FINDING YOUR PLACE AT SCHOOL:
MOMENTARY FIT, STATE AUTHENTICITY AND ACADEMIC EXPERIENCES

by

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A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF ARTS

in

THE FACULTY OF GRADUATE AND POSTDOCTORAL STUDIES
(Psychology)

THE UNIVERSITY OF BRITISH COLUMBIA
(Vancouver)

August 2023

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Finding your place at school: momentary fit, state authenticity and academic experiences

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Abstract

Individuals have the tendency to approach or avoid a given situation, yet this choice may be implicitly influenced by one’s experience of fit to the environment. As proposed by the State Authenticity as Fit to Environment (SAFE) model, individuals tend to gravitate towards situations where they experience self-concept fit, goal fit, and/or social fit, composing a gestalt sense of state authenticity. With two experience sampling studies, this work aims to validate this key assertion of the SAFE model and examine its implications in academic settings. Study 1 validated that when people experienced self-concept fit, goal fit, and social fit in a given situation, they felt authentic to themselves. Notably, each type of fit was cued by distinctive contextual features, and uniquely predicted the gestalt sense of state authenticity. All three types of fit positively predicted individuals’ willingness to return to the current situation and state attachment to university. Self-concept fit and low social fit specifically predicted individual’s working memory capacity. In a conceptual replication of Study 1, Study 2 additionally demonstrated that in classes where students felt three types of fit, they reported higher class/self overlap and state attachment to their major. Study 2 also showed cumulative effects of fit and state authenticity on longer-term academic outcomes, such as major/university commitment and course grades. Furthermore, Study 2 yielded preliminary evidence indicating that experiences of marginalization had a dampening effect on individuals' overall sense of fit and authenticity. This work establishes a foundation for understanding students’ academic outcomes through the lens of the SAFE model, paving the way for examining the detrimental impacts of marginalization on self-segregation.
Lay Summary

This thesis seeks to understand different types of self-environment fit through which people feel authentic to themselves in a given situation. We found that in situations where individuals felt self-concept fit, goal fit, and social fit, they felt more like themselves. People experienced a higher self-concept fit when they chose to be in familiar places, felt goal fit when actively engaging in activities, and reported high social fit when being with close others. In academic settings, students identified more with their class/major in classes where they felt all three types of fit. Over a longer time, students who repeatedly experienced high goal fit achieved higher grades, while those feeling social fit had better mental well-being. Notably, marginalization in classes disrupted feelings of self-concept fit and social fit. This work provides in-depth understanding of self-environment fit and state authenticity, and explores their roles underlying academic experiences.
Preface

All studies reported in this thesis were conducted in the Social Identity Lab at the University of British Columbia (UBC), under the supervision of Dr. Toni Schmader. I (Yingchi Guo) was in charge of the study design and data analysis. All studies were approved by UBC Behavioural Research Ethics Board, under the name of “Experience Sampling Study” with certificate number H21-02322.
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Chapter 1: Introduction

“I will always be black first and a student second” - Michelle Obama

People always strive to be themselves. In a given context, however, the self is not a static, singular definition. As the former first lady of the United States described in her memoir of her experience at Princeton University, the confluence of blackness and studenthood partially composites her sense of ‘self’. But individuals do not always experience a fluent sense of self across different contexts. For instance, the experience of being Black can interfere with one's sense of self as a university student.

Experiencing a fluent sense of self implies the congruence between two entities: self-identity and contextual features. Self-identity, a multidimensional and intrinsic component of human experience, plays a foundational role in shaping how individuals perceive and engage with their surroundings (Markus and Wurf 1987). In any given situation, there are contextual features that cue some aspects of self-identity, which may be more readily processed by advantaged group members due to their typically dominant role in shaping both the physical and interpersonal environments. For people from historically marginalized groups (due to race, gender, sexual orientation, etc.), the relationship between their identities and the surrounding environments more frequently presents a complex array of challenges (e.g., educational barriers, Benner & Wang, 2014) that may impede the experience of authentic self-feeling and bring in potential negative consequences (e.g., low self-regulatory strength, Johnson et al. 2011). Despite the importance of the self-environment relationship in guiding behaviours, there is still a significant gap in our understanding of how environmental features affect internal experiences of self, and how it guides individuals’ behavioural choice towards or against specific situations.
The State Authenticity and Self-Environment Fit (SAFE) model (Schmader & Sedikides, 2018) offers a theoretical framework for understanding how individuals navigate their environment by approaching situations where they feel authentic and avoiding those where they do not. Prior research conducted in our lab has validated the predictive effects of self-environment fit on state authenticity, using a cross-sectional design and investigating between-person effects (Aday et al., 2023). Based upon this, this thesis seeks to provide further empirical evidence on the SAFE model by examining its situational variability of fit and authenticity. Through two experience sampling studies, this thesis aims to validate the SAFE model at the state level, identify distinct predictors of different types of self-environment fit (self-concept/goal/social fit), and investigate the identity-based consequences in academic settings. By doing so, this research contributes to a deeper understanding of students (including marginalized students)’ experiences in academic settings, provides insight into identity-based segregations, and has the potential to inform interventions aimed at fostering diversity and inclusion.

1.1 Authenticity as a State Construct

1.1.1 Traditional Trait Perspectives of Authenticity.

The concept of authenticity has been widely emphasized by humanistic psychologists. According to classic humanistic theory, the "fully functioning person" is one who lives in the present moment, embraces their own feelings and experiences, and remains true to oneself above all else (Rogers, 1980). This requires a deep level of congruency between the self and the environment, which is also a central component of the ‘peak experience’. This phenomenon, as described by Maslow (1964), is characterized by intense joy, wonder, and transcendence, and is thought to arise from a sense of complete alignment between one's inner self and outer environment.
Consistent with the humanistic viewpoint, contemporary psychologists have advanced the notion of authenticity as a trait that is inherent within an individual's personality. Building on Carl Rogers' person-centred therapeutic framework (as detailed in Wyatt and Sanders, 2001), Wood et al. (2008) have characterized authenticity as a dispositional personality trait, which they have broken down into three distinct components: authentic living, the absence of self-alienation, and resistance to external influence. In accordance with this view, Kernis and Goldman (2006) introduced a multidimensional conceptualization of authenticity. Their model consists of four essential components, namely, the awareness of self-knowledge, unbiased processing of self-information, acting in congruence with one’s values, and relationship orientation (i.e., involves achieving openness and truthfulness in close relationships). Despite the uniqueness of the last point, the first three components are roughly aligned with the tripartite model developed by Wood et al. (2006). Both models center on the elements that constitute authentic feelings, which, according to some scholars, stem from the satisfaction of needs (see self-determination theory in Ryan and Deci, 2002). Despite differences in conceptualization, authenticity is frequently by these scholars examined as a stable, dispositional characteristic. Consequently, an individual possessing authenticity would consistently experience a coherent sense of self across various situations and contexts.

As initially established within therapeutic strategies, humanists delved into authenticity due to its critical role in fostering self-integrity and psychological health (Rogers, 1980). For example, trait authenticity is associated with reduced verbal defensiveness (Lakey et al., 2008), and elevated self-esteem (Kernis, 2003). And in support of the humanists' theories with quantitative evidence, experiencing authenticity across different contexts is associated with better psychological well-being (as summarized in Sheldon et al. 1997 and Sheldon & Kasser,
Hence, a significant body of research has demonstrated the psychological benefits of Shakespeare's famous line, "To thine own self be true" (Hamlet, Act 1, Scene 3).

**1.1.2 State Authenticity.**

Despite the extensive evidence supporting the significance and advantages of authenticity, the concept of "being true to oneself" remains somewhat ambiguous. A crucial aspect of authenticity lies in the notion of the *current self* within a given *context*. Despite the benefits of viewing the self as consistent across situations, people experience some degree of discrepancy in self-concepts. For example, Asians reported higher flexibility in self-views across situations (English and Chen 2007; Kanagawa et al. 2001; Suh 2002), but they are more consistent within a given situation (English and Chen 2011). The seemingly paradoxical nature of the self-concept underscores the pivotal role of the immediate context, where a myriad of environmental factors cue for specific aspects of self-identity, as postulated by the SAFE model (Schmader and Sedikides 2018). In a similar vein and following the multifaceted self-perspective (e.g., self-complexity theory, Linville, 1985; independent vs. interdependent self-construal, Gardner, 1996), some of the identity-relevant concepts are more accessible in specific situations due to the unique contextual features (e.g., being a student is more accessible at school; Markus & Nurius, 1986), while others are chronically self-defining (Sedikides & Spencer, 2007). Additionally, Markus & Wurf (1987) posits that specific context engenders a synergistic amalgamation of the chronic entity and situational aspects of self (named ‘working self’; referred to as ‘phenomenal self’ by Rhodewalt, 1986). As so, the role of contextual features in shaping individuals' self-concept and subsequent behaviours within a given context should be acknowledged. These environmental cues serve as the foundation upon which individuals construct and define their sense of self, thereby modulating their interactions and responses to their immediate surroundings.
Considering the pivotal role of contextual futures in shaping self-concept, the conceptualization of the authentic personality (e.g., Kernis & Goldman, 2006; Wood et al., 2008) does not fully account for the concept of authenticity. A refined framework is required to close this gap. Using the written recall method, Lenton et al. (2013a) described the experiences of authenticity at the state level, and identified positive mood as one causal factor of state authenticity (Lenton et al. 2013b). Under the umbrella of tripartite conceptualization of authenticity (Wood et al., 2008), Lenton et al. (2016) sketched the within-person variation on top of the between-person differences using an experience sampling method. As such, state authenticity is now recognized as a unique phenomenon that differs from trait authentic personality. Sedikides et al. (2017) put forth a comprehensive definition of state authenticity, characterizing it as “the sense that one is currently in alignment with one's true or real self”. This authentic self can be understood as a flexible and dynamic entity, continually evolving in response to contextual cues and situational demands.

Although state authenticity is defined in relation to specific contexts, the literature on the importance of self-environment fit in state authenticity is relatively limited, leaving many aspects of this construct unexplored. More specifically, there is a lack of research on how contextual factors may induce self-environment fit. In response to this gap in knowledge, Schmader and Sedikides (2018) proposed the State Authenticity as Fit to Environment (SAFE) model (described in detail in section 1.2), which provides a theoretical framework for understanding the role of self-environment fit in state authenticity. The current thesis will focus on the SAFE model and seek to provide empirical evidence for its validation at the state level.
1.2 State Authenticity as Fit to Environment (SAFE Model)

The SAFE model posits that there are three types of self-environment fit (self-concept/goal/social it) which are distinctive construals in terms of their conceptualization and implications, and elucidates their respective relationships with state authenticity. This section will briefly illustrate the concepts of fit and state authenticity. For a more comprehensive overview of these concepts, please refer to Schmader & Sedikides (2018). Furthermore, this section also presents and elaborates on some theoretical distinctions among the three types of fit, specifically highlighting the unique antecedents that underlie each type.

**Self-concept fit.** One type of self-environment fit examined in the SAFE model is self-concept fit, which entails the “activation of the most chronically accessible or default aspects of the self” in response to environmental cues (Schmader & Sedikides, 2018). For example, a psychology student may experience a greater sense of self-concept fit when studying in a psychology building as opposed to an engineering laboratory. Immersing in an environment that aligns with one's self-concept may not necessarily give rise to a conscious awareness of state authenticity, as the processing of self-relevant information in such contexts tends to be relatively effortless. Conversely, acute self-concept misfit entails cognitive dissonance (Festinger, 1962) because the context cues information that is inconsistent with the self. Typically, individuals tend to steer clear of unpleasant emotions or uncertainty. As a result, situational factors, such as familiarity, can indicate how compatible one's self-concept is with the current context they are in. This thesis will investigate the contextual features that predict momentary sensations of self-concept fit.

**Goal fit.** Goal fit occurs in response to “the existence of institutional structures or norms in the environment that afford one’s internalized goals” (Schmader & Sedikides, 2018). For
example, a psychology student with a strong inclination towards communal objectives may experience a heightened goal fit in counselling psychology courses. This resonates with the self-determination theory (SDT; Ryan & Deci, 2000), which contends that autonomy and competence (and relatedness) are crucial drives, and the satisfaction of which gives rise to experiences of authenticity. Within an environment that affords one’s goal, people may actively engage in tasks fulfilling autonomy and competence (e.g., Sheldon and Filak, 2008). Therefore, environmental factors such as active engagement in an activity are expected to generate a strong sense of goal fit, which will be explored in detail in this thesis.

**Social fit.** The last type of self-environment fit in the SAFE model is social fit, which refers to the extent to which “other people in the current environment accept and validate a person's sense of self” (Schmader and Sedikides, 2018). For example, a student who stays with a few friends would likely experience a higher level of social fit compared with being amongst strangers or individuals who hold an impression of the student that is incongruent with their self-concept. Contemporary psychologists have long recognized interpersonal relationships and belongingness as fundamental human needs (e.g., Maslow's hierarchy of needs, 1943; Schutz's fundamental interpersonal relationship, 1958), and identified the crucial role of verifying self-views within interpersonal interactions (Swann and Read 1981). Consistent with the SAFE model, self-verification theory proposes that individuals actively select and enter into situations that affirm their self-views, while avoiding those that contradict them (e.g., roommate selection, Swann and Pelham 2002). Following this vein, social context, specifically the anticipated and experienced evaluation from others, may influence individuals’ perception of the immediate situation. Thus, this thesis aims to explore the impact of social context on feelings of social fit and state authenticity. Specifically, we hypothesize that being with close others, who are more
likely to confirm an individual's self-view, would result in a higher level of social fit, as opposed to being with non-close others who may hold views that are inconsistent with the individual's self-concept.

**Fit and authenticity.** Schmader and Sedikides (2018), see also Aday and Schmader (2019), have posited that the three types of fit each make a distinct contribution to the overall experience of state authenticity within a given context. While these three types of fit are not mutually exclusive, individuals may experience one type of fit while experiencing other types of misfit. Thus, each type is hypothesized to uniquely predict state authenticity across situations. For instance, a psychology student with close friends in a class that does not align with their goal orientation may experience a high level of social fit but a low goal fit.

Despite the conceptual differences among three types of fit, there is also potential overlap among them. For example, threats to the self-concept can motivate individuals to seek social interactions to stabilize their self-concept (Park & Maner, 2009), which suggests an overlap between self-concept fit and social fit. Moreover, self-discrepancy theory asserts that individuals strive to achieve goals that align with their ideal self-concept, thereby entangling goal fit and self-concept fit within a specific situation (Higgins, 1987). The SAFE model posits that three types of fit have their unique contribution to state authenticity over and above the shared commonality.

Previous studies in our lab have examined the relationship between three types of fit and state authenticity using a cross-sectional design and obtained the evidence at the between-person level (Aday, et al., under revision). After establishing a scale to measure these types of fit, Aday and colleagues surveyed students to assess their current feelings of fit and state authenticity. Results indicated that people who experienced three types of fit in general also had a higher level
of state authenticity (i.e., a between-person effect). However, it remains unclear whether these three types of fit can predict state authenticity consistently across different situations at the within-person level. This thesis employs a new methodology, specifically experience sampling (ES) design, to bridge this gap and further clarify the conceptualization of the SAFE model at the within-person level.

1.3 State (In)Authenticity and Identity-Based Segregation

The SAFE model sheds light on understanding the process of identity-based segregation, which has been observed across different contexts. Evidence suggests that individuals tend to self-segregate based on their social identities, leading to various negative consequences such as unequal education and opportunities. For example in occupational areas, people orientation and communal goals significantly predict women’s disinterest in STEM (science, technology, engineering, or mathematics) fields (Su and Rounds 2015; Diekman et al. 2011). Friendship formation in academic settings is also influenced by identity, as race-based friendship segregation has been observed among various racial groups in the United States (Moody, 2001; Quillian & Campbell, 2003; Mouw & Entwisle, 2006). Recognizing the influence of structural discrimination, the patterns of segregation can be also associated, to some degree, with aspects of the SAFE model such as self-concept, goals, and social fit.

In addition to multiple existing theories that explain the process of self-segregation, the SAFE model offers a unique contribution. Individuals have a strong desire to feel authentic and tend to prefer environments where they can be themselves, avoiding those that bring discomfort of inauthenticity (Aday & Schmader, 2019; Aday et al., under revision). For example, experiences of marginalization may disrupt feelings of state authenticity, motivating individuals to avoid the current situation. Steele's disidentification theory (Steele et al. 2002) supports this
view by suggesting that African American students disidentify with schools to avoid anxiety and maintain self-esteem (Osborne 1997). Through the three self-environment fit perspectives, it is possible to identify the specific contextual features, type(s) of fit, and approach vs. avoidance strength that may contribute to identity-based segregation across different settings.

1.4 Overview of Studies

The primary objective of this thesis is to test the key hypothesis of the SAFE model that self-environment fit predicts state authenticity in a given situation, and to examine its implications in academic settings. In pursuit of this goal, Study 1 employed an experience sampling methodology to discern the unique predictive effect of fit on state authenticity at the within-person level, while also investigating the contextual factors that predict each type of fit. Study 2 was a conceptual replication of Study 1, focusing on students’ feelings of fit and state authenticity in classes. Study 2 also explored how experiences of marginalization affect feelings of fit and state authenticity.

In both studies, we hypothesized that in contexts where individuals feel higher levels of self-concept fit, goal fit, and/or social fit they will also experience higher state authenticity (i.e., a within-person effect). Each type of fit was hypothesized to be predicted by specific contextual features. Both studies predicted that fit and state authenticity would influence people's approach versus avoidance tendencies. We also predicted cumulative effects of fit and authenticity experienced across the academic term. Higher average fit and state authenticity were expected to be associated with increases in longer term major/university commitments and mental well-being. As an exploratory investigation, we additionally hypothesized that experiences of marginalization in the classroom hinder feelings of fit and state authenticity.
Chapter 2: Validating the SAFE Model at State Level

Multiple studies have focused on the construction of an authentic personality, such as Kernis and Goldman (2006) and Wood et al. (2008), while the structure of state authenticity has received relatively less attention. In light of the SAFE model, state authenticity is conceptualized as stemming from three types of self-environment fit (Schmader and Sedikides, 2018). Previous study in our lab have demonstrated the predictive effects of three types of fit on authenticity using a cross-sectional design (Aday, et al., under review), providing preliminary evidence supporting the SAFE model. However, further validation of the model at the state level is needed, particularly with regard to using momentary measures of fit and authenticity to examine the model at a within-person level. The objective of Chapter 2 is to provide empirical support for the SAFE model at state level, as well as identify contextual features that predict each type of fit. Moreover, we will examine the cognitive and behavioural outcomes of fit and authenticity at the momentary level.

Study 1

We preregistered Study 1 (https://osf.io/s9y85/?view_only=33218f54f65045b3876a6bd1bcddcba9) using an experience sampling design to examine the relationship between the three types of fit, authenticity, and other outcomes at both a within-person and between-person level. To provide stronger evidence of the link between state fit and authenticity, our primary hypothesis was that momentary variation in each type of fit (self-concept, goal, social) would explain unique variation in state authenticity. That is, in situations at their university where students report feeling greater fit, they would also report greater authenticity. To establish effects at the state level, we distinguished between
within-person and between-person variation in fit and authenticity. To ensure that we are capturing state authenticity, we also tested whether results would hold controlling for dispositional authenticity.

In Study 1, we also tested whether momentary experiences of fit and authenticity have cognitive, emotional, and behavioural implications. To do this, we included momentary assessments of working memory capacity, emotional burnout, and willingness to return to that situation. To test whether situation-specific experiences of fit have implications for university commitment, we assessed students’ state attachment to their university. We preregistered analyses to test the unique role of each type of fit in predicting all outcomes, with no specific hypotheses about the relative strength of these relationships.

Finally, the experience sampling design allowed us to isolate how each type of fit is uniquely cued by features of the context. Drawing from the SAFE model, we preregistered hypotheses that students would experience: (1) higher self-concept fit in situations that were familiar or freely chosen, as these situations should activate the default self-concept, (2) higher goal fit in situations involving active (vs. passive) engagement or social (vs. solitary) actions, as these situations should afford valued goals, and (3) higher social fit when with close (vs. non-close) others, as these situations should foster feelings of validation by others.

2.1 Method

2.1.1 Participants

Participants were 145 Year 1 and 145 Year 2 undergraduate students enrolled in a Canadian university and recruited through the Psychology Department’s Human Subject Pool or
paid participants list. We specifically recruited Year 1 and Year 2 students because both cohorts were new to campus in 2021-22 when data were collected (in the prior year, all classes were remote due to the COVID-19 pandemic). The preregistered sample size was 220, based on Monte Carlo simulations by Arend and Schäfer (2019). To accommodate the exclusion criteria, we continued to recruit throughout the first half of two academic terms. After excluding participants who failed the attention check, our final sample size was $N = 269$ ($M_{\text{age}} = 19.09$, $SD_{\text{age}} = 1.95$; 80.30% women, 16.36% men, 2.23% non-binary, 1.12% non-specified gender).

### 2.1.2 Procedure

Study 1 was embedded within a larger longitudinal project that had three phases: a T1 baseline survey, a two-week experience sampling phase, and a T2 survey. Participants completed the T1 baseline survey approximately one month after classes began each term (Sep. 24th - Oct. 18th, 2021 for Term 1; Jan. 31st - Mar. 6th, 2022 for Term 2). The T1 baseline survey measured demographics and other variables peripheral to the current study (see Appendix). One week after the T1 survey, participants entered the experience sampling phase. For 14 consecutive days, they were prompted with survey links via email three times per day at 2 pm, 5 pm, and 8 pm. The survey contained questions about contextual information (e.g., “What are you doing right now?”), state authenticity, and the three types of fit, as well as momentary outcomes including the likelihood to return to the situation, state attachment to the university, emotional burnout, and working memory capacity. At the end of the academic term, participants completed a T2 survey during a 30-minute virtual meeting followed by an oral debriefing. The T2 survey contained a subset of the T1 measures.
2.1.3 Experience Sampling Survey

The 3-minute Experience Sampling (ES) survey measured momentary information in a format that participants could easily access using a smartphone or tablet. The following measures are described in the order in which they were gathered.

**Contextual Information.** Participants reported their current location, whether they chose to be there, their current activities, and who they were with. We measured location with a single question: “Where are you right now?” followed by five response options (“at home,” “familiar place on campus,” “unfamiliar place on campus,” “familiar place off-campus,” “unfamiliar place off-campus”). Given our interest in how fit and authenticity on campus predicts outcomes, we preregistered the intent to focus on events that were sampled ‘on campus.’

We asked participants whether they had chosen to be in the location with a single yes/no question: “Did you choose to be here?” We measured momentary activities that were active (vs. passive) or social (vs. solitary) with a multiple-choice question: “What are you doing right now?” accompanied by four checkboxes (“doing something active [e.g., studying, exercising, working],” “doing something passive [e.g., watching TV, reading, browsing the web, relaxing],” “doing something social [e.g., talking with friends or family],” “doing something solitary [e.g., staying by yourself”]). Participants could check all that applied to their current situation.

To assess whether they were with close others, participants checked one or more of the following boxes (question stem: “I am with…”): “solo: I’m alone,” “close others: friends/relationship partner/family,” “non-close others: acquaintances(classmates/coworkers)/strangers.”
**Momentary Fit.** We assessed each of the three types of fit with the single highest-loading item from each fit subscale developed by previous studies conducted in our lab. Participants rated their momentary self-concept fit (“Just being here in this space suits the way I see myself”), goal fit (“This is a place where I feel intrinsically motivated by my own goals”), and social fit (“I can act natural around the people who are here”) on a scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

**State Authenticity.** Participants rated their state authenticity at the university using a version of the same single item from Studies 1-2: “At [University] I feel…” (1 = *inauthentic*, 7 = *authentic*).

**Behavioural Intentions.** Participants reported their likelihood to return to the current setting with a single item: “Are you likely to return to this setting?” (1 = *definitely not*, 7 = *definitely yes*).

**State Attachment.** Participants reported their state attachment with their university with a single rating (1 = *completely emotionally disengaged from [University]*, 7 = *strongly emotionally attached to [University]*).

**Emotional Burnout.** Participants reported their emotional burnout by responding to the item, “Right now, I feel emotionally drained” (1 = *none at all*, 7 = *extremely*).

**Working Memory Capacity.** To avoid overtaxing participants, about 50% of the experience sampling assessments (randomly determined) included a measure of working memory capacity. On these occasions, after filling out self-report measures, participants completed a memory updating task that correlates highly with other working memory measures.
(Oberauer et al., 2000; Schmiedek et al., 2009) and has been successfully used in experience sampling research (Riediger et a., 2011). Participants were trained on the memory updating task during the T1 survey. The memory updating task started by presenting participants with a 2x2 matrix of frames (four frames in total, see Appendix). Four single-digit numbers (one per frame) were displayed simultaneously for 6.5 seconds (consistent with Riediger et al., 2011), and participants were instructed to memorize the four numbers. The four numbers then disappeared. A single-digit addition or subtraction updating operation (e.g., +4) appeared in one of the frames. Participants’ task was to update the original number in the corresponding frame according to the operation (e.g., if the original number was 5, they now had to remember the number 9 for that frame) and hold that new number in working memory. After 3.5 seconds, the updating operation disappeared, and a new operation was presented in a different frame. Participants completed four updating operations, requiring them to remember four updated numbers instead of the originally presented numbers. At the end of the task, participants were asked to input the four updated numbers into a blank 2x2 matrix with no time limit. We calculated the accuracy rate as the proportion of numbers that participants answered correctly, with the possible scores being 0.00, 0.25, 0.50, 0.75, and 1.00 for each instance of the task.

2.1.4 Dispositional Authenticity

The T1 survey included a 12-item measure of dispositional authenticity (Wood et al., 2008). A sample item is: “I think it is better to be yourself, than to be popular” (1 = does not describe me at all to 7 = describes me very well; α = .82).
2.2 Results

2.2.1 Analysis Plan

As noted, we preregistered analyses to focus on events that occurred on campus (2448 out of 8222 total observations). We used multilevel modelling (R package ‘lme4’; Bates, 2015) to disaggregate the within-person and between-person effects, with each observation from the short survey as a level-1 unit and each person as a level-2 cluster. We cluster-mean centred all continuous level-1 predictors (momentary ratings of the three types of fit) and grand-mean centered any level-2 predictors (e.g., dispositional authenticity; Raudenbush & Bryk, 2002).

We first present descriptive statistics and bivariate correlations (for both within- and between-person levels) in Table 1. The three types of fit were interrelated and positively correlated with state authenticity, but the magnitude of these relationships was smaller (though still significant) at the within- than between-person level. In addition, dispositional authenticity was modestly correlated with between-person variance in fit and authenticity but was uncorrelated with the within-person variance in these measures. These patterns provide empirical evidence to distinguish these constructs at the state level.

Among observations reported on campus, 86.85% were at familiar places, and in 94.04% of cases, participants had chosen to be there. Among all activities reported by participants, 58.37% of the time they were engaged in something active (vs. passive), and 21.24% of the time they were engaged in a social (vs. solitary) activity. Participants reported 36.73% of occasions that they were alone, 40.44% only with close others, 15.43% only with non-close others, and 7.40% with both close and non-close others.
Table 1

Descriptive Statistics and Correlations Among Key Variables Measured in Study 1

<table>
<thead>
<tr>
<th></th>
<th>Mean (SD)</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
<th>(8)</th>
<th>(9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Self-Concept Fit</td>
<td>5.21 (1.22)</td>
<td>0.82***</td>
<td>0.75***</td>
<td>0.62***</td>
<td>0.56***</td>
<td>0.49***</td>
<td>-0.12***</td>
<td>0.10***</td>
<td>0.31***</td>
<td></td>
</tr>
<tr>
<td>(2) Goal Fit</td>
<td>5.14 (1.36)</td>
<td>0.43***</td>
<td>0.60***</td>
<td>0.59***</td>
<td>0.46***</td>
<td>0.52***</td>
<td>-0.15***</td>
<td>0.13***</td>
<td>0.23***</td>
<td></td>
</tr>
<tr>
<td>(3) Social Fit</td>
<td>5.20 (1.46)</td>
<td>0.33***</td>
<td>0.19***</td>
<td>0.60***</td>
<td>0.49***</td>
<td>0.43***</td>
<td>-0.07***</td>
<td>0.05*</td>
<td>0.33***</td>
<td></td>
</tr>
<tr>
<td>(4) State Authenticity</td>
<td>4.99 (1.30)</td>
<td>0.27***</td>
<td>0.31***</td>
<td>0.25***</td>
<td>0.36***</td>
<td>0.85***</td>
<td>-0.15***</td>
<td>-0.01</td>
<td>0.33***</td>
<td></td>
</tr>
<tr>
<td>(5) Likelihood to Return</td>
<td>5.73 (1.40)</td>
<td>0.28***</td>
<td>0.23***</td>
<td>0.26***</td>
<td>0.17***</td>
<td>0.23***</td>
<td>-0.05*</td>
<td>0.17***</td>
<td>0.21***</td>
<td></td>
</tr>
<tr>
<td>(6) State Attachment</td>
<td>4.76 (1.45)</td>
<td>0.22***</td>
<td>0.26***</td>
<td>0.11***</td>
<td>0.38***</td>
<td>0.10***</td>
<td>-0.12***</td>
<td>0.05*</td>
<td>0.22***</td>
<td></td>
</tr>
<tr>
<td>(7) Emotional Burnout</td>
<td>3.97 (1.69)</td>
<td>-0.15***</td>
<td>-0.05</td>
<td>-0.11***</td>
<td>-0.16***</td>
<td>-0.05</td>
<td>-0.18***</td>
<td>-0.09***</td>
<td>-0.11***</td>
<td></td>
</tr>
<tr>
<td>(8) Working Memory Capacity</td>
<td>0.76 (0.32)</td>
<td>0.06</td>
<td>0.01</td>
<td>-0.06*</td>
<td>-0.02</td>
<td>0.02</td>
<td>-0.01</td>
<td>-0.02</td>
<td>-0.02*</td>
<td></td>
</tr>
<tr>
<td>(9) Dispositional Authenticity (n = 82)</td>
<td>4.60 (0.89)</td>
<td>-0.01</td>
<td>0.01</td>
<td>0.00</td>
<td>-0.00</td>
<td>-0.00</td>
<td>0.01</td>
<td>0.01</td>
<td>-0.00</td>
<td></td>
</tr>
</tbody>
</table>

Note. *p < .05. **p < .01. ***p < .001. Variables (1) - (8) are single-item measures. The means and SDs presented here are the grand-means and SDs. Correlations above the diagonal are between-person correlations, while those below the diagonal are within-person correlations, except for the last row showing level 1 - level 2 correlations.

2.2.2 Do Momentary Feelings of Fit Predict State Authenticity?

The intraclass correlation coefficient (ICC) was .65 for state authenticity using an intercept-only model (i.e., without any predictors); thus, dependencies in ratings legitimized our approach of implementing multilevel modelling with random intercepts and slopes. We regressed state authenticity onto both within-person and between-person components of all three fit measures, allowing the intercept and slopes to vary across individuals. Supporting our preregistered hypotheses, all three types of momentary fit significantly predicted state authenticity at the within-person level: self-concept fit, $\beta = .11$, $p < .001$; goal fit, $\beta = .12$, $p < .001$; social fit, $\beta = .14$, $p < .001$. Together, the three types of fit explained 9.07% of the variance in state authenticity (as per Rights & Sterba, 2019). Thus, in situations where participants reported a higher level of each type of fit, they also reported feeling more authentic.
The between-person level analyses allowed us to replicate patterns from Studies 1-2. Consistent with those findings, participants who, on average across situations, reported higher state authenticity also reported, on average, higher self-concept fit, $\beta = .20, p = .03$; goal fit, $\beta = .24, p = .006$; and social fit, $\beta = .48, p < .001$. Thus, at the between-person level, the three types of fit also explained unique variance in authenticity, $R^2 = .34$.

2.2.3 Does Momentary Variation in Fit Predict Momentary Outcomes?

We conducted similar analyses to test the unique effects of the three types of fit predicting momentary outcomes. In particular, we regressed each outcome available on both within-person and between-person components of all three types of fit, allowing the intercept and slope to vary across participants in multilevel modelling. We summarize results for within-person effects in Table 2, as these are the primary focus of the study. These findings control for any between-person effects, which are summarized in the Supplementary Chapter.

Willingness to Return to the Situation. Momentary variation in all three types of fit predicted participants’ willingness to return to that situation. In line with our preregistration, in those situations where participants felt more self-concept fit $\beta = .16, p < .001$, goal fit $\beta = .11, p < .001$, and/or social fit $\beta = .15, p < .001$, they also reported significantly higher willingness to return to that situation. Taken together, the within-person components of the three types of fit explained 13.17% of total variance in willingness to return.

State Attachment to the University. Similarly, as preregistered, the within-person components of self-concept fit, $\beta = .10, p < .001$; goal fit, $\beta = .13, p < .001$; and social fit, $\beta = .07, p = .005$ each uniquely and significantly predicted participants’ state attachment to the university and explained 7.46% of total variance in this variable.
**Emotional Burnout.** Analysis of emotional burnout revealed a different pattern. Participants reported feeling greater emotional burnout in situations where they experienced less self-concept fit, $\beta = -.12, p < .001$, explaining 3.73% of total variance. Neither goal fit nor social fit significantly predicted momentary emotional burnout.

**Working Memory Capacity.** Finally, the analysis of working memory capacity revealed that participants’ working memory capacity was higher in situations where they felt higher self-concept fit, $\beta = .12, p = .004$; and lower social fit, $\beta = -.08, p = .020$ (explaining 1.64% of total variance). Goal fit did not significantly predict momentary variation in working memory capacity and none of the between-person components of the three types of fit significantly predicted working memory capacity (see Supplementary Material), revealing the highly contextualized nature of this cognitive outcome.

### 2.2.4 Does Momentary Variation in Authenticity Predict Outcomes?

Having established that each outcome was uniquely predicted by one or more measures of fit, we next repeated the previous analyses to predict each outcome from state authenticity (in place of momentary fit). As hypothesized, in situations where participants felt more authentic, they reported a higher willingness to return, $\beta = .23, p < .001$, higher state attachment to the university, $\beta = .36, p < .001$, and lower burnout, $\beta = -.23, p < .001$. However, state authenticity did not predict momentary variation in working memory capacity, $\beta = -.01, p = .79$.

Previous studies in our lab provided evidence of significant indirect effects between the three types of fit and university commitment via state authenticity (Aday et al., under revision). In the current study, we preregistered mediational analyses as exploratory given the smaller sample. We conducted path analysis with multilevel data structure using R package lavaan.
version 0.6-3 (Rosseel, 2012) but focused on within-person variance. Given the lack of significant relationship between within-person state authenticity and working memory capacity, we only conducted these analyses for willingness to return, state attachment, and emotional burnout.

Results revealed that, at the within-person level, each type of fit showed significant indirect effects on state attachment to the university: self-concept fit \(a^*b = .03, p < .001\), goal fit \(a^*b = .05, p < .001\), social fit \(a^*b = .04, p < .001\). For emotional burnout, the direct effect between self-concept fit on burnout was statistically mediated by state authenticity (indirect effect: \(a^*b = -.02, p < .001\)). However, the effects of fit on willingness to return was not mediated by state authenticity (see Figure 1).

**Figure 1.** Within-Person Relation of Each Type of Fit to State Attachment to the University, Emotional Burnout, and Willingness to Return as Mediated Through State Authenticity in the Combined Analysis. Path Coefficients Reflect Standardized Betas; Relationships Among Fit Constructs Reflect Raw Covariances (i.e., Estimates May Surpass 1.00)
Table 2

Within-Person Results of Momentary Fit and Authenticity Predicting Momentary Outcomes

<table>
<thead>
<tr>
<th>Predicting Outcomes from Fit</th>
<th>Willingness to Return</th>
<th>State Attachment</th>
<th>Working Memory</th>
<th>Emotional Burnout</th>
</tr>
</thead>
<tbody>
<tr>
<td>Momentary Self Concept Fit</td>
<td>$\beta = .16^{***}$</td>
<td>$\beta = .10^{***}$</td>
<td>$\beta = .12^{**}$</td>
<td>$\beta = -.12^{***}$</td>
</tr>
<tr>
<td>Momentary Goal Fit</td>
<td>$\beta = .11^{***}$</td>
<td>$\beta = .13^{***}$</td>
<td>$\beta = -.04$</td>
<td>$\beta = -.03$</td>
</tr>
<tr>
<td>Momentary Social Fit</td>
<td>$\beta = .15^{***}$</td>
<td>$\beta = .07^{**}$</td>
<td>$\beta = -.08^*$</td>
<td>$\beta = -.04$</td>
</tr>
</tbody>
</table>

Predicting Outcomes from State Authenticity

| State Authenticity          | $\beta = .23^{***}$    | $\beta = .36^{***}$  | $\beta = -.01$   | $\beta = -.23^{***}$ |

*Note.* $^*p < .05$. $^{**}p < .01$. $^{***}p < .001$. Variables (1) - (8) are single-item measures. We conducted separate models to test the unique predictive effects of fit (in one set of models) and state authenticity (in a separate model).
2.2.5 Do Features of the Context Uniquely Predict Different Types of Fit?

In our final set of analyses, we tested preregistered hypotheses about the types of contextual features that predict each type of fit. Specifically, we ran a series of analyses regressing a given momentary rating of fit (while controlling for the other two types of fit) on each context variable using multilevel modeling and allowing the intercept to vary across participants. We summarize the results of these analyses in Table 3.

**Self-concept fit.** Supporting our preregistered hypotheses, participants experienced more self-concept fit in situations that were familiar (vs. unfamiliar), $\beta = .31, p < .001$, or freely chosen, $\beta = .11, p = .01$. No other contextual variable predicted self-concept fit uniquely.

**Goal fit.** Partially supporting hypotheses, participants experienced greater goal fit when engaged in active (vs. passive) activities, $\beta = .36, p < .001$; but not when engaged in a social (vs. solitary) activity, $\beta = .01, p = .89$. No other contextual variable predicted goal fit uniquely.

**Social fit.** As hypothesized, participants experienced significantly greater social fit in situations with close others (vs. being alone), $\beta = .29, p < .001$, and significantly less social fit in situations with non-close others (vs. being alone), $\beta = -.43, p < .001$ (i.e., even if close others were also present, the presence of non-close others was associated with lower social fit). Although we did not preregister hypotheses around the following variables, participants also experienced greater social fit in situations that were familiar, and not surprisingly, when engaged in social (vs. solitary) activities. They also experienced less social fit during activities that were active versus passive (Table 3).
Table 3

Contextual Features Predicting Momentary Fit

<table>
<thead>
<tr>
<th></th>
<th>Self-Concept Fit</th>
<th>Goal Fit</th>
<th>Social Fit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not Controlling for Other Fit</td>
<td>Controlling for Other Fit</td>
<td>Not Controlling for Other Fit</td>
</tr>
<tr>
<td>Choose to be Here</td>
<td>0.56***</td>
<td>0.31***</td>
<td>0.38***</td>
</tr>
<tr>
<td>Familiar Place</td>
<td>0.29***</td>
<td>0.11*</td>
<td>0.24***</td>
</tr>
<tr>
<td>Actively Engaged</td>
<td>0.13**</td>
<td>-0.01</td>
<td>0.41***</td>
</tr>
<tr>
<td>Social Activities</td>
<td>0.23**</td>
<td>0.07</td>
<td>0.13</td>
</tr>
<tr>
<td>With Close Others</td>
<td>0.10*</td>
<td>0.004</td>
<td>0.01</td>
</tr>
<tr>
<td>With Non-close Others</td>
<td>-0.22***</td>
<td>-0.02</td>
<td>-0.11</td>
</tr>
</tbody>
</table>

Note. *p < .05. **p < .01. ***p < .001.

2.3 Discussion

Study 1 reveals the three types of fit uniquely predicted state authenticity and other momentary outcomes. Specifically, the experience sampling method provides greater insight into how fit and authenticity vary from one situation to the next. Controlling for individual differences, perceiving that the environment is a fit to one’s self-concept, goals, and sociality offer independent pathways to feeling authentic at the moment.

In line with the SAFE model, the distinct types of fit are predictive of situation selection, measured as one’s willingness to return to the situation. But beyond the implications of
behavioural intentions, momentary variation in each type of fit predicted students’ state attachment to their university. Consistent with the SAFE model’s assertion that self-concept fit cues cognitive fluency, only self-concept fit predicted higher working memory capacity and lower emotional burnout. Unexpectedly, social fit also predicted lower working memory capacity, perhaps because people were more distracted in situations with close others. A key limitation of results in Study 1 results is that state authenticity did not mediate the effects of fit on one’s willingness to return to the situation, though there was evidence consistent with mediation for fit effects on state attachment and emotional burnout (especially for self-concept fit).

A final strength of Study 1 was the evidence supporting our preregistered hypotheses about contextual features that predict each type of fit. Choosing to be in a familiar place elicits self-concept fit, whereas active (vs. passive) engagement in a situation elicits goal fit. Social fit, on the other hand, is elicited in a wider range of contexts: when people are passively engaged in social activities, in familiar places, and with close (vs. non-close) others. Taken together, these patterns provide contextual evidence that these types of fit represent conceptually distinct ways in which individuals experience congruence with their environment.
Chapter 3: Experiences of Fit and Authenticity in Academic Settings

Study 1 provided evidence that three types of fit are conceptually distinct predictors of state authenticity. Building upon Study 1, the objective of this chapter is to replicate these findings and explore the implications of the SAFE model in academic settings.

To consolidate the findings in Study 1 and provide further support for the SAFE model, we replicated the experience sampling study with a slightly different procedure. One feature of the experience sampling phase in Study 1 was the fixed time (2 pm, 5 pm, and 8 pm) of receiving short surveys and the arbitrary two-week sampling period. These features might bring in unwanted response patterns due to students’ weekly schedules. To mitigate these potential response patterns, Study 2 employed a two-month experience sampling design which was customized to accommodate each student's individual class schedule.

This chapter also put more weight on students’ daily experiences at universities. Students' experiences within the academic environment can have a substantial impact on their academic performance and choices, as evidenced by research linking a sense of belonging to improved academic outcomes (Walton & Cohen, 2007; 2011). These experiences, both actual and anticipated, shape students' perceptions of the university and can influence their academic decisions. For instance, focus-group participants have indicated a preference for institutions that foster a sense of "comfort" (Read et al., 2003), while institutional fit has been shown to be a significant predictor of freshman dropout syndrome (Bean, 1985). In light of the SAFE model, we posit that the experience of three types of fit throughout the academic term may have consequential effects on academic outcomes. Study 1 confirmed that feelings of fit and
authenticity predict an approach/avoidance tendency using a measure of students’ willingness to return to a given situation. Extending from this finding, Study 2 sought to investigate the practical implications of the SAFE model, specifically in relation to academic choices and performance. The modified experience sampling procedure in the new study, which captures students' experiences in their classes, enables us to explore this question.

Finally, the SAFE model proposes that social identities may afford or erode feelings of fit and state authenticity through cognitive, motivational, and interpersonal fluency (Schmader and Sedikides 2018), but the available evidence to support this assertion is currently inadequate. By applying the SAFE model to academic settings, it is anticipated that the self-concept fit of marginalized students could be jeopardized when in classes shaped by the norms and values of the advantaged group. Moreover, in classes where instructors and the majority of students prioritize goals that are incongruent with marginalized students' goal orientation, these students may experience a low level of goal fit. For example, students who value harmony may feel a sense of goal misfit in classes that require expressing opposite ideas. Additionally, being in a classroom surrounded by advantaged group members may raise concerns about identity-based evaluations for marginalized students, which can negatively impact their experiences of social fit. By leveraging the experience sampling design, this study also aims to provide preliminary evidence regarding the impact of marginalization on feelings of fit and consequent authenticity.

Study 2

Study 2 was preregistered on the Open Science Framework (OSF; https://doi.org/10.17605/OSF.IO/8C5VF). It followed a similar study design as in Study 1, except that the experience sampling period was extended to 8 weeks in the middle of the academic term. Study 2 aimed to achieve three objectives. First, it aimed to replicate the within-
person validation of the SAFE model in Study 1, using a modified design focused more on students’ experiences in classes related to their academic major. To assess the short-term academic experiences, our study included a momentary assessment of students' self-class overlap and attachment to their major. We hypothesized that all three types of fit and authenticity would predict these outcomes, without specifying the relative strength of their relationships.

Secondly, the study aimed to explore whether experiences of fit and authenticity throughout the academic term have cumulative impacts. To achieve this goal, we measured students' attachment to their major, commitment to their major, and commitment to their university in both T1 and T2 surveys. We predicted that, at the between-person level, feeling a higher level of average fit and authenticity would increase students' attachment and commitment to their major and university. In addition, the study aimed to investigate the impact of school experiences on students' subjective well-being (SWB), including students’ life satisfaction and feelings of loneliness. We hypothesized that experiencing higher levels of fit and authenticity would have a positive effect on students' SWB. Furthermore, class grades were included as an important measure of academic performance, and the study predicted that experiencing higher levels of fit and authenticity throughout the term would predict better grades.

Finally, a third goal of the study was to test whether the experience of marginalization in the classroom predicted lower fit and authenticity with implications for these shorter and longer-term outcomes. The pre-registered hypotheses proposed that experiencing marginalization (based on whatever identity was reported to be marginalized by the participant) would result in a decrease in all three types of fit and authenticity, both at the within-person and between-person levels. Additionally, we hypothesized that averaged feelings of marginalization would reduce attachment and commitment to the major and university, and be associated with poorer academic
performance. Moreover, the study predicted that marginalization would have a negative impact on students' subjective well-being.

3.1 Method

3.1.1 Participants

The study recruited undergraduate students from a Canadian university through the Psychology Department's Human Subject Pool (HSP). The initial T1 baseline study enrolled 522 participants. Of those enrolled, 446 students participated in the eight-week experience sampling (ES) phase and completed at least one ES survey. Ultimately, 295 participants returned for the T2 post-survey and passed the attention check. As per the recommendations of Arend and Schäfer (2019), we initially pre-registered a sample size of 150. However, to account for the high attrition rate, we opted to keep the registration open during the permissible time window of each academic term. We analyzed all available data for the study, which resulted in varying sample sizes for short-term ($n = 5975$ observations from 432 participants) and longer-term outcomes ($n = 289$ participants). It is worth noting that 6 participants who completed the T2 survey did not report any observations after attending the focal classes and were therefore excluded from the longer-term analysis. This post-hoc exclusion was not pre-registered but was necessary for data analysis.

The study was conducted over two academic terms, with 68 participants completing T1 in the first term, and 454 in the second term. Demographic characteristics were as follows: $M_{\text{age}} = 20.80$, $SD_{\text{age}} = 3.52$; 79.31% women, 16.28% men, 3.06% non-binary; 13.41% first-generation students; 40.61% born in Canada; 38.31% East Asian, 20.69% South Asian, 16.28% White/European. Around half of our participants majored in psychology (58.05% psychology
majors), and were drawn from a diverse range of academic year standings (1st year 16.86%, 2nd year 25.10%, 3rd year 32.57%, 4th year 17.05%; 5th year 4.98%; and Other 1.53%).

3.1.2 Procedure

Similar to Study 1, Study 2 was a combination of longitudinal and experience sampling design, consisting of three phases: a T1 baseline survey, an eight-week experience sampling phase, and a T2 survey. Participants completed the T1 baseline survey approximately one month after classes began each term (Sep 25th - Oct 2nd, 2022 for Term 1; Jan 09th - Feb 03rd, 2023 for Term 2). The T1 baseline survey measured academic information (attachment to major, commitment to major/university, academic motivation), individual characteristics (personality, acculturation), mental well-being (life satisfaction, loneliness), identity-relevant measures (stigma consciousness, marginalized identities) and demographics. Participants were additionally required to report the class schedule of two courses from/or closely-relevant to their major, which were named ‘focal courses’.

Right after the T1 survey, participants entered an 8-week experience sampling phase. Participants were prompted with survey links right after their focal courses depending on their class schedule. The number of surveys each participant received per week varied from 2 - 6, depending on class schedule differences. The survey contained questions about general positivity, state authenticity, three types of fit, momentary outcomes (e.g., class attendance, self/class overlap, and attachment to major), contextual information (e.g., activities, and being with whom), as well as incidences of marginalization.
In the last week of the academic term, participants completed an online T2 survey within a 24-hour time period. The T2 survey contained all T1 measures except for personality and demographic information.

3.1.3 T1 Baseline Survey

The T1 survey was administered as a baseline assessment through a 30-minute online survey. Some of the T1 baseline measures were not utilized in this particular set of analyses; the measures relevant to this project are outlined below.

Attachment to Major. Participants reported their attachment to their major/intended major with a single item “How much do you enjoy your major (or intended major) thus far?” (1 = I don’t enjoy my major (intended major) very much; 7 = I enjoy my major (intended major) very much).

Major Commitment and University Commitment. Major commitment and university commitment were conceptualized as the reverse of intention to change major or drop out of university, and were measured similarly each by three items (e.g., “I often thought about changing major/university.”) adapted from prior work in our lab. Participants rated each item with a 7-point Likert scale ranging from 1 = strongly disagree to 7 = strongly agree. The composite score was calculated as the average across all items, major commitment, \( \alpha = .70 \); university commitment, \( \alpha = .64 \).

Loneliness. We measured students’ chronic loneliness with 8 items from UCLA Loneliness Scale (ULS-8; Hays & DiMatteo, 1987; e.g., “There was no one I can turn to.”).
Participants rated the frequency of each item with a 7-point scale (1 = Never to 7 = Always). The composite score was calculated as the average across all items, α = .91.

**Life Satisfaction.** Students’ life satisfaction was measured with the three subscales from Multidimensional Students' Life Satisfaction Scale (MSLSS; School, Friend, and Self subscales; Huebner, 1998). One example item from each subscale is provided here: “College/university was interesting” for the School subscale; “My friends treated me well” for the Friends subscale; and “I liked myself” for the Self subscale. Participants rated their agreement to each item with a 7-point scale (1 = Strongly disagree to 7 = Strongly agree). The composite score was calculated as the average across all items for each subscale, α = .86 for the School subscale, α = .89 for the Friends subscale, and α = .86 for the Self subscale.

### 3.1.4 Experience Sampling Survey

The 3-minute Experience Sampling (ES) survey measured momentary information in a format that participants could easily access using a smartphone or tablet. The following measures are described in the order in which they were gathered.

**Positivity.** General positivity was measured by a single-item prompted by ‘*Please use the slider to indicate your emotional state right before receiving this survey*’. Participants chose one from a 5-point Smiley Likert scale (1 = a sad face; 5 = a happy face).

**Class Attendance.** Participants reported whether they attended their scheduled focal classes by a Yes/No question. If they chose ‘No’, participants would be required to report reasons for skipping the class with a multiple-choice question, with choices including: “The class was cancelled”; “I was sick”; “I had a schedule conflict”; “I intentionally chose to skip the class”;
“I dropped the course”; “I accidentally slept over”. Participants were also provided with a choice to specify their own reasons if none of the above is appropriate.

**Self/Class Overlap.** To assess self/class overlap, we employed a single item adapted from Lenton et al.’s (2013b) real-self overlap scale (RSOS). This pictorial scale consists of seven pairs of circles, each pair varying in the degree of overlap between them. One circle in each pair is labelled "this class," while the other is labelled "me." Participants were instructed to select the circle pair that best represented their current feelings.

**Contextual Information.** Participants reported their activities and social context using two multiple-choice questions. For the activities, we asked “*What were you doing in this focal course class [if they attended class]/right before receiving this survey*[if they skipped the class]?” with four checkboxes (“active, and on-topic [e.g., taking notes/completing an assignment for this class]”; “active, but off-topic [e.g., browsing the web/exercising]”; “passive, and on-topic [e.g., listening to the professor/reading for this class]”; “passive, but off-topic [e.g., zoning out/relaxing]”). The examples for each item depend on whether they attend the class (the former examples) or not (the latter examples). Participants could check all that applied to their current situation. Additionally, participants checked one or more of the following boxes to indicate their social context: “by myself”, “close others”, and “non-close others”.

**Momentary Fit.** We assessed momentary feelings of three types of fit using the same measures as in Study 1.

**State Authenticity.** Participants were asked to rate their feelings of state authenticity and state inauthenticity, each using a 7-point Likert scale. The state authenticity item was identical to that used in Study 1, while state inauthenticity was measured using a face-valid question: “I feel
inauthentic in this class.” The latter is included because we would like to explore the possible difference between state authenticity and inauthenticity. Given the high correlation between these two items ($r = -0.76$), we calculated the average of the two items in analysis.

**Marginalization.** Participants were asked to indicate whether they felt marginalized using a simple Yes/No question that read as follows: "In this focal course class [if they attended the class]/In this place [if they skipped the class], I was reminded of my membership in a marginalized group." Those who responded "Yes" were then asked to elaborate on the specific identities that contributed to these feelings, as well as the reasons, both using a combination of multiple choices (e.g., “Woman” for the former; “Something the instructor/TA said or did” for the later) and open-ended question.

**Attachment to Major.** Students’ attachment to their major was measured by a single item “Right now, how do you feel about your major (or intended major)?”, with a 7-point Likert scale (1 = I don’t enjoy my major (intended major) very much; 7 = I enjoy my major (intended major) very much).

**3.1.5 T2 Post Survey**

The T2 survey contains the identical outcome measures as in T1, with demographic information questions removed.
3.2 Results

3.2.1 Analysis Plan

We collected 8261 observations during the experience sampling phase. To analyze the short-term outcomes, we specifically selected those instances when students reported attending their focal classes (5975 observations from 432 participants), since the primary objectives of this study are closely related to academic experience and performance (e.g., self/class overlap). For the longer-term outcomes, we analyzed T1 and T2 data from participants who completed both surveys, with mediators from the ES observations when students attended the focal classes.

In analyzing the short-term outcomes from the experience sampling phase, we employed the same method as used in Study 1. For the longer-term outcomes, we utilized multiple linear regression, predicting the outcome with the interaction between fit and time (T1 vs. T2). Mediation analyses, using individuals’ average ES ratings of three types of fit or state authenticity as mediators, were conducted using path analyses with the 'lavaan' package version 0.6-3 (Rosseel, 2012).

3.2.2 Short-term Outcomes

In Table 4, we first present descriptive statistics and bivariate correlations for both within- and between-person levels among the items measured in the experience sampling survey. Similar to Study 1, the three types of fit were interrelated and positively correlated with state authenticity, and negatively correlated with state inauthenticity, with smaller magnitudes at the within-person level compared with the between-person level.
Of the observations reported after attending the class, 6.86% reported feeling marginalized, primarily due to being a woman and/or a person of color. During class, students engaged in active behavior in 85.76% of incidents, with 78.34% of incidents related to the class topic, such as taking notes. In 46.53% of cases, students attended the class alone, while 30.72% attended with close others, and 33.07% with non-close others. The sum of these three values is greater than 1 because some students attended class with both close and non-close others.

Table 4

Descriptive Statistics and Correlations Among Key Variables Measured in Study 2

<table>
<thead>
<tr>
<th>Variables (1) - (8)</th>
<th>Mean (SD)</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
<th>(8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Self-Concept Fit</td>
<td>5.08 (1.30)</td>
<td>0.89***</td>
<td>0.77***</td>
<td>0.82***</td>
<td>-0.75***</td>
<td>0.57***</td>
<td>0.53***</td>
<td>0.70***</td>
<td></td>
</tr>
<tr>
<td>(2) Goal Fit</td>
<td>5.11 (1.36)</td>
<td>0.53***</td>
<td>0.69***</td>
<td>0.76***</td>
<td>-0.69***</td>
<td>0.56***</td>
<td>0.54***</td>
<td>0.71***</td>
<td></td>
</tr>
<tr>
<td>(3) Social Fit</td>
<td>5.25 (1.39)</td>
<td>0.36***</td>
<td>0.34***</td>
<td>0.76***</td>
<td>-0.68***</td>
<td>0.42***</td>
<td>0.36***</td>
<td>0.49***</td>
<td></td>
</tr>
<tr>
<td>(4) State Authenticity</td>
<td>5.17 (1.26)</td>
<td>0.44***</td>
<td>0.45***</td>
<td>0.35***</td>
<td>-0.88***</td>
<td>0.48***</td>
<td>0.46***</td>
<td>0.62***</td>
<td></td>
</tr>
<tr>
<td>(5) State Inauthenticity</td>
<td>2.81 (1.35)</td>
<td>-0.37***</td>
<td>-0.39***</td>
<td>-0.29***</td>
<td>-0.63***</td>
<td>-0.44***</td>
<td>-0.39***</td>
<td>-0.55***</td>
<td></td>
</tr>
<tr>
<td>(6) Positivity</td>
<td>3.55 (0.99)</td>
<td>0.30***</td>
<td>0.33***</td>
<td>0.24***</td>
<td>0.28***</td>
<td>-0.24***</td>
<td>0.44***</td>
<td>0.47***</td>
<td></td>
</tr>
<tr>
<td>(7) Self/Class Overlap</td>
<td>3.59 (1.54)</td>
<td>0.40***</td>
<td>0.43***</td>
<td>0.25***</td>
<td>0.38***</td>
<td>-0.29***</td>
<td>0.29***</td>
<td>0.51***</td>
<td></td>
</tr>
<tr>
<td>(8) Attachment to Major</td>
<td>5.26 (1.33)</td>
<td>0.34***</td>
<td>0.41***</td>
<td>0.24***</td>
<td>0.36***</td>
<td>-0.28***</td>
<td>0.31***</td>
<td>0.38***</td>
<td></td>
</tr>
</tbody>
</table>

Note. *p < .05. **p < .01. ***p < .001. Variables (1) - (8) are single-item measures. The means and SDs presented here are the grand-means and SDs. Correlations above the diagonal are between-person correlations, while those below the diagonal are within-person correlations.

3.2.2.1 Do Momentary Feelings of Fit Predict State Authenticity?

We first tested whether the three types of fit predict state authenticity at the within-person level using the same method as in Study 1. We included positivity as a covariate to discern the overlap between positivity and state authenticity. The ICC was .43 for state authenticity which legitimized our approach of using multilevel modelling with random intercepts and slopes. Consistent with results in Study 1, state authenticity was uniquely
predicted by all three types of fit at the within-person level: $\beta = .19, p < .001$; goal fit, $\beta = .20, p < .001$; social fit, $\beta = .14, p < .001$ (see Table 5). The magnitudes of the first two were larger than in Study 1, which may be due to the fact that self-concept fit and goal fit are more relevant in the academic setting. The three types of fit together explained 15.14% of the variance in state authenticity (following the procedure suggested in Rights & Sterba, 2019).

Additionally, the between-person level results partially replicated the patterns in Study 1. Participants who, on average across situations, reported higher state authenticity also reported, on average, higher self-concept fit, $\beta = .48, p < .001$; and social fit $\beta = .30, p < .001$; but only somewhat higher goal fit $\beta = .10, p = .06$. At the between-person level the three types of fit also explained unique variance in authenticity, $R^2 = .39$.

### 3.2.2.2 Does Momentary Variation in Fit Predict Momentary Outcomes?

Similar to Study 1, we regressed each outcome variable on both within-person and between-person components of all three types of fit, allowing the intercept and slope to vary across participants in multilevel modelling. Positivity was again included as a covariate. Both within-person level and between-person level results are summarized in Table 5, but we focused on the former in this section.

**Self/Class Overlap.** As pre-registered, momentary fluctuations in three types of fit were each uniquely predictive of students' momentary self/class overlap. Specifically, in classes where participants experienced greater levels of self-concept fit ($\beta = .17, p < .001$), goal fit ($\beta = .22, p < .001$), and/or social fit ($\beta = .05, p = .002$), they also reported significantly higher levels of self/class overlap. These three types of fit accounted for 10.79% of the total variance in self/class overlap at the within-person level.
**Attachment to Major.** Similarly, as preregistered, students’ momentary attachment to their major was predicted by the within-person components of self-concept fit, $\beta = .09, p < .001$; goal fit, $\beta = .17, p < .001$; and social fit, $\beta = .03, p = .02$, which in sum explained 8.30% of the total variance in this variable at the within-person level.

**Table 5**

**Within-Person Results of Momentary Fit and Authenticity Predicting Momentary Outcomes**

<table>
<thead>
<tr>
<th></th>
<th>State Authenticity</th>
<th>Self/Class Overlap</th>
<th>Attachment to Major</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Within-Person</td>
<td>Between-Person</td>
<td>Within-Person</td>
</tr>
<tr>
<td>Predicting Outcomes from Fit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Momentary Self Concept Fit</td>
<td>$\beta = .19^{***}$</td>
<td>$\beta = .48^{**}$</td>
<td>$\beta = .17^{**}$</td>
</tr>
<tr>
<td>Momentary Goal Fit</td>
<td>$\beta = .20^{***}$</td>
<td>$\beta = .10^{*}$</td>
<td>$\beta = .22^{**}$</td>
</tr>
<tr>
<td>Momentary Social Fit</td>
<td>$\beta = .14^{***}$</td>
<td>$\beta = .30^{**}$</td>
<td>$\beta = .05^{*}$</td>
</tr>
</tbody>
</table>

**Note.** *$p < .05$. **$p < .01$. ***$p < .001$.** Within-person and between-person effects are listed side by side. We conducted separate models to test the unique predictive effects of fit (in one set of models) and state authenticity (in a separate model).

3.2.2.3 Does Momentary Variation in Authenticity Predict Momentary Outcomes?

Following the same procedure as in Study 1, we repeated the previous analysis to predict self/class overlap and attachment to major from state authenticity at both within-person and between-person levels. As hypothesized, when students felt more authentic in class, they reported a higher self/class overlap, $\beta = .28, p < .001$, and a higher attachment to their major $\beta = .21, p < .001$ (even when controlling for positivity).
Using path analysis, we further examined the mediation effects of state authenticity on the relationship between three types of fit and each momentary outcome. Positivity was included as a covariate in this set of analyses. Results revealed that at the within-person level, state authenticity partially mediated the effects of each type of fit on self/class overlap. The indirect effects were significant for self-concept fit $a*b = .03$, $p < .001$, goal fit $a*b = .04$, $p < .001$, and social fit $a*b = .02$, $p < .001$. Similarly, each type of fit showed significant indirect effects on momentary attachment to major: self-concept fit $a*b = .03$, $p < .001$, goal fit $a*b = .04$, $p < .001$, social fit $a*b = .02$, $p < .001$ (see Figure 2).
3.2.2.3 Do Contextual Features Uniquely Predict Different Types of Fit?

As an exploratory analysis, we examined whether the activities and social context would predict students’ feelings of fit. Specifically, we ran a series of analyses regressing a given momentary rating of fit (while controlling for the other two types of fit) on activities and social context separately using multilevel modelling and allowing the intercept to vary across participants. While these hypotheses were not pre-registered, they parallel those conducted in Study 1.

**Activities.** Consistent with findings from Study 1, goal fit was predicted by actively engaging in on-topic activities, $\beta = .13, p < .001$, and negatively predicted by doing off-topic activities either actively $\beta = -.06, p = .01$, or passively $\beta = -.23, p < .001$. Self-concept fit was uniquely predicted by actively engaging in on-topic activities such as taking notes in classes, $\beta = .13, p < .001$. Finally, students reported greater social fit when they were actively engaged in off-topic activities $\beta = .07, p = .01$.

**Social Context.** Consistent with results in Study 1, social fit is positively correlated with being with close others $\beta = .08, p = .03$, and negatively correlated with being alone $\beta = -.12, p = .001$ and being with non-close others $\beta = -.08, p = .03$. Neither self-concept fit nor goal fit was predicted by any social context variables.
3.2.3 Longer-Term Outcomes

To evaluate the cumulative effects of fit and authenticity throughout the academic term, we regressed each longer-term outcome on the interaction of time (T1 vs. T2) and all three types of fit simultaneously\(^1\). We focus on two aspects of students’ experiences: 1) academic engagement (e.g., longer-term attachment to major, major/university commitment); 2) mental well-being (e.g., loneliness, life satisfaction). Table 6 provides descriptive statistics and bivariate correlations for the key individual-level variables. For each participant, the three types of fit and authenticity were computed as the average score measured in the ES phase. The extent of marginalization reflected the proportion of incidents during the ES phase in which participants felt marginalized. It is important to note that all participants who entered the ES phase reported at least one marginalized identity in the T1 survey. Thus, the extent of marginalization is a reflection of participants' reported experiences of feeling marginalized rather than simply possessing a marginalized self-identity.

Table 6

Descriptive Statistics and Correlations Among Key Longer-Term Variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean (SD)</th>
<th>Mean (SD)</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
<th>(8)</th>
<th>(9)</th>
<th>(10)</th>
<th>(11)</th>
<th>(12)</th>
<th>(13)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Average Self-Counselor Fit (standardized)</td>
<td>0.61 (0.70)</td>
<td>0.87***</td>
<td>0.74***</td>
<td>0.41***</td>
<td>-0.19***</td>
<td>0.66***</td>
<td>0.43***</td>
<td>0.36***</td>
<td>-0.19***</td>
<td>0.46***</td>
<td>0.29***</td>
<td>0.41***</td>
<td>0.24***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(2) Average Felt Fit (standardized)</td>
<td>0.63 (0.65)</td>
<td>0.65***</td>
<td>0.73***</td>
<td>-0.1</td>
<td>0.66***</td>
<td>0.44***</td>
<td>0.42***</td>
<td>-0.41***</td>
<td>0.45***</td>
<td>0.26***</td>
<td>0.41***</td>
<td>0.28***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(3) Average Social Fit (standardized)</td>
<td>-0.32 (0.79)</td>
<td>0.74***</td>
<td>0.65***</td>
<td>0.54***</td>
<td>-0.33***</td>
<td>0.40***</td>
<td>0.33***</td>
<td>0.34***</td>
<td>-0.42***</td>
<td>0.41***</td>
<td>0.34***</td>
<td>0.41***</td>
<td>0.16***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(4) Average Fit Authenticity (standardized)</td>
<td>-0.01 (0.76)</td>
<td>0.81***</td>
<td>0.72***</td>
<td>0.74***</td>
<td>-0.20***</td>
<td>0.49***</td>
<td>0.39***</td>
<td>0.34***</td>
<td>-0.14***</td>
<td>0.42***</td>
<td>0.38***</td>
<td>0.37***</td>
<td>0.19***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(5) Extent of Marginalization</td>
<td>0.19 (0.10)</td>
<td>-0.19***</td>
<td>-0.10</td>
<td>-0.32***</td>
<td>-0.20***</td>
<td>-0.03</td>
<td>-0.07</td>
<td>-0.08</td>
<td>0.11</td>
<td>-0.08</td>
<td>-0.16***</td>
<td>-0.09</td>
<td>-0.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(6) Attachment to Major</td>
<td>5.66 (1.22)</td>
<td>5.19 (1.32)</td>
<td>0.45***</td>
<td>0.40***</td>
<td>0.20***</td>
<td>0.38***</td>
<td>0.62</td>
<td>0.59***</td>
<td>0.41***</td>
<td>-0.13**</td>
<td>0.52***</td>
<td>0.19***</td>
<td>0.44***</td>
<td>0.23***</td>
<td></td>
</tr>
<tr>
<td>(7) Major Commitment</td>
<td>2.64 (1.25)</td>
<td>2.55 (1.22)</td>
<td>0.31***</td>
<td>0.22***</td>
<td>0.32***</td>
<td>0.30</td>
<td>0.60***</td>
<td>0.52***</td>
<td>-0.19**</td>
<td>0.38***</td>
<td>0.30***</td>
<td>0.28***</td>
<td>0.09</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(8) University Commitment</td>
<td>2.48 (1.05)</td>
<td>2.44 (1.07)</td>
<td>0.34***</td>
<td>0.35***</td>
<td>0.24***</td>
<td>0.31***</td>
<td>0.60***</td>
<td>0.59***</td>
<td>-0.13**</td>
<td>0.42***</td>
<td>0.37***</td>
<td>0.38***</td>
<td>0.12 ***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(9) Loneliness</td>
<td>3.17 (3.35)</td>
<td>3.19 (3.21)</td>
<td>0.36***</td>
<td>0.42***</td>
<td>0.35***</td>
<td>0.47***</td>
<td>0.63***</td>
<td>0.56***</td>
<td>-0.18***</td>
<td>0.49***</td>
<td>0.50***</td>
<td>0.19***</td>
<td>0.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(10) Life Satisfaction (School)</td>
<td>4.81 (0.59)</td>
<td>4.77 (0.60)</td>
<td>0.38***</td>
<td>0.40***</td>
<td>0.22***</td>
<td>0.34***</td>
<td>0.87</td>
<td>0.59***</td>
<td>0.41***</td>
<td>0.54***</td>
<td>0.18***</td>
<td>0.34***</td>
<td>0.49***</td>
<td>0.30***</td>
<td></td>
</tr>
<tr>
<td>(11) Life Satisfaction (Overall)</td>
<td>5.54 (0.87)</td>
<td>5.08 (0.95)</td>
<td>0.26***</td>
<td>0.27***</td>
<td>0.20***</td>
<td>0.34***</td>
<td>-0.01</td>
<td>0.21***</td>
<td>0.26***</td>
<td>0.35***</td>
<td>0.59***</td>
<td>0.26***</td>
<td>0.06***</td>
<td>0.18***</td>
<td></td>
</tr>
<tr>
<td>(12) Life Satisfaction (Self)</td>
<td>5.01 (0.83)</td>
<td>5.01 (1.00)</td>
<td>0.36***</td>
<td>0.27***</td>
<td>0.20***</td>
<td>0.34***</td>
<td>-0.02</td>
<td>0.24***</td>
<td>0.26***</td>
<td>0.38***</td>
<td>-0.58***</td>
<td>0.50***</td>
<td>0.43***</td>
<td>0.16***</td>
<td></td>
</tr>
<tr>
<td>(13) Average Grades of Core Courses</td>
<td>3.14 (0.19)</td>
<td>0.22***</td>
<td>0.26***</td>
<td>0.15</td>
<td>0.18***</td>
<td>-0.02</td>
<td>0.09</td>
<td>-0.08</td>
<td>0.00</td>
<td>-0.11</td>
<td>0.06</td>
<td>0.15</td>
<td>0.09</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. *p < .05. **p < .01. ***p < .001. Variables (1) - (5) were measured in experience sampling phase. Average fit and authenticity were standardized using all in-class observations in experience sampling phase. Since each student completed a different number of surveys, the

\(^1\) We also analyzed longer-term outcomes in different ways (e.g., using change score; regressing T2 scores on fit while controlling for T1 scores), and the results are very similar in terms of direction and significance.
mean of individual-average is not zero. Variable (13), the average grades were obtained after the end of each academic term through the students enrollment services. Correlations among variables in T1 are displayed below diagonal, while T2 correlations are above diagonal.

3.2.3.1 Does Average Fit Predict Longer-Term Outcomes?

To investigate the cumulative effects of fit over a longer period, we conducted multiple regression analyses by regressing each outcome on the interaction of time and three types of fit simultaneously. All continuous variables were standardized before being entered into the model. Results for all longer-term variables are summarized in Table 7.

**Academic Experiences.** Among the three academic outcomes (i.e., longer-term attachment to major, major commitment, and university commitment), a decrease in longer-term attachment to major was uniquely predicted by lower average goal fit during the experience sampling phase, $\beta = 0.35, p = .01$, but not by either self-concept fit ($\beta = -0.20, p = .20$) or social fit ($\beta = 0.10, p = .31$). As shown in Figure 3a, among students who experienced lower goal fit (i.e., 1SD below average) in the classes, their attachment to their major decreased (simple slope$^2$: $b = -0.95, p < .001$); this same decrease was not exhibited by those who experienced high levels (i.e., 1SD above average) of goal fit (simple slope: $b = .01, p = .95$; see Figure 3a).

**Mental Well-being.** Social fit was a significant predictor of changes in life satisfaction (specifically the school subscale), whereby students who, on average, experienced a lower level of social fit reported a decrease in school satisfaction ($\beta = .27, p = .02$). As illustrated in Figure 3b, students who experienced low social fit (i.e., 1SD below average) demonstrated a significant decrease in school satisfaction throughout the term (simple slope: $b = -0.39, p = .004$). Conversely, students who experienced high social fit (i.e., 1SD above average) in the classes did

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$^2$ We conducted a simple slope test using the original 1-7 scale to facilitate a better interpretation and ensure consistency with the plot.
not experience any significant changes in their levels of school satisfaction (simple slope: $b = 0.15, p = .26$). Neither self-concept fit ($\beta = -0.07, p = .69$) nor goal fit ($\beta = -0.07, p = .64$) demonstrated a significant interaction with time in predicting life satisfaction (school subscale). None of the subscales for friend satisfaction, self-satisfaction, or loneliness were predicted by any type of fit.

**Grades.** We obtained average grades for the two focal courses at the end of the academic term for participants who consented to release their academic records. Utilizing all available data from 148 participants, we regressed the focal course grades on the average fit and authenticity controlling for students’ self-reported (in T1) cumulative GPA in their majors. When testing separately, self-concept fit ($\beta = 1.78, p = .02$) and goal fit ($\beta = 2.18, p = .005$), but not social fit ($\beta = 1.19, p = .11$) or average state authenticity ($\beta = 1.24, p = .10$), significantly predicted focal course grades. However, when three types of fit entered into the model simultaneously, only average goal fit was marginally related to earning higher focal course grades ($\beta = 2.65, p = .09$), but not self-concept fit ($\beta = -.01, p = .99$) or social fit ($\beta = -.61, p = .60$).

**3.2.3.2 Does Average State Authenticity Predict Longer-Term Outcomes?**

Using a similar analytical approach, we also conducted regression analyses to examine the effect of average state authenticity. Contrary to our hypotheses, the results indicated that average state authenticity was not a significant predictor of changes in any longer-term outcomes (see Table 7 for details). Thus, fit but not state authenticity better predicts longer-term outcomes.
Table 7

Between-Person Results of Average Fit and Authenticity Predicting Longer-term Outcomes

<table>
<thead>
<tr>
<th>Interaction Between Fit and Time</th>
<th>Attachment to Major</th>
<th>Major Commitment</th>
<th>University Commitment</th>
<th>Loneliness</th>
<th>Life Satisfaction (School)</th>
<th>Life Satisfaction (Friend)</th>
<th>Life Satisfaction (Self)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Self Concept Fit*Time</td>
<td>$\beta = -.20$</td>
<td>$\beta = .01$</td>
<td>$\beta = .09$</td>
<td>$\beta = .11$</td>
<td>$\beta = .07$</td>
<td>$\beta = .05$</td>
<td>$\beta = .02$</td>
</tr>
<tr>
<td>Average Goal Fit*Time</td>
<td>$\beta = .35^*$</td>
<td>$\beta = .07$</td>
<td>$\beta = .06$</td>
<td>$\beta = .02$</td>
<td>$\beta = .07$</td>
<td>$\beta = .12$</td>
<td>$\beta = .08$</td>
</tr>
<tr>
<td>Average Social Fit*Time</td>
<td>$\beta = -.10$</td>
<td>$\beta = .04$</td>
<td>$\beta = .12$</td>
<td>$\beta = .16$</td>
<td>$\beta = .27^*$</td>
<td>$\beta = .08$</td>
<td>$\beta = .14$</td>
</tr>
</tbody>
</table>

Interaction Between Authenticity and Time

| Average Self Authenticity*Time   | $\beta = .10$       | $\beta = .06$    | $\beta = .02$         | $\beta = .01$ | $\beta = .08$              | $\beta = .01$              | $\beta = .01$             |

Note. * $p < .05$. ** $p < .01$. *** $p < .001$. We conducted separate models to test the unique predictive effects of fit (in one set of models) and state authenticity (in a separate model).

Figure 3

*Fit Moderates the Change of Outcome from Term Start to Term End*

3.2.4. Marginalization

After establishing the importance of self-environment fit and state authenticity in short-term and longer-term outcomes for students, we were interested in understanding the role of
marginalization in this process. As previously discussed, students with different chronic self-identities may experience varying levels of fit and authenticity (Schmader and Sedikides, 2018), which may further influence their academic experiences and mental well-being. We will first present the results of how the extent of marginalization influences feelings of fit and authenticity, and then move on to its influence on short-term and longer-term outcomes.

### 3.2.4.1 Does Marginalization Influence Feelings of Fit and State Authenticity?

Out of 5975 observations, 150 students (34.72% of the full sample) reported 410 incidents of feeling marginalized during class. To separate within-person and between-person effects, we dummy-coded the marginalization variable (0 = not marginalized; 1 = marginalized) and cluster-mean centred it (following the recommendation in Yaremych et al., 2021). Both within-person and between-person components of marginalization were included in the multilevel models as predictors, with the intercept and level-1 slope varying across individuals. Positivity was included as a covariate.

Results are summarized in Table 8. At the within-person level, momentary feelings of marginalization did not significantly predict momentary fit or state authenticity. However, at the between-person level, students who reported a higher frequency of feeling marginalized exhibited lower average self-concept fit ($\beta = -.49, p = .003$), social fit ($\beta = -1.04, p < .001$), and authenticity ($\beta = -.56, p = .001$). Further analyses revealed that the lower average authenticity was mediated by both decreased self-concept fit ($a*b = -.11, p < .001$) and social fit ($a*b = -.11, p < .001$).
Table 8
Within-Person and Between-Person Results of Marginalization Predicting Fit and State Authenticity

<table>
<thead>
<tr>
<th></th>
<th>Within-Person Effect of Marginalization</th>
<th>Between-Person Effect of Marginalization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Predicting Self Concept Fit</td>
<td>$\beta = -.08$</td>
<td>$\beta = -.49^{**}$</td>
</tr>
<tr>
<td>Predicting Goal Fit</td>
<td>$\beta = -.004$</td>
<td>$\beta = .20$</td>
</tr>
<tr>
<td>Predicting Social Fit</td>
<td>$\beta = .09$</td>
<td>$\beta = -1.04^{***}$</td>
</tr>
<tr>
<td>Predicting State Authenticity</td>
<td>$\beta = -.05$</td>
<td>$\beta = -.56^{**}$</td>
</tr>
</tbody>
</table>

Note. *$p < .05$. **$p < .01$. ***$p < .001$. Within-person and between-person effects are estimated in the same model, with positivity as a covariate.

3.2.4.2 Does Marginalization Predict Momentary Outcomes?

Using the same analytical strategy as in the previous section, we regressed momentary class/self overlap and attachment to major to within-person and between-person marginalization, controlling for positivity. Contrary to our hypothesis, marginalization did not significantly predict either class/self overlap (within-person effect: $\beta = .08, p = .09$; between-person effect: $\beta = .13, p = .48$) or attachment to major (within-person effect: $\beta = .01, p = .75$; between-person effect: $\beta = .09, p = .67$) at either the within-person or between-person levels.

3.2.4.3 Does Average Experience of Marginalization Predict Longer-term Outcomes?

To explore the potential impact of marginalization on longer-term outcomes, we employed linear regression to predict each outcome (as previously described) from the interaction between extent of marginalization and time. In this study, all participants who entered the experience sampling phase reported at least one marginalized identity in the T1 survey.
Therefore, we focus on the extent of marginalization, operationalized as the proportion of marginalized incidents reported in the ES phase.

Of all the longer-term outcomes examined, the extent of marginalization only marginally predicted a decrease in life satisfaction (specifically friend subscale, $\beta = -.15, p = .07$), with students who experienced a higher proportion of marginalization in their classes reporting a decrease in friendship satisfaction over the course of the term. We further explored the underlying mechanism of this trend effect using path analysis with ‘lavaan’ package. Life satisfaction (friends subscale) reported in T2 was included as the criterion variable, controlling for its corresponding T1 scores. As shown in Figure 4, social fit (but not self-concept fit or goal fit) significantly mediated the effect of marginalization on life satisfaction ($a*b = -.07, p < .001$).

**Figure 4.** Between-Person Relation of Extent of Marginalization and Life Satisfaction as Mediated Through Average Fit. Path Coefficients Reflect Standardized Betas.
3.3 Discussion

Through a slightly modified experience sampling design implemented over a prolonged period, Study 2 replicated the results of Study 1, further establishing that three distinct types of fit are unique predictors of state authenticity. This replication reinforces the notion that perceiving a self-environment fit, in terms of one's self-concept, motivational, and interpersonal aspects, provides independent avenues toward experiencing authenticity in the present moment.

According to the SAFE model, fit and authenticity are important determinants of situation selection. This assertion is bolstered by Study 1, which revealed that the willingness to return to the current situation at the moment was predicted by three distinct types of fit. Building upon this, Study 2 utilized a specific approach-avoidance framework in the context of academic settings and established that self-concept fit, goal fit, and social fit all uniquely contribute to students' momentary class/self overlap and attachment to their major. Furthermore, the effect of each type of fit on either class/self overlap or attachment to major is mediated by state authenticity, lending further support to the SAFE model's assertion.

Study 2 additionally uncovered the cumulative effects of fit and authenticity throughout academic terms. Specifically, students who experienced a higher level of goal fit (but not self-concept fit or social fit) throughout the term were impervious to the general decline in attachment to their major. However, the cumulative fit did not predict major/university commitment. Moreover, social fit was shown to be a significant predictor of changes in students' mental well-being, specifically life satisfaction. In sum, this research delineated the effects of different types of fit over a more extended period, revealing that goal fit is more closely tied to academic experiences, while social fit is a stronger predictor of mental well-being.

In Study 2, we also found partial support for the potential negative impact of marginalization experiences in academic settings. While the momentary feeling of
marginalization did not predict immediate variations in fit or authenticity, students who experienced marginalization more frequently over the course of the academic term exhibited decreased average self-concept fit, social fit, and authenticity. Additionally, those students also showed a slight decrease in life satisfaction, which was mediated by social fit in particular. These findings suggest that marginalization primarily operates at the between-person level to decrease fit and authenticity and reduce life satisfaction, but it did not significantly impact longer-term academic experiences in this sample.
Chapter 4: General Discussion

Drawing upon the SAFE model (Schmader and Sedikides, 2018), this work aims to examine the relationships between different types of self-environment fit and state authenticity and investigate their implications for students’ experiences in academic settings. Using two experience sampling studies, this work made five major conceptual and/or practical contributions to the SAFE model.

First, distinct from the prior cross-sectional studies in our lab that tested between-person effects of authenticity experiences situated at one’s university more generally (Aday et al., under revision), this work provides a unique contribution by presenting compelling evidence that momentary variation in fit experience predict variation in state authenticity at the within-person level. The two experience sampling studies conducted in this thesis validated that, in situations where people feel either self-concept fit, goal fit, and/or social fit, they also feel a gestalt sense of authenticity, with each type of fit having its unique contribution. This work, therefore, fills a critical theoretical gap in understanding the cross-situational variation of self-environment fit and state authenticity.

Second, this work provides compelling evidence on the conceptual distinctiveness of each type of fit. Consistent with theoretical speculations of the SAFE model, each fit is primarily cued by different environmental features. Individuals experienced momentary self-concept fit when choosing to be in familiar places (Study 1) and were actively doing on topic activities (e.g., taking notes; Study 2), goal fit was experienced when students were actively engaged in doing something (Study 1&2), and social fit was elicited when they were with close others and not with
non-close others (Study 1&2). Consequently, this work shows that the three types of fit are conceptually distinct from each other, and provide unique pathways towards authenticity.

Third, this work provided evidence that supports the SAFE model's assertion regarding how fit and authenticity influence individuals' approach versus avoidance tendencies. When students experiences self-concept fit, goal fit, and/or social fit in the situation, they had higher willingness to return to the current context (Study 1), and reported higher self/class overlap (Study 2) and attachment to their major and university (Study 1&2). Since students' identification with their class, major, and university is crucial to their academic choices and performance, our results well support the SAFE model's proposal on the approaching tendencies in a university setting. A caveat is that willingness to return to the situations was not mediated by state authenticity in Study 1, which may indicate different predictive ability of fit and state authenticity in general behavioural intentions.

Moreover, the two studies revealed the distinctive cumulative effects of three types of fit in longer term. In Study 2 across the academic term, only goal fit (but not the other two types) had an cumulative effect on students’ changes in their attachment to their major at the end of the academic term, and was associated with higher course grades. Meanwhile, social fit had a cumulative effect on students’ increase in life satisfaction. Therefore, in the long run, students' academic choice and performance are influenced by goal fit, whereas mental well-being is more closely related to social fit. This insight illuminates the need for interventions tailored to specific types of fit for different purposes.

Finally, Study 2 represents an initial examination of how marginalization predicts the underlying mechanisms of the SAFE model. However, our initial hypotheses were not supported,
as the experience of marginalization in class did not predict momentary feelings of fit and authenticity at the within-person level. Nevertheless, at the between-person level, the extent of marginalization that students’ felt over the course of the academic term (even though all possessed identities that could be marginalized) predicted a decrease in self-concept fit, social fit, and authenticity. It is possible that a few incidents of marginalization in class were not sufficient to immediately alter students' identification with the class and major, even though they did decrease the positivity experienced in those classes. Furthermore, we did not find evidence of marginalization predicting changes in academic experiences, such as major/university commitment or grades. The presence of strong goal fit and social fit in our sample might have allowed students to be resilient to these effects. In particular, previous discussion has shown that goal fit (but not the other two types of fit) has a cumulative effect on long-term academic performance in our sample. Students might be immune to marginalization due to the constantly high goal fit. Further research is required to better understand the effects of marginalization, particularly among groups who are subjected to negative academic stereotypes.

**Limitations.** Although the SAFE model assumes causal relationships, our studies were correlational in nature, precluding us from making causal inferences. However, the experience sampling methodology used in both studies afforded better ecological validity than traditional cross-sectional studies, enabling us to explore momentary pathways from fit to authenticity. Additionally, our longitudinal design allowed us to examine the temporal order of changes in outcome variables. Nonetheless, we could not eliminate the possibility of bidirectional or recursive relationships between fit and authenticity without experimentally manipulating each type of fit or state authenticity. Thus, an important next step would be to establish the causal
relationship from fit to authenticity through such manipulations and examine the causal effects on cognitive, motivational, and social outcomes.

Furthermore, we acknowledge that self-report measures used in both studies are subject to response biases, such as social desirability (van de Mortel, 2008), especially in an academic setting where students may be hesitant to report negative experiences during psychology courses to researchers who are also graduate students and faculty members. Moreover, asking participants to reflect on their self-environment fit and state authenticity may already amplify these feelings, which are presumed to operate at a default mode for dominant group members. Although we included objective measures in both studies, such as working memory capacity in Study 1, and grades in Study 2, we still lack objective conceptual, motivational and interpersonal measures to test the specific behavioral implications of each fit.

**Future Directions.** The existing research has primarily focused on providing empirical evidence for the SAFE model while examining its implications. Upon validation of this model, further theoretical considerations will need to be explored in the future.

**Uncertainty.** One such consideration is identity uncertainty, a closely related construct that has been discussed in prior literature (Hogg & Terry, 2000; Hogg, 2021). Identity uncertainty may arise from a similar set of contextual cues that signal self-environmental misfit due to marginalized self-identities. In such situations, individuals may experience uncertainty regarding their group membership and engage in behaviors that align more closely with their in-group to reduce such uncertainty (e.g., extremism; Hogg, 2012). Through the lens of the SAFE model, it is valuable to identify the moderating factors that shape individuals’ appraisal of uncertainty triggered by contextual features, which may either motivate people to remain in a
situation of misfit in an offer to grow as a person or lead them to perceive misfit as a cue to inauthenticity that prompts them to leave the situation. Research has demonstrated that individuals may deliberately expose themselves to discomfort for the purpose of promoting personal growth, providing partial support for the notion that contextual discomfort can serve as a motivator for change (Woolley & Fishbach, 2022). Future research could delve into the intricate moderating factors that operate at the individual, intergroup, or cultural levels, thus advancing our understanding of how interpretations of contextual features can be influenced.

For example, the dispositional trait of openness may be a promising individual difference variable that can shape how contextual features are interpreted. Individuals who score high on openness to experience may not necessarily interpret unfamiliar situations as a misfit for themselves, but rather view them as novel experiences. This concept is supported by previous research showing that trait authenticity is associated with low verbal defensiveness (i.e., high openness) (Lakey et al., 2008). However, it is still unclear how trait openness may impact the experience of uncertainty versus misfit at the situational level and further research is needed to address this question.

At the intergroup level, the motivation for egalitarianism can potentially negate feelings of misfit and motivate individuals to make adjustments in order to foster a more diverse and inclusive future. From the lens of the SAFE model, intergroup contact often occur in situations where members of two groups are likely to experience social misfit, thus inducing some degree of discomfort. For example, aversive racism (Dovidio & Gaertner, 2004) describes the discomfort and anxiety that White people may feel when interacting with racial minority groups. Nevertheless, while some individuals may choose to stay in such environments with the aim of
cultivating a more diverse and inclusive community, others may perceive these contexts as inauthentic and thus opt to withdraw.

In cultures that place great emphasis on harmony, the drive to avoid conflicts may be in greater tension with the motivation to be authentic, in comparison to Western culture (Markus & Kitayama, 1991). While authenticity has been studied as beneficial to one's mental well-being (e.g., Rogers, 1980; Maslow, 1964), the majority of research was conducted in the frame of Western culture where being an independent self is favoured (Markus & Kitayama, 1991). In Eastern cultures where harmony values are prioritized (Zhang et al., 2005), it is possible that individuals weigh harmony more than being authentic, thus choosing to stay in situations where they experience misfit. In one such country, Chinese participants indicated that a moderate level of authenticity was optimal for their mental well-being (Xia & Xu, 2022) as opposed to the Western-cultured participants, which supports the cultural differences in feeling authentic. Therefore, exploring the relationship between harmony values and state authenticity presents an intriguing future direction for understanding cultural differences in the pursuit of authenticity.

The three research questions presented above are examples of the potential moderating factors for interpreting the self-environment misfit, providing ample opportunities for empirically examining the relationship between uncertainty and state authenticity. Based on the validation of the SAFE model in this thesis, this proposed extension offers valuable insights into the practical implications of the model on personal development, egalitarianism, and cross-cultural variances.

Marginalization. Another compelling direction is to further investigate how marginalization impacts feelings of fit and state authenticity. The findings of this thesis have
elucidated two pivotal factors, namely goal fit and social fit, that affected students' academic experiences, with social fit being particularly susceptible to marginalization. Given the differentiated implications of goal fit and social fit on academic performance and mental well-being respectively, this work could be applied to shed light on designing the possible interventions that target specific type(s) of fit. For example, interventions aimed at fostering social fit may be beneficial for mitigating the negative effect of marginalization on students’ mental well-being (as supported by Walton et al., 2012; Walton & Cohen, 2007; Walton & Cohen, 2011). In parallel, interventions that specifically address goal fit hold greater promise to improve academic performance, especially for students who experience low goal fit during classes.

**Summary.** Through two experience sampling studies, this work provided empirical support for the SAFE model at the within-person (across-situations) level, and illustrated the implication of fit and state authenticity in behavioural, affective, and cognitive outcomes in academic settings. Building upon the groundwork established by this thesis, future investigations can delve into understanding the entangled nature of uncertainty and state authenticity, and exploring the impact of marginalization on students’ feelings of fit and academic experiences.
Bibliography


https://doi.org/10.3316/informit.210155003844269


Appendix

Additional Measures in Study 1

Study 1 included additional measures intended for other sets of pre-registered hypotheses. The following measures were included in the T1 baseline survey (and, in some cases, again in the T2 survey).

**Acculturation Level.** Acculturation level was assessed using 20 items adapted from the Vancouver Index of Acculturation (VIA; Ryder, Alden, Paulhus, 2000; e.g., “I often participate in mainstream North American cultural traditions.”) with a 7-point scale ranging from 1 = *strongly disagree* to 7 = *strongly agree*. The items measure connectedness to both heritage culture and North American mainstream culture.

**Personality.** We measured personality with 30 items from the Big Five Inventory - 2 Short Form (John & Soto, 2015; e.g., “I tend to be quiet.” - reversed code for extraversion). Participants rated their agreement to each item with a 7-point scale (1 = *strongly disagree* to 7 = *strongly agree*). Each of the five personality domains (extraversion, agreeableness, conscientiousness, open-mindedness, and negative emotionality) was assessed with six items, each of which had two facets, totaling ten items.

**Academic Motivation.** We assessed academic motivation using 28 items adapted from the Academic Motivation Scale-College (AMS-C; Vallerand, et al., 1992; e.g., “For the pleasure I experience when I discover new things never seen before.”), consisting of 3 subscales: intrinsic motivation, extrinsic motivation, and amotivation. Participants rated to what extent each item corresponds to reasons why they go to university using a 7-point scale (1 = *does not correspond*
at all to 7 = corresponds exactly).

**University Commitment.** University commitment was measured by three items (e.g., “I do not feel ‘emotionally attached’ to UBC”) adapted from prior work in our lab, with a 7-point likert scale ranging from 1 = strongly disagree to 7 = strongly agree.

**Friendship.** In the T1 baseline survey, participants wrote down initials of friends (maximum 10) they made in the university and reported gender and cultural similarity of those friends. Cultural similarity was rated using a single item ranging from 1 = highly dissimilar to 7 = highly similar. In the T2 survey, we asked participants to rate their current relationship with the friends reported in T1, with a 7-point scale (1 = we are less close to 7 = we are closer).

**Sample Stimuli for Working Memory Capacity Measure Used in Study 1**

Participants received the following instructions in the T1 baseline survey to familiarize them with the working memory capacity measure.

```
As part of this study, you will complete a daily task that is designed to measure your ability to keep track of numbers in your head. Click the next arrow to learn how this task works.

At the beginning of the task, you will see four single-digit numbers displayed simultaneously for 5 seconds. Please memorize those numbers. An example is presented below.

Please memorize these numbers so you can follow along with this example.

[1][6]
[3][8]
```
After the four numbers have disappeared, an addition or subtraction operation will be presented for 3 seconds in one of the four cells (see the example below).

\[
\begin{array}{c}
[+1] \\
\end{array}
\]

The original numbers (1, 6, 3, 8) should be updated according to the operation so that you are now remembering the numbers (2, 6, 3, 8).

You will be presented with a total of four operations (i.e., addition or subtraction). Each operation will be presented for 3 seconds. After each operation, you should update the number you are memorizing.

\[
\begin{array}{c}
[1][6] \\
[3][8] \\
\downarrow \\
[+1] \\
\downarrow \\
\downarrow \\
[[-4] \\
\downarrow \\
\downarrow \\
[+8] \\
\downarrow \\
[[-2] \\
\end{array}
\]
After the 4 operations, you will be asked to enter the final values for each cell. See below for an example of the question you'll be asked.

Enter the final answers

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Click next to see the final answer for the example you just worked through.

\[
\begin{array}{c}
[1][6] \\
[3][8] \\
\downarrow \\
[+1][] \\
[ ] \\
\downarrow \\
[ ] \\
[][-4] \\
\downarrow \\
[ ][ ] \\
\downarrow \\
[ ][ ] \\
\downarrow \\
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\end{array}
\]

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