on C, I, S (free across profiles)	-534.062	88	1.105	1244.124	1704.059	1616.059	1336.738	.756	Na	Na
Models with Time Invariant Predictors										
Null Effects	-687.202	4	1.000	1382.404	1404.373	1400.373	1387.673	0.744	Na	Na
Effects on C	-647.229	16	1.023	1326.457	1414.333	1398.333	1347.533	0.751	Na	Na
Effects on C, I (inv.)	-644.546	19	1.078	1327.091	1431.444	1412.444	1352.118	0.748	Na	Na
Effects on C, I, S (inv.)	-602.938	22	1.071	1249.875	1370.704	1348.704	1278.854	0.754	Na	Na
Effects on C, I (var.)	-596.119	34	1.129	1260.239	1446.975	1412.975	1305.024	0.753	Na	Na
Effects on C, I , S (var.)	-586.806	46	1.220	1265.612	1518.255	1472.255	1326.203	0.757	Na	Na
Models with Time Varying Predictors										
Null Effects	-602.938	22	1.071	1249.875	1370.704	1348.704	1278.854	0.754	Na	Na
Effects on Time & Profiles (inv.)	-555.226	25	1.284	1160.451	1297.757	1272.757	1193.382	0.754	Na	Na
Effects on Time (inv.) & Profiles (var.)	-533.844	37	1.442	1141.688	1344.901	1307.901	1190.425	0.755	Na	Na
Effects on Time (var.) & Profiles (inv.)	-550.642	34	1.272	1169.283	1356.019	1322.019	1214.068	0.754	Na	Na
Effects on Time & Profiles (var.)	-499.090	82	1.260	1162.18	1612.543	1530.543	1270.191	0.771	Na	Na

N=661; #fp: Number of Free Parameters; Scaling = scaling factor; AIC: Akaïke Information Criteria; CAIC: Constant AIC; BIC: Bayesian Information Criteria; ABIC: Sample-Size adjusted BIC; ICL-BIC: entropy-adjusted BIC; aLMR: Adjusted Lo-Mendell-Rubin likelihood ratio test; BLRT: Parametric Bootstrapped Likelihood Ratio Test. Not applicable; C: Profile membership; I: Intercept factor; S: Slope factor.

Table 2

Parameter Estimates for the Final Unconditional Growth Mixture Solution

Parameter	Profile 1 (High) Estimate (*t*)	Profile 2 (Moderately High) Estimate (*t*)	Profile 3 (Slowly Increasing) Estimate (*t*)	Profile 4 (Slowly Decreasing) Estimate (*t*)	Profile 5 (Very Low) Estimate (*t*)
Intercept mean	.418 (5.522)**	.293 (4.366)**	.165 (1.585)	-.031 (-.403)	-1.286 (-5.307)**
Slope mean	.124 (5.224)**	-.061 (-4.788)**	.344 (3.212)**	-.220 (-4.129)**	.048 (1.640)
Intercept variability (SD = √σ)	.627 (9.390)**	.627 (9.390)**	.627 (9.390)**	.627 (9.390)**	.627 (9.390)**
Slope variability (SD = √σ)	.122 (4.710)**	.122 (4.710)**	.122 (4.710)**	.122 (4.710)**	.122 (4.710)**
Intercept-slope correlation	-.078 (-7.271)**	-.078 (-7.271)**	-.078 (-7.271)**	-.078 (-7.271)**	-.078 (-7.271)**
Loading Time 1 (λ_{1k})	0 (NA)	0 (NA)	0 (NA)	0 (NA)	0 (NA)
Loading Time 2 (λ_{2})	.532 (7.158)**	-.102 (-.901)	.321 (2.204)*	.348 (3.492)**	-1.657 (-4.616)**
Loading Time 3 (λ_{3k})	.854 (5.727)**	.715 (29.693)**	.956 (6.408)**	1.059 (7.296)**	.310 (.557)
Loading Time 4 (λ_{4k})	1 (NA)	1 (NA)	1 (NA)	1 (NA)	1 (NA)
SD(εyi)_T1	.095 (3.618)**	.126 (5.696)**	.270 (1.297)	.179 (2.581)**	.505 (5.309)**
SD(εyi)_T2	.000 (.110)	.045 (1.680)	.283 (3.147)**	.187 (2.781)**	.032 (1146.322)**
SD(εyi)_T3	.148 (2.743)**	.032 (1.632)	.210 (3.069)**	.295 (5.990)**	.643 (4.376)**
SD(εyi)_T4	.141 (4)**	.032 (2.031)*	.224 (3.048)**	.197 (2.088)*	.707 (4.862)**

Note. t = Estimate / standard error of the estimate (t values are computed from the original variance estimate and not from the square root); SD(εyi) = Standard deviation of the time-specific residual; NA = not applicable (i.e., fixed parameter);. The square root of the estimate of variability (trajectory factor, time-specific residual) is presented so that the results can be interpreted in the same unit as the construct used in the model (here, standardized factor score with a mean of 0 and an SD of 1); * $p \leq .05$; ** $p \leq .01$.

Table 3

Classification Probabilities for the Most Likely Latent Class Membership (Column) by Latent Class (Row).

	High	Moderately High	Slowly Increasing	Slowly Decreasing	Very Low
High	.803	.109	.047	.038	.002
Moderately High	.021	.956	.005	.016	.002
Slowly Increasing	.141	.023	.712	.097	.027
Slowly Decreasing	.049	.036	.036	.841	.037
Very low	.006	.010	.033	.144	.807

Table 4

Results from the Predictive Analyses

	Profile 1 vs. Profile 5		Profile 2 vs. Profile 5		Profile 3 vs. Profile 5		Profile 4 vs. Profile 5	
Predictors	Coeff (s.e)	OR	Coeff (s.e)	OR	Coeff (s.e)	OR	Coeff (s.e)	OR
Autonomy	0.506 (.244)*	1.659	0.789 (.271)**	2.201	0.984 (.468)*	2.675	0.589 (.240)*	1.802
Relations with Personnel	0.392 (.262)	1.480	0.245 (.241)	1.278	0.301 (.295)	1.351	0.294 (.242)	1.342
Managerial Self-Efficacy	0.353 (.362)	1.423	0.189 (.316)	1.208	0.118 (.395)	1.125	-0.377 (.307)	0.686
	Profile 1 vs. Profile 4		Profile 2 vs. Profile 4		Profile 3 vs. Profile 4			
Predictors	Coeff (s.e)	OR	Coeff (s.e)	OR	Coeff (s.e)	OR		
Autonomy	-0.083 (0.166)	0.920	0.200 (.170)	1.221	0.395 (.352)	1.484		
Relations with Personnel	0.098 (.192)	1.103	-0.048 (.170)	0.953	0.007 (.241)	1.007		
Managerial Self-Efficacy	0.730 (.258)**	2.075	0.566 (.182)**	1.761	0.495 (.265)	1.640		
	Profile 1 vs Profile 3		Profile 2 vs Profile 3		Profile 1 vs. Profile 2			
Predictors	Coeff (s.e)	OR	Coeff (s.e)	OR	Coeff (s.e)	OR		
Autonomy	-0.478 (.347)	0.620	-0.194 (.314)	0.824	-0.284 (.167)	0.753		
Relations with Personnel	0.091 (.256)	1.095	-0.056 (.224)	0.946	0.147 (.193)	1.158		
Managerial Self-Efficacy	0.235 (.317)	1.265	0.072 (.242)	1.075	0.164 (.235)	1.176		
	Intercept Factor		Slope Factor		Within-Profile AOC			
Predictors	Coeff (s.e)	β	Coeff (s.e)	β	Coeff (s.e)	β		
Autonomy	0.083 (.054)	0.095	-0.017 (.011)	-0.1	0.094 (.021)**	0.103**		
Relations with Personnel	0.116 (.038)**	.136**	-0.025 (.009)**	-.149**	0.017 (.015)	0.019		
Managerial Self-Efficacy	0.093 (.049)	0.117	-0.019 (.010)	-0.124	0.031 (.010)**	0.037**		

Notes. **: $p < .01$; *: $p < .05$. Coef: Regression coefficient (these are multinomial logistic regression coefficients for the prediction of profile membership, and unstandardized multiple regression coefficients for the prediction of the intercept and slope factors); SE: standard error of the coefficient; OR: Odds ratio; β: standardized multiple regression coefficients. The multinomial logistic regression coefficients and OR reflect the predictor effects on the likelihood of membership in the bottom listed profile relative to the top listed profile; Profile 1: High; Profile 2: Moderately High; Profile 3: Slowly Increasing; Profile 4: Slowly Decreasing; Profile 5: Very low.

Table 5

Time-Varying Associations between Profile Membership and the Outcomes

	Profile 1 (High)	Profile 2 (Moderately High)	Profile 3 (Slowly Increasing)	Profile 4 (Slowly Decreasing)	Profile 5 (Very Low)	Summary of significant differences
Job Satisfaction						
Time 1	0.326	0.239	0.163	-0.065	-0.904	1 = 2 = 3 > 5; 1 = 2 > 4 > 5; 3 = 4
Time 2	0.319	0.232	0.220	-0.193	-0.950	1 = 2 = 3 > 4 > 5
Time 3	0.442	0.201	0.363	-0.219	-1.052	1 > 2 > 4 > 5; 2 = 3 > 4 > 5; 1 = 3
Time 4	0.440	0.198	0.453	-0.222	-1.090	1 = 3 > 2 > 5 > 4
Turnover Intentions						
Time 1	-0.337	-0.125	-0.249	-0.082	1.094	5 > 2 = 3 = 4; 5 > 2 = 4 > 1; 1 = 3
Time 2	-0.345	-0.065	-0.172	-0.030	1.113	5 > 2 = 3 = 4; 5 > 2 = 4 > 1; 1 = 3
Time 3	-0.279	-0.114	-0.389	-0.004	1.067	5 > 4 > 1 = 3; 5 > 2 > 3; 1 = 2; 2 = 4
Time 4	-0.335	-0.060	-0.341	0.013	1.075	5 > 2 = 4 > 1 = 3
Emotional Exhaustion						
Time 1	-0.172	-0.150	-0.266	0.090	0.600	5 > 4 > 1 = 2 = 3
Time 2	-0.163	-0.170	-0.268	0.127	0.585	5 > 4 > 1 = 2 = 3
Time 3	-0.199	-0.155	-0.370	0.167	0.778	5 > 4 > 1 = 2 = 3
Time 4	-0.145	-0.131	-0.328	0.097	0.693	5 > 4 > 1 = 2 = 3
Cynicism						
Time 1	-0.334	-0.207	-0.194	0.096	0.838	5 > 4 > 1 = 2 = 3
Time 2	-0.382	-0.188	-0.281	0.178	0.870	5 > 4 > 2 > 1; 5 > 4 > 3; 1 = 3; 2 = 3
Time 3	-0.420	-0.158	-0.322	0.263	0.912	5 > 4 > 2 > 1; 5 > 4 > 3; 1 = 3; 2 = 3
Time 4	-0.364	-0.129	-0.393	0.231	0.929	5 > 4 > 2 > 1 = 3

Note. Outcomes are time-invariant factor scores with a sample mean of 0 and an SD of 1.

Online Supplemental Material for:

Longitudinal Trajectories of Affective Commitment to the Occupation Among School Principals: A Person-Centered Perspective

Preliminary Measurement Models

To ascertain the psychometric properties of all measures, as well as their longitudinal invariance (i.e., the equivalence of their psychometric properties over time), preliminary measurement models were estimated using *Mplus* 8.2 (Muthén & Muthén, 2018). These models were estimated using the maximum likelihood robust estimator (MLR) and full information maximum likelihood (FIML) procedures to handle missing data. Due to the complexity of the current longitudinal analyses, separate longitudinal measurement models were estimated for affective commitment to the occupation, for each of the predictors (autonomy, quality of interpersonal relationships with personnel, and managerial self-efficacy), for burnout (emotional exhaustion, cynicism, and professional efficacy), and for turnover intentions and job satisfaction. In models, *a priori* correlated uniquenesses were added between matching indicators over time to avoid inflated stability estimates (e.g., Marsh, 2007).

Participants' ratings of affective occupational commitment were represented via a single confirmatory factor analytic (CFA) factor (AC) at each time point, resulting in a four-factor longitudinal CFA model (one factor per time point). An *a priori* orthogonal method factor was included to this model to account for the methodological artifact created by the negative wording of the three items from the AC subscale (e.g., Zhang et al., 2016), reversed coded prior to analyses.

Participants' ratings on the predictors were first represented via the estimation of 3 separate longitudinal CFA models (one per predictor). Two of the predictors were estimated as independent factors using CFA (i.e., autonomy, quality of interpersonal relationships with personnel), while the third predictor was estimated using a bifactor representation (Morin et al., 2016) including one global factor (managerial self-efficacy) and three orthogonal specific factors (administrative management self-efficacy, personnel management self-efficacy and external relations management self-efficacy). This approach is aligned with recent results supporting the superiority of a bifactor representation of multidimensional self-efficacy measures across domains (Cornick, 2015; Török et al., 2017). Despite our main interest in considering global levels of managerial self-efficacy (rather than specific levels of self-efficacy in different managerial tasks), the reliance on a bifactor operationalisation of this construct made it possible to control for subscale specificity in the estimation of the global factor (Morin et al., 2016, 2020).

Participants' ratings on the outcomes were estimated via two separate models, one encompassing the three dimensions of burnout (burnout: emotional exhaustion, burnout: professional efficacy, burnout: cynicism) and one encompassing job satisfaction and turnover intentions. All of these constructs were represented using a single CFA factor per time point.

Across constructs, longitudinal CFA models were used to assess the measurement invariance of the latent factors across time points (Millsap, 2011). These tests were conducted in the following sequence: (i) configural invariance (same model, with no additional constraint), (ii) weak invariance (same factor loadings), (iii) strong invariance (same factor loadings and items intercepts), (iv) strict invariance (same factor loadings, items intercepts, and items uniquenesses), (v) invariance of the latent variances and covariances, and (vi) latent mean invariance.

The discriminant validity of the constructs was investigated by contrasting a global model including all factors at Time 1 and contrasting it with alternative models in which constructs correlated with one another above .5 were combined into a single factor in a pairwise manner: (i) cynicism and affective commitment; (ii) job satisfaction and affective commitment; (iii) turnover intentions and affective commitment; (iv) managerial self-efficacy and interpersonal relationships with personnel; (v) job satisfaction and emotional exhaustion; (vi) job satisfaction and cynicism; (vii) turnover intentions and cynicism; (viii) emotional exhaustion and cynicism; and (iv) turnover intentions and job satisfaction. This sequence was repeated at Times 2, 3 and 4.

Various statistical indices are reported, including the chi-square test of exact fit (χ^2), the

comparative fit index (CFI), the Tucker-Lewis index (TLI), and the root mean square error of approximation (RMSEA) and its confidence intervals (Hu & Bentler, 1999; Marsh et al., 2005). Given the well-documented sample size dependency and oversensitivity to minor misspecifications of the χ^2, we relied on the sample-size independent goodness-of-fit indices (CFI, TLI, RMSEA) to assess model fit using common interpretation guidelines (Hu & Bentler, 1999; Marsh et al., 2005). More precisely, CFI and TLI values greater than .90 and .95 and RMSEA values smaller than .08 and .06 respectively support adequate and excellent model fit. To establish measurement invariance, common interpretation guidelines (Chen, 2007; Cheung & Rensvold, 2002) suggest that the invariance hypothesis can be considered to be supported when a model does not result in a CFI or TLI decrease greater than .01, or in a RMSEA increase than .015 when compared to the previous model.

Goodness-of-fit results for all preliminary measurement models are reported in Table S1. These results confirm the full longitudinal invariance of all constructs. All seven configural models fit the data well (CFI and TLI >.900, RMSEA < .06), and none of the subsequent models resulted in a decrease in model fit exceeding the recommended guidelines (ΔCFI $\leq$ .010; ΔTLI $\leq$ .010; ΔRMSEA $\leq$ .015). On this basis, the model of latent mean invariance was retained for each construct, and factor scores were saved from these models to use as profile indicators, predictors, and outcomes. Retaining factors from a model of latent means invariance has the advantage of resulting in factor scores which can be interpreted as a function of a mean of 0 and a SD of 1, allowing for an interpretation of scores as deviations from the sample mean in standardized units (Meyer & Morin, 2016). For the commitment measure, the support for latent mean invariance simply indicates that, across the whole sample, average levels of affective commitment to the occupation do not change over time, which is consistent with the fact that most participants were already established in their occupation.

The final parameter estimates obtained from these models of latent mean invariance are reported in Tables S2 and S3, and correlations for all variables included in the present study are reported in Table S4, alongside composite reliability coefficients (ω: McDonald, 1970). Overall, all factors were correctly defined as shown by acceptable factor loadings ($M_{|\lambda|}$ = .723) and strong composite reliability coefficients (Morin et al., 2020): (a) affective commitment ($M_{|\lambda|}$ = .652; ω = .841); (b) managerial self-efficacy ($M_{|\lambda|}$ = .527; ω = .859); (c) autonomy ($M_{|\lambda|}$ = .641; ω = .782); (d) interpersonal relationships with personnel ($M_{|\lambda|}$ = .848; ω = .959); (e) emotional exhaustion ($M_{|\lambda|}$ = .827; ω = .916); (f) professional efficacy ($M_{|\lambda|}$ = .726; ω = .871); (g) cynicism ($M_{|\lambda|}$ = .649; ω = .790); (h) job satisfaction ($M_{|\lambda|}$ = .736; ω = .856); (i) turnover intentions ($M_{|\lambda|}$ = .836; ω = .903). Analyses of discriminant validity are reported in Table S5 and support the discriminant validity of all factors, as evidenced by the substantial drop in model fit for all alternative models, across all time points.

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Table S1

Goodness-of-Fit Information for the Measurement Models

Model	df	χ^2	CFI	TLI	RMSEA	RMSEA 90% CI	$\Delta\chi^2$ (df)
Affective Commitment							
Configural	180	248.894*	.978	.966	.024	.016; .031	
Weak	201	267.311*	.979	.971	.022	.014; 029	19.878 (21)
Strong	213	279.328*	.979	.972	.022	.014; .028	11.309 (12)
Strict	231	281.688*	.984	.981	.018	.009; .025	12.422 (18)
Latent variance	237	292.679*	.982	.979	.019	.010; .026	10.394 (6)
Latent means	243	298.301*	.982	.980	.019	.010; .025	4.120 (6)
Managerial Self-Efficacy (global, administrative, personnel, external relations)							
Configural	864	1151.395*	.961	.948	.021	.018;.025	
Weak	924	1199.926*	.962	.954	.020	.017;.024	55.161 (60)
Strong	948	1249.135*	.959	.951	.021	.018;.024	3987.391 (24)**
Strict	984	1249.164*	.963	.956	.019	.016;.023	24.786 (36)
Latent variance	996	1334.421*	.954	.947	.022	.019;.025	115.456 (12)**
Latent means	1008	1353.311*	.953	.947	.022	.019;.025	18.979 (12)
Autonomy							
Configural	134	214.439*	.963	.948	.030	.022;.037	
Weak	146	232.682*	.960	.948	.029	.022;.036	18.333 (12)
Strong	158	249.855*	.958	.949	.029	.022;.036	16.800 (12)
Strict	173	267.258*	.957	.953	.028	.021;.035	18.372 (15)
Latent variance	176	275.325*	.955	.951	.029	.022;.035	7.883 (3)*
Latent means	179	282.317*	.953	.950	.029	.022;.035	7.590 (3)
Interpersonal relationships							
Configural	534	1493.481*	.911	.895	.051	.048;.055	
Weak	558	1515.681*	.911	.900	.050	.047;.053	23.563 (24)
Strong	582	1555.177*	.910	.902	.050	.047;.053	32.261 (24)
Strict	609	1585.191*	.909	.906	.049	.046;.052	43.409 (27)*
Latent variance	612	1598.181*	.909	.906	.049	.046;.052	13.121 (3)**
Latent means	615	1602.352*	.908	.906	.049	.046;.052	2.785 (3)
Burnout (emotional exhaustion & cynicism)							
Configural	652	1136.794*	.941	.930	.033	.030;.037	
Weak	676	1159.772*	.941	.932	.033	.030;.036	24.942 (24)
Strong	700	1191.197*	.941	.934	.032	.030;.036	31.217 (24)
Strict	730	1189.497*	.944	.941	.031	.028;.034	24.099 (30)
Latent variance	739	1201.776*	.944	.941	.031	.027;.034	12.600 (9)
Latent means	745	1208.775*	.944	.941	.031	.027;.034	6.732 (6)
Job Satisfaction and Turnover Intentions							
Configural	512	891.790*	.945	.933	.033	.030;.037	
Weak	533	917.376*	.945	.935	.033	.029;.037	27.512 (21)
Strong	554	943.104*	.944	.936	.033	.029;.036	23.266 (21)
Strict	581	954.597*	.946	.942	.031	.028;.035	29.124 (27)
Latent variance	590	969.776*	.945	.942	.031	.028;.035	15.173 (9)
Latent means	596	980.532*	.945	.942	.031	.028;.035	11.013 (6)

Note. * $p < .01$; df: degrees of freedom; χ^2 = chi-square; CFI: comparative fit index; TLI: Tucker-Lewis index; RMSEA: root mean square approximation; C.I.: 90% confidence intervals for the RMSEA, $\Delta\chi^2$: Chi-square difference test.

Table S2

Longitudinally Invariant Standardized Parameter Estimates for the Occupational Commitment, Managerial Self-Efficacy, Autonomy, and Interpersonal Relationships with Personnel Measurement Models.

	Affective Commitment		Managerial Self Efficacy		Autonomy		Interpersonal Relationships	
	λ	δ	λ	δ	λ	δ	λ	δ
Item 1	.602	.468	.603	.322	.484	.766	.785	.383
Item 2	.524	.531	.549	.575	.781	.391	.855	.270
Item 3	.685	.531	.671	.501	.678	.540	.862	.257
Item 4	.762	.419	.700	.498	.488	.762	.879	.227
Item 5	.505	.623	.571	.552	.772	.404	.850	.277
Item 6	.831	.310	.547	.569			.846	.285
Item 7			.445	.743			.820	.327
Item 8			.545	.608			.889	.210
Item 9			.533	.629			.849	.280
Item 10			.387	.764				
Item 11			.410	.337				
Item 12			.359	.475				

Note. λ: factor loading; δ: item uniqueness; All coefficients are statistically significant ($p \leq .01$).

Table S3

Longitudinally Invariant Standardized Parameter Estimates for the Emotional Exhaustion, Professional Efficacy, Cynicism, Job Satisfaction, and Turnover Intentions Measurement Models.

	Emotional Exhaustion		Cynicism		Job Satisfaction		Turnover Intentions	
	λ	δ	λ	δ	λ	δ	λ	δ
Item 1	.804	.354	.833	.306	.715	.489	.806	.351
Item 2	.821	.326	.741	.451	.686	.529	.804	.353
Item 3	.861	.259	.448	.800	.781	.390	.888	.211
Item 4	.800	.360	.532	.717	.800	.360	.845	.286
Item 5	.851	.276	.678	.540	.696	.516		

Note. λ: factor loading; δ: item uniqueness; All coefficients are statistically significant ($p \leq .01$).

Table S4

Reliability and Correlations for the Variables used in this Study

	α	ω	1	2	3	4	5	6	7	8	9	10	11	12	13
1. AC_1 (fs)	0.83	0.841													
2. SE_1 (fs)	0.835	0.859	.327**												
3. AUT_1 (fs)	0.793	0.782	.369**	.335**											
4. IRP_1 (fs)	0.948	0.959	.317**	.501**	.234**										
5. EE_1 (fs)	0.894	0.916	-.447**	-.323**	-.368**	-.351**									
6. CY_1 (fs)	0.714	0.788	-.602**	-.312**	-.357**	-.342**	.737**								
7. SAT_1 (fs)	0.842	0.856	.678**	.398**	.498**	.396**	-.568**	-.597**							
8. TI_1 (fs)	0.889	0.903	-.586**	-.191**	-.274**	-.233**	.392**	.533**	-.581**						
9. AC_2 (fs)	0.821	0.841	.947**	.335**	.356**	.313**	-.448**	-.593**	.649**	-.589**					
10. SE_2 (fs)	0.818	0.859	.311**	.870**	.312**	.464**	-.318**	-.321**	.410**	-.216**	.337**				
11. AUT_2 (fs)	0.738	0.782	.392**	.308**	.824**	.261**	-.368**	-.381**	.472**	-.303**	.412**	.351**			
12. IRP_2 (fs)	0.953	0.959	.306**	.431**	.211**	.821**	-.326**	-.330**	.344**	-.260**	.333**	.463**	.300**		
13. EE_2 (fs)	0.919	0.916	-.393**	-.277**	-.302**	-.323**	.851**	.591**	-.489**	.358**	-.435**	-.281**	-.367**	-.346**	
14. CY_2 (fs)	0.806	0.788	-.556**	-.285**	-.321**	-.347**	.658**	.834**	-.532**	.520**	-.605**	-.293**	-.423**	-.395**	.749**
15. SAT_2 (fs)	0.83	0.856	.649**	.389**	.455**	.402**	-.536**	-.570**	.886**	-.590**	.682**	.434**	.526**	.414**	-.553**
16. TI_2 (fs)	0.904	0.903	-.535**	-.152**	-.251**	-.227**	.356**	.508**	-.537**	.896**	-.564**	-.169**	-.305**	-.252**	.378**
17. AC_3 (fs)	0.835	0.841	.870**	.321**	.335**	.324**	-.420**	-.569**	.612**	-.555**	.903**	.338**	.379**	.341**	-.416**
18. SE_3 (fs)	0.851	0.859	.353**	.742**	.324**	.487**	-.336**	-.341**	.436**	-.228**	.365**	.826**	.371**	.484**	-.318**
19. AUT_3 (fs)	0.772	0.782	.383**	.274**	.759**	.242**	-.361**	-.383**	.469**	-.310**	.399**	.312**	.854**	.266**	-.339**
20. IRP_3 (fs)	0.964	0.959	.306**	.397**	.224**	.782**	-.298**	-.326**	.344**	-.232**	.313**	.444**	.291**	.833**	-.307**
21. EE_3 (fs)	0.92	0.916	-.454**	-.268**	-.323**	-.324**	.842**	.649**	-.537**	.412**	-.491**	-.286**	-.373**	-.348**	.907**
22. CY_3 (fs)	0.787	0.788	-.559**	-.283**	-.312**	-.318**	.627**	.830**	-.541**	.499**	-.589**	-.313**	-.380**	-.347**	.613**
23. SAT_3 (fs)	0.848	0.856	.623**	.337**	.406**	.380**	-.493**	-.557**	.845**	-.604**	.645**	.387**	.458**	.393**	-.498**
24. TI_3 (fs)	0.903	0.903	-.521**	-.167**	-.236**	-.232**	.348**	.486**	-.487**	.882**	-.548**	-.207**	-.296**	-.269**	.382**
25. AC_4 (fs)	0.84	0.841	.849**	.352**	.333**	.316**	-.421**	-.547**	.610**	-.561**	.905**	.356**	.386**	.336**	-.396**
26. SE_4 (fs)	0.819	0.859	.357**	.850**	.322**	.505**	-.309**	-.322**	.389**	-.234**	.370**	.821**	.326**	.484**	-.266**
27. AUT_4 (fs)	0.78	0.782	.362**	.273**	.766**	.229**	-.329**	-.349**	.456**	-.282**	.390**	.315**	.866**	.266**	-.309**
28. IRP_4 (fs)	0.966	0.959	.236**	.349**	.194**	.644**	-.247**	-.259**	.292**	-.207**	.265**	.395**	.265**	.648**	-.252**
29. EE_4 (fs)	0.919	0.916	-.408**	-.281**	-.325**	-.299**	.878**	.627**	-.517**	.379**	-.432**	-.288**	-.352**	-.311**	.876**
30. CY_4 (fs)	0.797	0.788	-.538**	-.308**	-.334**	-.310**	.664**	.812**	-.532**	.507**	-.571**	-.307**	-.397**	-.336**	.620**
31. SAT_4 (fs)	0.864	0.856	.636**	.389**	.428**	.383**	-.513**	-.550**	.850**	-.617**	.661**	.427**	.484**	.388**	-.488**
32. TI_4 (fs)	0.899	0.903	-.479**	-.153**	-.215**	-.202**	.322**	.450**	-.444**	.889**	-.515**	-.176**	-.279**	-.243**	.327**

Note: * $p < .05$; ** $p < .01$; fs = time invariant factor scores (with a mean of 0 and a SD of 1); time 1 = _1; time 2 = _2; time 3 = _3; time 4 = _4. α: alpha coefficient of scale score reliability; ω: omega coefficient of model-based composite reliability (identical across time waves due to the complete invariance of the measurement models); AC: affective commitment; SE: managerial efficacy; AUT: decisional autonomy; IRP: interpersonal relationships with personnel; EE: emotional exhaustion; CY: Cynicism; SAT: job satisfaction; TI: turnover intentions.

Table S4 (Continued 1)

	α	ω	14	15	16	17	18	19	20	21	22	23	24	25	26
15. SAT_2 (fs)	0.83	0.856	-.616**												
16. TI_2 (fs)	0.904	0.903	.569**	-.607**											
17. AC_3 (fs)	0.835	0.841	-.569**	.633**	-.521**										
18. SE_3 (fs)	0.851	0.859	-.322**	.456**	-.199**	.424**									
19. AUT_3 (fs)	0.772	0.782	-.392**	.501**	-.316**	.414**	.382**								
20. IRP_3 (fs)	0.964	0.959	-.357**	.392**	-.231**	.353**	.536**	.291**							
21. EE_3 (fs)	0.92	0.916	.751**	-.579**	.413**	-.503**	-.361**	-.393**	-.348**						
22. CY_3 (fs)	0.787	0.788	.838**	-.588**	.500**	-.635**	-.398**	-.426**	-.384**	.773**					
23. SAT_3 (fs)	0.848	0.856	-.571**	.877**	-.618**	.673**	.475**	.509**	.415**	-.563**	-.627**				
24. TI_3 (fs)	0.903	0.903	.536**	-.568**	.855**	-.558**	-.263**	-.314**	-.277**	.448**	.542**	-.619**			
25. AC_4 (fs)	0.84	0.841	-.544**	.646**	-.520**	.915**	.401**	.397**	.323**	-.464**	-.593**	.650**	-.535**		
26. SE_4 (fs)	0.819	0.859	-.296**	.407**	-.187**	.396**	.819**	.311**	.481**	-.295**	-.334**	.385**	-.222**	.416**	
27. AUT_4 (fs)	0.78	0.782	-.362**	.497**	-.268**	.386**	.349**	.830**	.260**	-.343**	-.377**	.462**	-.268**	.407**	.315**
28. IRP_4 (fs)	0.966	0.959	-.292**	.348**	-.210**	.282**	.428**	.246**	.735**	-.259**	-.294**	.366**	-.201**	.306**	.454**
29. EE_4 (fs)	0.919	0.916	.624**	-.535**	.350**	-.444**	-.334**	-.356**	-.288**	.890**	.648**	-.512**	.372**	-.448**	-.298**
30. CY_4 (fs)	0.797	0.788	.804**	-.588**	.494**	-.601**	-.358**	-.407**	-.325**	.691**	.875**	-.588**	.506**	-.634**	-.355**
31. SAT_4 (fs)	0.864	0.856	-.543**	.895**	-.561**	.668**	.472**	.497**	.377**	-.549**	-.591**	.897**	-.553**	.711**	.448**
32. TI_4 (fs)	0.899	0.903	.479**	-.519**	.891**	-.520**	-.225**	-.297**	-.230**	.383**	.478**	-.574**	.866**	-.552**	-.222**

Note: * p < .05; ** p < .01; fs = time invariant factor scores (with a mean of 0 and a SD of 1); time 1 = _1; time 2 = _2; time 3 = _3; time 4 = _4. α: alpha coefficient of scale score reliability; ω: omega coefficient of model-based composite reliability (identical across time waves due to the complete invariance of the measurement models); AC: affective commitment; SE: managerial efficacy; AUT: decisional autonomy; IRP: interpersonal relationships with personnel; EE: emotional exhaustion; CY: Cynicism; SAT: job satisfaction; TI: turnover intentions.

Table S4 (Continued 2)

	α	ω	27	28	29	30	31
28. IRP_4 (fs)	0.966	0.959	.277**				
29. EE_4 (fs)	0.919	0.916	-.349**	-.274**			
30. CY_4 (fs)	0.797	0.788	-.409**	-.326**	.747**		
31. SAT_4 (fs)	0.864	0.856	.509**	.411**	-.560**	-.642**	
32. TI_4 (fs)	0.899	0.903	-.267**	-.236**	.374**	.526**	-.597**

Note: * p < .05; ** p < .01; fs = time invariant factor scores (with a mean of 0 and a SD of 1); time 1 = _1; time 2 = _2; time 3 = _3; time 4 = _4. α: alpha coefficient of scale score reliability; ω: omega coefficient of model-based composite reliability (identical across time waves due to the complete invariance of the measurement models); AC: affective commitment; SE: managerial efficacy; AUT: decisional autonomy; IRP: interpersonal relationships with personnel; EE: emotional exhaustion; CY: Cynicism; SAT: job satisfaction; TI: turnover intentions.

Table S5

Goodness-of-Fit Information for the Sensitivity Analyses

Model	df	χ^2	CFI	TLI	RMSEA	RMSEA 90% CI
Time 1						
Everything	1150	1996.933*	.919	.911	.038	.035;.040
1. Everything (CY + AC)	1161	2147.604*	.906	.897	.040	.038;.043
2. Everything (SAT + AC)	1161	2161.201*	.905	.896	.041	.038;.043
3. Everything (TI + AC)	1161	2336.336*	.888	.877	.044	.042;.047
4. Everything (SE + IRP)	1161	2191.627*	.902	.892	.041	.039;.044
5. Everything (SAT + EE)	1161	2515.971*	.871	.858	.047	.045;.050
6. Everything (SAT + CY)	1161	2184.371*	.903	.893	.041	.039;.044
7. Everything (TI + CY)	1161	2298.380*	.892	.881	.043	.041;.046
8. Everything (EE + CY)	1161	2227.799*	.899	.889	.042	.039;.045
9. Everything (TI + SAT)	1161	2593.835*	.864	.850	.049	.046;.051
Time 2						
Everything	1150	2188.095*	.903	.892	.044	.042;.047
1. Everything (CY + AC)	1161	2442.243*	.880	.868	.049	.046;.052
2. Everything (SAT + AC)	1161	2320.030*	.892	.881	.047	.044;.049
3. Everything (TI + AC)	1161	2531.366*	.872	.859	.051	.048;.053
4. Everything (SE + IRP)	1161	2371.475*	.887	.876	.048	.045;.050
5. Everything (SAT + EE)	1161	2704.816*	.856	.841	.054	.051;.057
6. Everything (SAT + CY)	1161	2471.417*	.877	.865	.050	.047;.052
7. Everything (TI + CY)	1161	2530.572*	.872	.859	.051	.048;.053
8. Everything (EE + CY)	1161	2582.963*	.867	.854	.052	.049;.054
9. Everything (TI + SAT)	1161	2708.362*	.855	.841	.054	.051;.057
Time 3						
Everything	1150	2164.481*	.905	.894	.046	.043;.049
1. Everything (CY + AC)	1161	2360.269*	.887	.876	.050	.047;.053
2. Everything (SAT + AC)	1161	2347.053*	.889	.878	.050	.047;.053
3. Everything (TI + AC)	1161	2561.050*	.869	.856	.054	.051;.057
4. Everything (SE + IRP)	1161	2316.671*	.892	.881	.049	.046;.052
5. Everything (SAT + EE)	1161	2713.462*	.854	.840	.057	.054;.060
6. Everything (SAT + CY)	1161	2387.049*	.885	.874	.050	.048;.053
7. Everything (TI + CY)	1161	2702.534*	.855	.841	.057	.054;.059
8. Everything (EE + CY)	1161	2418.885*	.882	.870	.051	.048;.054
9. Everything (TI + SAT)	1161	2689.955*	.857	.842	.056	.054;.059
Time 4						
Everything	1150	1721.431*	.925	.916	.041	.037;.045
1. Everything (CY + AC)	1161	1843.540*	.910	.901	.045	.041;.049
2. Everything (SAT + AC)	1161	1857.324*	.908	.899	.045	.041;.049
3. Everything (TI + AC)	1161	2042.717*	.884	.872	.051	.047;.054
4. Everything (SE + IRP)	1161	1895.565*	.903	.894	.046	.043;.050
5. Everything (SAT + EE)	1161	2249.141*	.856	.842	.056	.053;.060
6. Everything (SAT + CY)	1161	1884.574*	.905	.895	.046	.042;.050
7. Everything (TI + CY)	1161	1998.248*	.890	.879	.050	.046;.053
8. Everything (EE + CY)	1161	2010.434*	.888	.877	.050	.046;.054
9. Everything (TI + SAT)	1161	2122.006*	.873	.861	.053	.049;.057

Note. * $p < .01$; df: degrees of freedom; χ^2 = chi-square; CFI: comparative fit index; TLI: Tucker-Lewis index; RMSEA: root mean square approximation; C.I.: 90% confidence intervals for the RMSEA, $\Delta\chi^2$: Chi-square difference test. AC: affective commitment; SE: managerial efficacy; IRP: interpersonal relationships with personnel; EE: emotional exhaustion; CY: Cynicism; SAT: job satisfaction; TI: turnover intentions.

Mplus Syntax for the Five Profile Latent Basis GMA

```
DATA: FILE = AC Factor.dat;
VARIABLE: NAMES ARE
AC1_1 AC2_1 AC3_1 AC4_1 AC5_1 AC6_1
AC1_2 AC2_2 AC3_2 AC4_2 AC5_2 AC6_2
AC1_3 AC2_3 AC3_3 AC4_3 AC5_3 AC6_3
AC1_4 AC2_4 AC3_4 AC4_4 AC5_4 AC6_4
AC_1 AC_1_SE MFN_1 MFN_1_SE AC_2 AC_2_SE MFN_2
MFN_2_SE AC_3 AC_3_SE MFN_3 MFN_3_SE AC_4
AC_4_SE MFN_4 MFN_4_SE ID;
MISSING = *;
IDVAR = ID;
USEV = AC_1 AC_2 AC_3 AC_4;
CLASSES = c(5);
ANALYSIS:
TYPE = MIXTURE;
ESTIMATOR = MLR;
Process = 4;
Starts = 10000 500;
STITERATIONS = 1000;
MODEL:
%OVERALL%
I S | AC_1@0 AC_2* AC_3* AC_4@1; ! Latent Basis Specification
I S ; [I S ]; I WITH S ;  AC_1 AC_2 AC_3 AC_4;
%c#1%
I S | AC_1@0 AC_2* AC_3* AC_4@1; ! The shape of the trajectories varies across profiles
[I S ]; ! The means of the intercept and slopes (but not their variance-covariance) vary across profiles
AC_1 AC_2 AC_3 AC_4; ! Time-specific residuals vary over time and across profiles.
%c#2%
I S | AC_1@0 AC_2* AC_3* AC_4@1;
[I S ]; AC_1 AC_2 AC_3 AC_4;
%c#3%
I S | AC_1@0 AC_2* AC_3* AC_4@1;
[I S ]; AC_1 AC_2 AC_3 AC_4;
%c#4%
I S | AC_1@0 AC_2* AC_3* AC_4@1;
[I S ]; AC_1 AC_2 AC_3 AC_4;
%c#5%
I S | AC_1@0 AC_2* AC_3* AC_4@1;
[I S ]; AC_1 AC_2 AC_3 AC_4;
OUTPUT:
STDYX SAMPSTAT CINTERVAL RESIDUAL svalues TECH1 TECH7 TECH11 TECH14;
```

Mplus Syntax for Models Including Time-Invariant Predictors (TIP)

These models are specified using the parameters from the final unconditional five profile latent basis solution, used as fixed (@) starts values to ensure replication (i.e., the nature of the profiles should remain unchanged following the inclusion of predictors or outcomes; Diallo et al., 2017; Morin & Litalien, 2019). Only sections reflecting a change from previous inputs are included.

Model 1: Null Effects Model

```
USEV = AC_1 AC_2 AC_3 AC_4 Aut_1 Pri_1 Rec_1 Se_1;
![…]
Starts = 0; ! To ensure replication
MODEL:

%OVERALL%
 i s | ac_1@0 ac_2* ac_3* ac_4@1;
C on Aut_1@0 Pri_1@0 Se_1@0; ! Null effects model
I on Aut_1@0 Pri_1@0 Se_1@0; ! Null effects model
S on Aut_1@0 Pri_1@0 Se_1@0; ! Null effects model

%C#1%
s BY ac_2@0.53173; s BY ac_3@0.85445; s WITH i@-0.07813;
[ ac_1@0 ]; [ ac_2@0 ]; [ ac_3@0 ]; [ ac_4@0 ];
[ i@0.41760 ]; [ s@0.12526 ];
ac_1@0.00904; ac_2@0.00023; ac_3@0.02173; ac_4@0.01990;
i@0.39340; s@0.01508;

%C#2%
s BY ac_2@-0.10152; s BY ac_3@0.71539; s WITH i@-0.07813;
[ ac_1@0 ]; [ ac_2@0 ]; [ ac_3@0 ]; [ ac_4@0 ];
[ i@0.29284 ]; [ s@-0.06137 ];
ac_1@0.01554; ac_2@0.00187; ac_3@0.00096; ac_4@0.00077;
i@0.39340; s@0.01508;

%C#3%
s BY ac_2@0.32098; s BY ac_3@0.95606; s WITH i@-0.07813;
[ ac_1@0 ]; [ ac_2@0 ]; [ ac_3@0 ]; [ ac_4@0 ];
[ i@0.16507 ]; [ s@0.34400 ]; ac_1@0.07284;
ac_2@0.07959; ac_3@0.04373; ac_4@0.04997;
i@0.39340; s@0.01508;

%C#4%
s BY ac_2@-1.65699; s BY ac_3@0.31015; s WITH i@-0.07813;
[ ac_1@0 ]; [ ac_2@0 ]; [ ac_3@0 ]; [ ac_4@0 ];
[ i@-1.28620 ]; [ s@0.04797 ];
ac_1@0.25471; ac_2@0.00110; ac_3@0.41262; ac_4@0.50029;
i@0.39340; s@0.01508;

%C#5%
s BY ac_2@0.34769; s BY ac_3@1.05920; s WITH i@-0.07813;
[ ac_1@0 ]; [ ac_2@0 ]; [ ac_3@0 ]; [ ac_4@0 ];
[ i@-0.03140 ]; [ s@-0.21966 ];
ac_1@0.03247; ac_2@0.03507; ac_3@0.08706; ac_4@0.03889;
i@0.39340; s@0.01508;
```

Model 2: Effects on Class Membership:

```
MODEL:
%OVERALL%
i s | ac_1@0 ac_2* ac_3* ac_4@1;
C on Aut_1 Pri_1 Rec_1 Se_1; ! Free estimation of the effects on class membership
I on Aut_1@0 Pri_1@0 Rec_1@0  Se_1@0;
S on Aut_1@0 Pri_1@0 Rec_1@0 Se_1@0;
```

Model 3: Effects on Class Membership and Intercept Factor Invariant across Profiles

```
USEV =
Aut_1 Pri_1 Rec_1 Se_1;
MODEL:
%OVERALL%
i s | ac_1@0 ac_2* ac_3* ac_4@1;
C on Aut_1 Pri_1 Rec_1 Se_1; ! Free estimation of the effects on class membership
I on Aut_1 Pri_1 Rec_1 Se_1; ! Free estimation of the effects on the intercept factor
S on Aut_1@0 Pri_1@0 Rec_1@0 Se_1@0;
```

Model 4: Effects on Class Membership, Intercept and Slope Factor Invariant across Profiles

```
MODEL:
%OVERALL%
i s | ac_1@0 ac_2* ac_3* ac_4@1;
C on Aut_1 Pri_1 Rec_1 Se_1; ! Free estimation of the effects on class membership
I on Aut_1 Pri_1 Rec_1 Se_1; ! Free estimation of the effects on the intercept factor
S on Aut_1 Pri_1 Rec_1 Se_1; ! Free estimation of the effects on the slope factor
```

Model 5: Effects on Class Membership and Intercept Factor Free across Profiles

```
MODEL:
%OVERALL%
i s | ac_1@0 ac_2* ac_3* ac_4@1;
C on Aut_1 Pri_1 Rec_1 Se_1; ! Free estimation of the effects on class membership
I on Aut_1 Pri_1 Rec_1 Se_1; ! Free estimation of the effects on the intercept factor
S on Aut_1@0 Pri_1@0 Rec_1@0 Se_1@0;
%C#1%
I on Aut_1 Pri_1 Se_1; ! Free estimation of the effects on the intercept factor across profiles
%C#2%
I on Aut_1 Pri_1 Se_1; ! Free estimation of the effects on the intercept factor across profiles
%C#3%
I on Aut_1 Pri_1 Se_1; ! Free estimation of the effects on the intercept factor across profiles
%C#4%
I on Aut_1 Pri_1 Se_1; ! Free estimation of the effects on the intercept factor across profiles
%C#5%
I on Aut_1 Pri_1 Se_1; ! Free estimation of the effects on the intercept factor across profiles
```

Model 6: Effects on Class Membership, Intercept Factor and Slope Factor Free across Profiles

```
MODEL:
%OVERALL%
i s | ac_1@0 ac_2* ac_3* ac_4@1;
C on Aut_1 Pri_1 Rec_1 Se_1; ! Free estimation of the effects on class membership
I on Aut_1 Pri_1 Rec_1 Se_1; ! Free estimation of the effects on the intercept factor
S on Aut_1 Pri_1 Rec_1 Se_1; ! Free estimation of the effects on the slope factor
%C#1%
I on Aut_1 Pri_1 Se_1; ! Free estimation of the effects on the intercept factor across profiles
S on Aut_1 Pri_1 Se_1; ! Free estimation of the effects on the slope factor across profiles
%C#2%
I on Aut_1 Pri_1 Se_1; ! Free estimation of the effects on the intercept factor across profiles
S on Aut_1 Pri_1 Se_1; ! Free estimation of the effects on the slope factor across profiles
%C#3%
I on Aut_1 Pri_1 Se_1; ! Free estimation of the effects on the intercept factor across profiles
S on Aut_1 Pri_1 Se_1; ! Free estimation of the effects on the slope factor across profiles
%C#4%
I on Aut_1 Pri_1 Se_1; ! Free estimation of the effects on the intercept factor across profiles
S on Aut_1 Pri_1 Se_1; ! Free estimation of the effects on the slope factor across profiles
%C#5%
I on Aut_1 Pri_1 Se_1; ! Free estimation of the effects on the intercept factor across profiles
S on Aut_1 Pri_1 Se_1; ! Free estimation of the effects on the slope factor across profiles
```

Mplus Syntax for Models Including Time-Varying Predictors (TVP)

These models are built from the model retained from the previous analyses (i.e., TIP Model 4):

Model: 1 Null Effects

```
USEV = AC_1 AC_2 AC_3 AC_4 Aut_1 Pri_1 Rec_1 Se_1
Aut_2 Pri_2 Se_2 Aut_3 Pri_3 Se_3 Aut_4 Pri_4 Se_4;
MODEL:
%OVERALL%
i s | ac_1@0 ac_2* ac_3* ac_4@1;
C on Aut_1 Pri_1 Se_1;
I on Aut_1 Pri_1 Se_1;
S on Aut_1 Pri_1 Se_1;
AC_1 on Aut_1@0 Pri_1@0 Se_1@0; ! Null effects model
AC_2 on Aut_2@0 Pri_2@0 Se_2@0; ! Null effects model
AC_3 on Aut_3@0 Pri_3@0 Se_3@0; ! Null effects model
AC_4 on Aut_4@0 Pri_4@0 Se_4@0; ! Null effects model
```

Model 2: Effects Invariant across Time and Profiles

```
MODEL:
%OVERALL%
i s | ac_1@0 ac_2* ac_3* ac_4@1;
C on Aut_1 Pri_1 Se_1;
I on Aut_1 Pri_1 Se_1;
S on Aut_1 Pri_1 Se_1;
AC_1 on Aut_1 Pri_1 Se_1 (r1-r3); ! Effects equal across time and profiles
AC_2 on Aut_2 Pri_2 Se_2 (r1-r3); ! Effects equal across time and profiles
AC_3 on Aut_3 Pri_3 Se_3 (r1-r3); ! Effects equal across time and profiles
AC_4 on Aut_4 Pri_4 Se_4 (r1-r3); ! Effects equal across time and profiles
```

Model 3. Effects Invariant across Time and Free across Profiles

```
MODEL:
%OVERALL%
i s | ac_1@0 ac_2* ac_3* ac_4@1;
C on Aut_1 Pri_1 Se_1;
I on Aut_1 Pri_1 Se_1;
S on Aut_1 Pri_1 Se_1;
AC_1 on Aut_1 Pri_1 Se_1;
AC_2 on Aut_2 Pri_2 Se_2;
AC_3 on Aut_3 Pri_3 Se_3;
AC_4 on Aut_4 Pri_4 Se_4;
%C#1%
AC_1 on Aut_1 Pri_1 Se_1 (r1-r3); ! Effects invariant across time within each profile
AC_2 on Aut_2 Pri_2 Se_2 (r1-r3);
AC_3 on Aut_3 Pri_3 Se_3 (r1-r3);
AC_4 on Aut_4 Pri_4 Se_4 (r1-r3);
%C#2%
AC_1 on Aut_1 Pri_1 Se_1 (rr1-rr3); ! Effects free to vary across profiles
AC_2 on Aut_2 Pri_2 Se_2 (rr1-rr3);
AC_3 on Aut_3 Pri_3 Se_3 (rr1-rr3);
AC_4 on Aut_4 Pri_4 Se_4 (rr1-rr3);
%C#3%
AC_1 on Aut_1 Pri_1 Se_1 (rrr1-rrr3);
AC_2 on Aut_2 Pri_2 Se_2 (rrr1-rrr3);
AC_3 on Aut_3 Pri_3 Se_3 (rrr1-rrr3);
AC_4 on Aut_4 Pri_4 Se_4 (rrr1-rrr3);
%C#4%
AC_1 on Aut_1 Pri_1 Se_1 (rrrr1-rrrr3);
AC_2 on Aut_2 Pri_2 Se_2 (rrrr1-rrrr3);
AC_3 on Aut_3 Pri_3 Se_3 (rrrr1-rrrr3);
AC_4 on Aut_4 Pri_4 Se_4 (rrrr1-rrrr3);
%C#5%
AC_1 on Aut_1 Pri_1 Se_1 (rrrrr1-rrrrr3);
AC_2 on Aut_2 Pri_2 Se_2 (rrrrr1-rrrrr3);
AC_3 on Aut_3 Pri_3 Se_3 (rrrrr1-rrrrr3);
AC_4 on Aut_4 Pri_4 Se_4 (rrrrr1-rrrrr3);
```

Model 4. Effects Free across Time and Invariant across Profiles

```
MODEL:
%OVERALL%
i s | ac_1@0 ac_2* ac_3* ac_4@1;
C on Aut_1 Pri_1 Se_1;
I on Aut_1 Pri_1 Se_1;
S on Aut_1 Pri_1 Se_1;
AC_1 on Aut_1 Pri_1 Se_1; ! Effects free to vary across time (but not profiles)
AC_2 on Aut_2 Pri_2 Se_2;
AC_3 on Aut_3 Pri_3 Se_3;
AC_4 on Aut_4 Pri_4 Se_4;
```

Model 5. Effects Free Across Time and Profiles

```
MODEL:
%OVERALL%
i s | ac_1@0 ac_2* ac_3* ac_4@1;
C on Aut_1 Pri_1 Se_1;
I on Aut_1 Pri_1 Se_1;
S on Aut_1 Pri_1 Se_1;
AC_1 on Aut_1 Pri_1 Se_1;
AC_2 on Aut_2 Pri_2 Se_2;
AC_3 on Aut_3 Pri_3 Se_3;
AC_4 on Aut_4 Pri_4 Se_4;
%C#1%
AC_1 on Aut_1 Pri_1 Se_1; ! Effects free to vary across time and profiles)
AC_2 on Aut_2 Pri_2 Se_2;
AC_3 on Aut_3 Pri_3 Se_3;
AC_4 on Aut_4 Pri_4 Se_4;
%C#2%
AC_1 on Aut_1 Pri_1 Se_1;
AC_2 on Aut_2 Pri_2 Se_2;
AC_3 on Aut_3 Pri_3 Se_3;
AC_4 on Aut_4 Pri_4 Se_4;
%C#3%
AC_1 on Aut_1 Pri_1 Se_1;
AC_2 on Aut_2 Pri_2 Se_2;
AC_3 on Aut_3 Pri_3 Se_3;
AC_4 on Aut_4 Pri_4 Se_4;
%C#4%
AC_1 on Aut_1 Pri_1 Se_1;
AC_2 on Aut_2 Pri_2 Se_2;
AC_3 on Aut_3 Pri_3 Se_3;
AC_4 on Aut_4 Pri_4 Se_4;
%C#5%
AC_1 on Aut_1 Pri_1 Se_1;
AC_2 on Aut_2 Pri_2 Se_2;
AC_3 on Aut_3 Pri_3 Se_3;
AC_4 on Aut_4 Pri_4 Se_4;
```

Mplus Syntax for Models Including Outcomes

Outcomes are integrated to the final unconditional model using the auxiliary option

```
Variable:
AUXILIARY =
Sat_1 (BCH) Idq_1 (BCH) Ee_1 (BCH) Cy_1(BCH)
Sat_2 (BCH) Idq_2 (BCH) Ee_2 (BCH) Cy_2(BCH)
Sat_3 (BCH) Idq_3 (BCH) Ee_3 (BCH) Cy_3(BCH)
Sat_4 (BCH) Idq_4 (BCH) Ee_4 (BCH) Cy_4(BCH);
```

Readers interested in learning more about the estimation of growth mixture analyses including covariates (predictors and outcomes) should consult:

Morin, A.J.S., & Litalien, D. (2019). Mixture modelling for lifespan developmental research. In *Oxford Research Encyclopedia of Psychology*. Oxford University Press. doi: 10.1093/acrefore/9780190236557.013.364

Morin, A.J.S., McLarnon, M.J.W., & Litalien, D. (2020). Mixture modeling for organizational behavior research. In Y. Griep, & S.D. Hansen (Eds.), *Handbook on the Temporal Dynamics of Organizational Behavio*r (pp. 351-379). Edward Elgar.

Wickrama, K.S., Lee, T.K., O'Neal, C.W., & Lorenz, F.O. (2016). Higher-order growth curves and mixture modeling with Mplus: A practical guide. Routledge.

These resources incorporate extensive set of annotated input files (as part of the main text, or of their online supplements).