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**Adolescents' Identity Development Predicts the Transition and the Adjustment to
Tertiary Education or Work**

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Abstract

Although identity development is crucial in individuals' psychological adjustment from adolescence to adulthood, little is known about its impact in the transition to tertiary education or work. This study examined whether identity development during high school predicts career choices and adjustment (i.e., engagement) and maladjustment (i.e., burnout) after graduation. A total of 357 Japanese adolescents participated throughout the three-year period of vocational high school ($M_{\text{age}} = 15.75$; 62.75% girls). A follow-up assessment, at 18 months after the school-to-tertiary education or school-to-work transitions, was conducted. Higher identity synthesis during high school years predicted entry into tertiary education, while higher identity confusion predicted transition to work. Furthermore, higher identity synthesis during the high school years predicted higher post-graduation academic engagement, and higher levels of identity confusion predicted higher levels of post-graduation academic or work burnout. Overall, this study contributes to the understanding of the role of identity development in adolescence as a valuable asset for predicting the transition and the adjustment to tertiary education or work.

Keywords: identity, adolescence, emerging adulthood, transition, vocational high school, Japan

Introduction

Throughout their life span, individuals undergo several transitions. For youth in many industrial societies, the main milestone is transitioning from secondary high school to assuming a new role in emerging adulthood, when they gain access to tertiary education (i.e., university, college, and technical school) or enter the job market (Christiaens et al., 2021). This study aimed to investigate whether the ways in which young people cope with the most important developmental task of adolescence—that is, to develop a clear sense of their identity (Crocetti et al., 2023)—can prospectively predict how they cope with the transition to tertiary education or to work that they take on in emerging adulthood. While a substantial body of research has examined identity development (Meeus, 2023), the impact of identity development on career choices, specifically whether to pursue tertiary education or enter the job market, remains unclear (Branje et al., 2021). Furthermore, little is known about whether identity development during secondary education predicts post-graduation adjustment. To address these research gaps, first, this study examined whether identity pathways in adolescence can predict the likelihood of transitioning from secondary education to either tertiary education or the job market. Second, this study tackled whether adolescents' identity can promote a successful transition in two main directions: by preventing symptoms of burnout and by promoting active engagement in the new role.

Understanding Life Transitions Through the Lens of Developmental Theories

Classical developmental theories, such as Havighurst's (1948) developmental task theory and Erikson's (1950) psychosocial theory, conceptualize the life span as a series of periods in which individuals face crucial tasks. These theories have two main assumptions in common. First, they underscore that the extent that individuals successfully face the tasks specific to one phase affects how they will cope with following developmental tasks. Second,

both theories emphasize that the successful resolution of developmental tasks leads to individuals' healthy adjustment.

Both tenets of these theories have been tested in empirical research (see Seiffge-Krenke & Gelhaar, 2008 for Havighurst's theory and Beyers & Seiffge-Krenke, 2010 for Erikson's theory). These assumptions have been mainly confirmed; however, there is significant variability in when and how individuals manage developmental tasks and in their implications for later developmental trajectories (Seiffge-Krenke et al., 2010). Considering this theoretical background, gaining an understanding of how individuals cope with the transition from adolescence to emerging adulthood necessitates an examination of how they manage the pivotal task of developing a clear sense of identity during adolescence.

Identity Development in Adolescence as an Asset to Predict Transitions

Identity formation is a crucial developmental task in adolescence (Erikson, 1968). Biological, cognitive, and social changes urge adolescents to reconstruct their childhood self-perceptions and explore their own goals, beliefs, and values. Thus, adolescents develop their own identity that serves as an indispensable compass to navigate through their adult life.

In his theory of psychosocial development, Erikson (1968) describes the adolescent life stage as characterized by the tension between identity synthesis versus identity confusion. *Identity synthesis* refers to the extent that various aspects of one's identity fit together, representing a sense of feeling that one knows where one is headed. Contrastingly, *identity confusion* represents a feeling of vagueness about what one is doing in life and is characterized by a lack of lasting commitments to important life choices. From the Eriksonian perspective (Schwartz, 2009), synthesis and confusion are conceptualized as compatible rather than mutually exclusive, indicating that healthy identity development is characterized by finding a good balance between them—that is, synthesis and confusion are not on a continuum; individuals can be making choices in their lives and concurrently still feel confused. Thus, identity synthesis and confusion are separate, but they coexist within the same person (Marcia, 2002). Indeed, previous studies have suggested that the two aspects are not on the opposite ends of a spectrum; they are rather distinct, but related components of identity through factor analyses (Schwarz et al., 2009). Moreover, the two aspects changed in different way

to each other during adolescence and emerging adulthood (Hatano et al., 2022), and related to different aspects of adolescents' adjustment (Sugimura et al., 2016), further supporting Erikson's (1968) tenet.

Importantly, within a developmental social-psychological perspective (Crocetti et al., 2023), identities are conceived as a "*fundamental symbolic tool that individuals use to adapt to the multiple domains of their lives*" (Crocetti et al., 2018, p. 306). Thus, looking at how individuals synthesize their sense of identity throughout adolescence can explain how they cope with significant life transitions, such as school-to-tertiary education and school-to-work transitions. Specifically, transition pathways can be understood considering that identity fulfills a self-regulatory function (Erikson, 1968). Thus, when adolescents manage to negotiate multiple aspects of themselves in a personal mold, this identity synthesis provides them with a sense of personal control or agency (Crocetti et al., 2013) that enables active self-regulation in the process of setting and attaining goals (Serafini & Adams, 2002) and moving toward future plans (Côté & Levine, 2016). As such, a high level or an increase in identity synthesis during adolescence can predict the successful transition to new roles and smooth adaptation from secondary school to tertiary education or work environments.

Role Transitions in Emerging Adulthood

Transitions from high school to tertiary education or the workforce represent fundamental milestones in which adolescents can put their own identity into practice in new circumstances. To understand successful role transition in emerging adulthood, it is important to focus on career choices and subsequent adjustment. When adolescents achieve high levels of identity synthesis, they are better equipped to navigate the transition smoothly and adapt to their new environments. Conversely, when adolescents continue to experience identity confusion, they may face a difficult transition and display poor adjustment to their new roles.

Previous studies have examined general trends of identity changes among Belgian youth (Bogaerts et al., 2021), American Hispanic youth (Schwartz et al. 2017), and Japanese youth (Hatano et al., 2022). While these studies have provided valuable evidence for trajectories of identity development in adolescence and emerging adulthood and their relationship with adjustment, none of the studies have focused on significant life transitions from adolescence to emerging adulthood and the subsequent adjustment process.

There is limited empirical research examining the association between identity development in adolescence and the transition to tertiary education and work. One longitudinal study revealed that identity

formation processes in adolescence in the domain of friendships and education are positively related to relational and work identity in emerging adulthood, respectively (Branje et al., 2014). Another longitudinal study identified various trajectories of educational identity during the transition from secondary to tertiary education, which encompasses the transition from adolescence to emerging adulthood (Christiaens et al., 2021). However, these few available studies did not examine whether identity in adolescence predicts the transition itself (i.e., school-to-tertiary education and school-to-work). Moreover, they did not examine how identity in adolescence explains the adjustment to the new role assumed in emerging adulthood.

This study sought to contribute to this line of research in two main ways: First, by determining whether identity development in adolescence (i.e., developmental trajectories of identity synthesis and confusion) predicts the likelihood of transitioning to either tertiary education or work; and, second, by addressing whether identity development in adolescence predicts the adjustment to the new role. To understand this comprehensively, indicators of both negative and positive adjustment have been considered. Thus, it was possible to ascertain whether identity development in adolescence has a key role both in preventing symptoms of *burnout* (a negative work/study-related state that is characterized by emotional exhaustion, cynical attitude, and dissatisfaction with accomplishments on the job/study; Maslach & Jackson, 1981, for workers; Schaufeli, Martínez, et al., 2002, for students) and in promoting *engagement* (a positive work/study-related state of fulfillment characterized by vigor, dedication, and absorption; Schaufeli et al., 2006, for workers; Schaufeli, Martínez, et al., 2002, for students).

The Context of Vocational High Schools

In addressing these aims, this study also focused on a relatively understudied adolescent population: young people attending vocational high schools (Verhoeven et al., 2019). Vocational high schools provide programs for students who are seeking technical skills to enter the labor markets and for those who struggle academically and are at risk of dropping out of education. At an average, 42% of upper secondary schools (or high schools) provide vocational programs (Organisation for Economic Co-operation and Development [OECD], 2020). Nonetheless, in many countries, vocational schools have been largely neglected or marginalized in policy discussions owing to the overemphasis on academic-oriented schools (OECD, 2020).

Regarding the transition to emerging adulthood, while most students in academic-oriented high schools (60.9%) access tertiary education, students from vocational high schools do so less often (45.4%), and they undertake less predictable transitions including entering the labor market, taking supplementary

courses, and having a gap year¹ (OECD, 2022). This characteristic is clearly observed in several countries, including Japan, where this study was conducted. In Japan, vocational high school students comprise 17.7% of all high school students. In vocational high schools, 50.2% of graduates enter the labor market, 22.0% go onto special training schools, and 25.3% enroll in universities, while the rates are 7.2%, 20.7%, and 66.9%, respectively, in academic-oriented high schools (Ministry of Education, Culture, Sports, Science and Technology, 2021). Thus, in Japan, for most students in vocational high school, the transition to emerging adulthood primarily means the transition to work, and the transition to tertiary education is secondary.

However, Japan is also a society in which individuals' educational backgrounds are of high importance; hence, approximately 80% of students continue their education after high school, seeking specialized knowledge and skills (Ministry of Education, Culture, Sports, Science and Technology, 2022). Moreover, university graduates in Japan tend to have higher lifetime earnings than high school graduates (The Japan Institute for Labour Policy and Training, 2022). Individuals who have high schooling (i.e., university graduates) earn a higher wage and therefore, the choice of continuing education is socially desirable compared to low schooling (e.g., high school graduates). In this situation, identity synthesis can serve as a resource for a self-regulatory function and agency, and hence, pursuing higher educational opportunities (Côté & Levine, 2016), even for those from vocational high schools—albeit they are designed to prepare them for work. Thus, students may expect that attending tertiary education provides them with highly specialized occupation that ensures high lifetime wage and increase their social status.

Previous research reported that adolescents in vocational high schools (or vocational tracks) tended to show less mature identity patterns in the Netherlands (Christiaens et al., 2021), Romania (Negru-Subtirica et al., 2015), and Greek Cyprus (Solomontos-Kountouri & Hurry, 2008). This characteristic is explained by the educational system in vocational high schools, which offers less support and guidance in identity development and adolescents' perception of low academic capabilities and possibilities (e.g., Christiaens et al., 2021). However, despite these findings, no study has examined whether and how identity development during adolescence predicts the transition to and adjustment after graduation among vocational high school students. In Japan, as previously mentioned, most students in academic-oriented high schools pursue tertiary

¹ These rates indicate the proportion of entrants into the bachelor's programs who transitioned directly to tertiary education from upper secondary education without any significant break (e.g., a gap year).

education. Conversely, students in vocational high schools are faced with an important life choice—to pursue tertiary education or enter the job market. Therefore, it is of utmost importance to understand the role of identity in career choices and adjustment after graduation in this population of students attending vocational high schools.

Current Study

Although previous research has clarified the relationship between identity development and psychological adjustment, the extent to which identity predicts the transition from adolescence to adulthood and adjustment after the transition period has not been investigated. To address this gap in the literature, this study has two primary objectives. First, it examined whether identity synthesis and confusion in adolescence predict the school-to-tertiary education or school-to-work transitions in students in vocational high schools. Students from vocational high schools are trained to learn specific knowledge and practical skills that would allow them to enter a specific job field (e.g., to become a mechanic) after graduation. Thus, the transition from school-to-work is normative for vocational high school students. In this context, adolescents' identity can be a core asset (akin to a "balance needle") to also plan their transition from school-to-tertiary education as a way to further acquire more specialized training—for instance, to become a car engineer. Therefore, identity synthesis and identity confusion could, positively and negatively respectively, predict the likelihood of making the transition to tertiary education. Second, this study investigated whether identity synthesis and confusion in adolescence can promote (or hinder) a successful transition in two main directions: preventing symptoms of burnout and promoting active engagement in the new role.

Method

Participants

Participants were 357 Japanese adolescents (62.75% girls) involved in the project "Identity Development in Vocational high school students" (IDEV; for more information, see the Supplementary Materials). At the beginning of the study, they were all attending the first year of vocational high schools (e.g., business studies, engineering, or home economics). Participants were involved in the study for the entire period of high school, which lasts three years in the Japanese educational system, with three corresponding annual assessments (T1: $M_{\text{age}} = 15.75$ years, $SD_{\text{age}} = 0.46$ years; T2: $M_{\text{age}} = 16.72$ years, $SD_{\text{age}} = 0.45$ years; and T3: $M_{\text{age}} = 17.66$ years, $SD_{\text{age}} = 0.49$ years). Then, an additional follow-up assessment (T4: $M_{\text{age}} = 19.38$ years, $SD_{\text{age}} = 0.49$ years) was conducted 18 months after the last one to prospectively monitor

their school-to-tertiary education (completed by 211 participants) or school-to-work (completed by 146 participants) transitions.

Most adolescents participated in all four assessments (96.64%) and the remaining (3.36%) participated in three out of four waves. During each assessment, the completion rate of the questionnaires was very high (missing data at the item level was 1.28%). The Little's (1988) Missing Completely at Random test yielded a normed χ^2 ($\chi^2/df = 1,628.646/1349$) of 1.21, indicating that data were likely missing completely at random. Therefore, the total sample ($N = 357$) was included in the analyses, and missing data were handled with the full information maximum likelihood procedure implemented in *Mplus* (Kelloway, 2015).

Procedure

Permission from the school principals and active consent from parents and adolescents were obtained prior to data collection. Participation in the study was voluntary, and students were informed that they could withdraw their consent at any time. At all measurement waves, participants answered the paper-and-pencil version of the questionnaires. Across T1–T3, teachers distributed the questionnaires and students answered during their class time. In T3, students were informed about the possibility of participating in the additional T4 follow-up. Only those students who wished to participate and provided their contact details were mailed the questionnaires to their home addresses 18 months after the last measurement. They sent back the completed questionnaires to the first author and received 1,000 Japanese yen (approximately 7.38 USD) for their participation in T4. Across all measurement waves, participants were required to include an assigned personal code to match their responses over time. An extract of the study materials is available on the OSF page (<https://osf.io/9qm8z/>).

Measures

From T1 to T3, all participants received the same questionnaire including socio-demographic questions (i.e., sex, age, and study major) and a measure of identity. At T4, participants were asked to indicate whether they were either students or workers; based on their responses, they were administered the measure of burnout and engagement specific for students and workers, respectively.

Identity. Adolescents' identity synthesis and confusion were measured during the high school years (from T1 to T3) using the Erikson Psychosocial Stage Inventory (EPSI; Rosenthal et al., 1981; for the Japanese version, see Hatano et al., 2014). This scale comprises 12 items—six for synthesis (e.g., “I have got a clear idea of what I want to be”) and six for confusion (e.g., “I change my opinion of myself a lot”)—

rated on a five-point Likert-type scale, ranging from 1 (*completely untrue*) to 5 (*completely true*). Regarding synthesis, the item “I have a strong sense of what it means to be female/male” was omitted because it was considered undesirable from a sex-related perspective (Hatano et al., 2022). Cronbach’s alphas for synthesis were .60, .69, and .76 at T1, T2, and T3, respectively. Cronbach’s alphas for confusion were .71, .77, and .76 at T1, T2, and T3, respectively.

Study burnout². At T4, participants who transitioned to tertiary education reported their study burnout by answering the Maslach Burnout Inventory-General Survey for Students (MBI-GS (S); Maslach et al., 1981; for the Japanese version, see Tsubakita & Shimazaki, 2016). This scale comprises 16 items—five for exhaustion (e.g., “I feel emotionally drained by my studies”), six for efficacy (e.g., “I can effectively solve the problems that arise in my studies”), and five for cynicism (e.g., “I have become less interested in my studies since my enrollment”)—rated on a seven-point Likert-type scale, ranging from 0 (*never*) to 6 (*every day*). Cronbach’s alphas were .83, .76, and .86 for exhaustion, efficacy, and cynicism, respectively.

Job burnout. At T4, participants who transitioned to the job market reported their burnout at work by filling the MBI-GS (Maslach et al., 1981; for the Japanese version, see Kitaoka-Higashiguchi et al., 2004). This scale comprises 16 items—five for exhaustion (e.g., “I feel emotionally drained from my work”), six for efficacy (e.g., “I can effectively solve the problems that arise in my work”), and five for cynicism (e.g., “I have become less interested in my work since I started this job”)—rated on a seven-point Likert-type scale, ranging from 0 (*never*) to 6 (*every day*). Cronbach’s alphas were .91, .83, and .83 for exhaustion, efficacy, and cynicism, respectively.

Study engagement. At T4, participants who transitioned to tertiary education reported their study engagement by completing the Utrecht Work Engagement Scale nine-item version (UWES-9) that was modified for students (Schaufeli & Bakker, 2004; for the Japanese version, see Tsubakida et al., 2017). This scale comprises three items for each dimension—vigor (e.g., “When studying, I feel strong and vigorous.”), dedication (e.g., “I find my studies full of meaning and purpose”), and absorption (e.g., “Time flies when I am studying”)—rated on a six-point Likert-type scale, ranging from 1 (*completely untrue*) to 6 (*completely*

² For the study burnout and work burnout scales, the items are completely parallel. As for the study engagement and work engagement scales, we used the shortened version of an original 17-item scale (Schaufeli, Salanova, et al., 2002) to reduce participants’ burden. Although the numbers of items are different (i.e., the student version consists of 9 items and the worker version consists of 3 items), each of the shorten versions have been designed to be compatible to the original version.

true). Cronbach's alphas were .75, .72, and .70 for vigor, dedication, and absorption, respectively.

Work engagement. At T4, participants who underwent the school-to-work transition reported their work engagement by completing the Utrecht Work Engagement Scale three-item version (UWES-3; Schaufeli et al., 2019). This scale comprises one item for each dimension—vigor (i.e., “At my work, I feel bursting with energy”), dedication (i.e., “I am enthusiastic about my job”), and absorption (i.e., “I am immersed in my work”)—rated on a seven-point Likert-type scale, ranging from 0 (*never*) to 6 (*every day*).

Analytic Plan

Descriptive statistics were computed using IBM SPSS Version 29.0 for Windows. All the remaining analyses were conducted in *Mplus* 8.6 using the Maximum Likelihood Robust estimator (Satorra & Bentler, 2001). As a preliminary step, longitudinal measurement invariance was examined for adolescents' identity synthesis and confusion measured from T1 to T3. Full or partial scalar invariance is needed to estimate growth curves (Little, 2013). The detailed procedure for examining longitudinal measurement invariance is described in the Supplementary Materials.

To address the first aim of the current study (i.e., examining whether identity development during adolescence predicts the school-to-tertiary education or school-to-work transitions), two steps were undertaken. First, a Latent Growth Curve Model (LGCM; Duncan & Duncan, 2009) was employed to examine the development of identity synthesis and confusion across T1–T3. The model estimated the intercept (average level) and linear slope (change rate) as latent variables for both identity synthesis and confusion. To evaluate the model fit, three indices were considered: comparative fit index (CFI), root mean square error of approximation (RMSEA), and standardized root mean square residual (SRMR). CFI values higher than .900, RMSEA values less than .080, and SRMR values less than .080 suggest an acceptable fit (Chen, 2007). Second, the association of identity development across T1–T3 with the transition to tertiary education or work was tested using logistic regression analysis. Two models were tested (one for identity synthesis and one for identity confusion); in both models, the status at T4 (0 = students in tertiary education, 1 = workers) was the outcome variable, and the intercepts and slopes of identity estimated through the LGCM were the explanatory variables.

To address the second aim (i.e., revealing how identity development in adolescence predicts adjustment to their new role), two path models were tested for both students and workers. In both models, the outcome variables were the dimensions of study/job burnout (i.e., exhaustion, efficacy, and cynicism)

and study/work engagement (i.e., vigor, dedication, and absorption) for students/workers. The explanatory variables were intercepts and slopes of either identity synthesis or identity confusion, as estimated by the LGCM.

As additional analyses, sensitivity analyses were conducted to examine the robustness of the results in the main analyses. Specifically, the relationship between adolescents' identity development and the transition to tertiary education or work, and adjustment to a new role were examined, while including sex as a control variable.

Results

Preliminary Analyses

Means, standard deviations, and correlations among study variables are reported in Table 1. Tests of longitudinal measurement invariance could establish full metric and partial scalar invariance (Table S4 of the Supplementary Materials). Therefore, it was possible to proceed with the main analyses. To obtain reliable estimates of the growth parameters for identity, items for which scalar invariance was not established (i.e., synthesis item 2 and confusion item 3) were excluded in main analyses.

Main Analyses

Modeling identity development in adolescence. To examine identity development across T1–T3, the LGCM was utilized, and the fit of the model for identity synthesis and confusion were generally acceptable ($\chi^2(7) = 25.897, p < .001$; CFI = .974; RMSEA = .087, 90%CI [.053, .124]; SRMR = .038). As shown in Table 2, identity synthesis significantly increased, while identity confusion significantly decreased from T1 to T3. Intercepts of synthesis and confusion were negatively correlated ($r = -.73, p < .001$).

Predicting transition to tertiary education or work. Two logistic regression models for identity synthesis and confusion were tested to examine the associations of identity development across T1–T3 with the transition to tertiary education or work. Regarding identity synthesis, the intercept negatively predicted the status at T4 (odds ratio [OR] = 0.47, 95%CI [0.28, 0.78], $p = .004$), indicating that participants with higher scores on the intercept of synthesis were more likely to pursue tertiary education after high school graduation. The slope of identity synthesis was not significantly related to the status at T4 (OR = 0.56, 95%CI [0.06, 5.27], $p = .615$). Regarding identity confusion, the intercept positively predicted the status at T4 (OR = 2.06, 95%CI [1.15, 3.70], $p = .016$), suggesting that participants with higher scores on the intercept of confusion were more likely to enter the job market after high school graduation. The slope of identity

confusion did not significantly predict the status at T4 (OR = 0.53, 95%CI [0.01, 27.66], $p = .750$).

Predicting adjustment to the new role. To examine how identity development across T1–T3 predicts adjustment to their new role, two path models were tested for both students and workers (see Figure 1). The fit indices of all models were generally acceptable: models of identity synthesis ($\chi^2(7) = 8.20$, $p = .316$; CFI = .998; RMSEA = .028, 90%CI [.000, .092]; SRMR = .016) and confusion ($\chi^2(7) = 17.19$, $p = .002$; CFI = .985; RMSEA = .083, 90%CI [.033, .134]; SRMR = .032) for students; and models of identity synthesis ($\chi^2(7) = 10.077$, $p = .184$; CFI = .994; RMSEA = .055, 90%CI [.000, .124]; SRMR = .016) and confusion ($\chi^2(7) = 13.061$, $p = .071$; CFI = .989; RMSEA = .077, 90%CI [.000, .141]; SRMR = .047) for workers.

The results are reported in Table 3 and Figure 1. For students (panels A and B in Figure 1), the intercept of identity synthesis positively predicted efficacy ($\beta = .32$, $p < .001$) in study burnout and all aspects of study engagement (vigor, dedication, and absorption; β s ranged from .27 to .32, p s ranged from .001 to .008). Both the intercept ($\beta = -.33$, $p = .001$) and slope ($\beta = -.29$, $p = .019$) of identity synthesis negatively predicted cynicism in study burnout. The intercept of identity confusion positively predicted exhaustion ($\beta = .17$, $p = .036$) and negatively predicted efficacy ($\beta = -.26$, $p = .001$) in study burnout. The slope of identity confusion positively predicted cynicism ($\beta = .38$, $p = .030$) in study burnout.

For workers (panels C and D in Figure 1), the intercept of identity synthesis positively predicted efficacy ($\beta = .49$, $p = .010$) in work burnout. The intercept of confusion positively predicted exhaustion ($\beta = .30$, $p = .003$) and cynicism ($\beta = .45$, $p < .001$), and negatively predicted efficacy ($\beta = -.40$, $p < .001$) in job burnout. Furthermore, it negatively predicted all indicators of work engagement (vigor, dedication, and absorption; β s ranged from $-.39$ to $-.27$, p s ranged from .000 to .005).

Sensitivity Analyses

In additional sensitivity analyses, sex was controlled for when conducting the main analyses to test whether adolescents' identity predicted the transition to tertiary education or work, and adjustment to their new role. The main results reported above were generally replicated when sex was included in the models as a covariate (only the path from the intercept of identity confusion to cynicism was significant among student in tertiary education when accounting for the covariate; Table S6). Girls were more likely to make the transition to tertiary education than boys (Tables S5). Furthermore, girls reported higher exhaustion except for synthesis model among workers (Table S7).

Discussion

Identity development in adolescence can represent a central developmental asset to face to transition to a new role in emerging adulthood. Although previous research has examined the relationship between identity development and psychological adjustment during this transitional phase, the role of identity in predicting the transition itself remained poorly understood, especially in students attending vocational high schools. This study sought to address these gaps by tackling how the ways in which Japanese vocational high school students develop their identity throughout adolescence can predict their transition to either tertiary education or work and their adjustment to the new role.

Identity Development and Career Choices: Work or Tertiary Education?

In this study, as expected, adolescents with a higher level of identity synthesis during high school were more likely to pursue tertiary education, while those with higher levels of identity confusion were more inclined to enter the labor market. Japan is a society in which individuals' educational backgrounds are of high importance; hence, approximately 80% of students continue their education after high school, seeking specialized knowledge and skills (Statistics Bureau of Japan, 2022). Moreover, university graduates in Japan tend to have higher lifetime earnings than high school graduates (Ministry of Health, Labor and Welfare, 2017). Although there might be some instances in which those who do not go to university earn a high wage, in general, individuals who pursue higher education (i.e., university graduates) generally earn a higher wage, and therefore, the choice of continuing education is viewed more favorably socially compared to those who do not (e.g., high school graduates). Given these circumstances, pursuing tertiary education is generally more socially desirable. These findings suggest that identity plays a crucial role in making socially desirable choices (Côté & Levine, 2016). Identity development acts as a capital for further educational opportunities, enabling young individuals to acquire advanced skills and knowledge (Côté & Levin, 2016) that increase their chances of making successful career choices in the future.

Conversely, adolescents who experienced higher levels of identity confusion during adolescence, indicating less mature identity development, might have found themselves disoriented and compelled to enter the labor market due to reasons such as low socio-economic status or low academic achievement. They may be unwilling to immediately enter the job market after high school despite the majority of their peers pursuing tertiary education in Japan, but they may be forced to do so. These results suggest that socially desirable or undesirable roles may be associated with identity development, supporting Erikson's concept

that identity is a crucial part of psychosocial development.

Adjustment to the New Role

As generally expected, higher identity synthesis during the high school years predicted higher post-graduation academic engagement, and higher levels of identity confusion predicted higher levels of post-graduation academic or work burnout. Notably, engagement and burnout are two key indicators of how individuals adjust well to their roles (e.g., Schaufeli, Martínez, et al., 2002; Schaufeli et al., 2019). Thus, this study suggests that adolescents with healthy identity development during their high school years are better equipped to adapt to their post-graduation roles, whereas those experiencing identity confusion may find it challenging to adapt to their new roles.

The association between identity development and post-secondary adjustment was generally consistent for both tertiary education students and workers, but two differences emerged. First, among students, an increase in identity synthesis during high school predicted lower cynicism, while an increase in confusion predicted higher cynicism later in life. In contrast, no association was found between identity slopes and cynicism for workers. These differences may stem from variations in social roles between high school, tertiary education, and the labor market. In tertiary education, as an extension of vocational high school, students primarily focus on in-depth academic content and specialized subjects rather than practical work. Thus, a more dynamic interplay between their changes in identity during their school years and their current adjustment may be detected.

Second, for students in tertiary education, a higher level of identity confusion during the high school years tended to predict higher levels of burnout, while for workers they also predicted lower levels of engagement. A high level of identity confusion in high school may be more salient when students enter the labor market rather than when they pursue tertiary education. Identity serves as a resource that predicts adjustment and maladjustment after graduation (Côté & Levine, 2016). The availability of this resource varies depending on the difficulty of the adaptation process for young individuals. Students in tertiary education are expected to learn and develop professional skills and are seen as immature young adults, which grants them a certain degree of social protection (Erikson, 1968). Meanwhile, working youth are expected to work like other adults and bear greater social responsibilities than students, making it more difficult for them to adapt to their circumstances. This contrast provides a possible explanation for the difference in the association between identity confusion and adaptation between students and working adults.

It is worth noting that the above tendency in workers (i.e., the role of identity in engagement) was revealed for identity confusion, but not for identity synthesis. This is consistent with the results of a previous study reporting that identity confusion is related to more dimensions of psychological adjustment than identity synthesis among emerging adults (Sugimura et al., 2016). Thus, the results of the current study cumulate the knowledge that “*the absence of coherence in one’s sense of identity* [i.e., identity confusion] *may be especially problematic*” (Sugimura et al., 2016, p. 371) in working emerging adults.

Developmental Implications

This study carries implications for individual development, highlighting the importance of identity development during the transition from adolescence to emerging adulthood. While previous research has extensively examined the relationship between identity development and adjustment during adolescence and emerging adulthood (e.g., Hatano et al., 2022), there has been a lack of evidence regarding how identity predicts the transition itself or subsequent adjustment. This study revealed that high levels of identity synthesis or low levels of confusion throughout high school play a crucial role in helping adolescents make socially desirable choices or facilitating adjustment after high school in Japan. These findings support the view that a sense of self-consistency entails control and agency over future plans and predicts choices to enhance one’s abilities and subsequent adaptation (Crocetti et al., 2013). In other words, this study sheds light on identity development during the transition phases from school to tertiary education or work.

Limitations and Future Directions

This study has several limitations that should be acknowledged. First, the measurement of adjustment outcomes (burnout and engagement) relied solely on self-report measures. While self-report is a reliable method for assessing subjective adjustment, incorporating other-report measures would enhance the robustness of the evidence. Second, this study primarily focused on the sense of identity as theorized by Erikson (1968). However, there are a variety of other theoretical approaches to identity, including those focused on processes, contents, and values (cf. for a review McLean & Syed, 2015). Future research should examine these conceptualizations of identity and investigate the role of specific identity facets in the transition process. Third, the study specifically targeted adolescents in vocational high schools. In order to confirm the uniqueness of the study’s findings, it is necessary to conduct similar research among adolescents in academically-oriented high schools and compare the results of the two groups. Fourth, the study did not assess the levels of engagement and burnout experienced by students during high school. By considering the

impact of adjustment during high school on post-high school experiences, a more comprehensive understanding of the influence of identity can be achieved. Fifth, the internal consistency of the scales assessing identity was relatively low. Although the values were comparable to those reported in previous studies across different contexts (e.g., Bogaerts et al., 2021; Meca et al., 2017; Sugimura et al., 2018), the low reliability a call for the development of revised versions of the EPSI with improved psychometric properties. Finally, although this study addressed transition from adolescence to emerging adulthood, identity during the transition itself was not assessed. More research monitoring changes in identity in the transition itself is needed to further deepen the understanding of this phenomenon.

Conclusions

While previous research has clarified the relationship between identity development and psychological adjustment, the extent to which identity predicts the transition from adolescence to adulthood and adjustment after the transition remained unclear. To address this research gap, the present study focused on vocational high school adolescents in Japan and examined the relationship between their identity development during high school and their career choices and post-graduation adjustment. The findings revealed that adolescents with a higher sense of synthesis during their high school years were more likely to enter tertiary education and those with a higher sense of confusion were more likely to make the transition to work. Furthermore, higher identity synthesis during the high school years predicted higher post-graduation academic engagement, and higher levels of identity confusion predicted higher levels of post-graduation academic or work burnout. Overall, this study contributes to the understanding of the role of identity development in adolescence as a valuable asset for predicting the transition to adulthood and subsequent adjustment.

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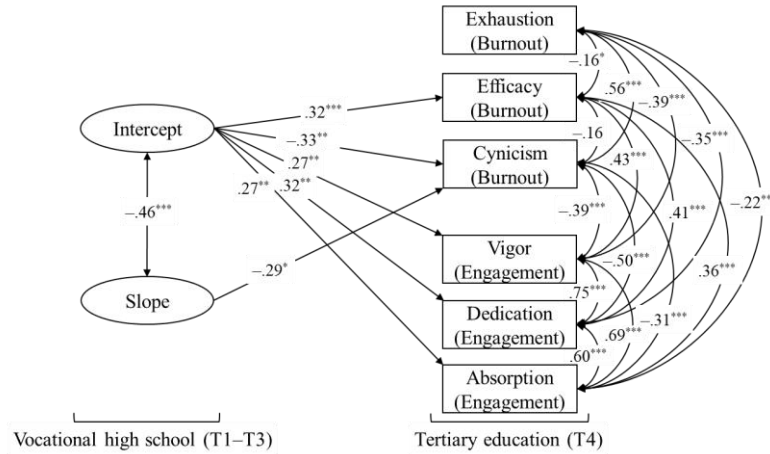
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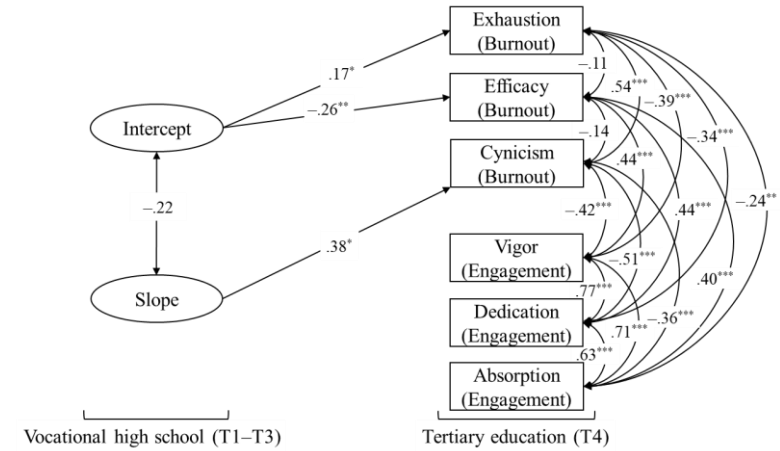
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Fig. 1 Significant path coefficients linking identity development to task burnout and engagement.

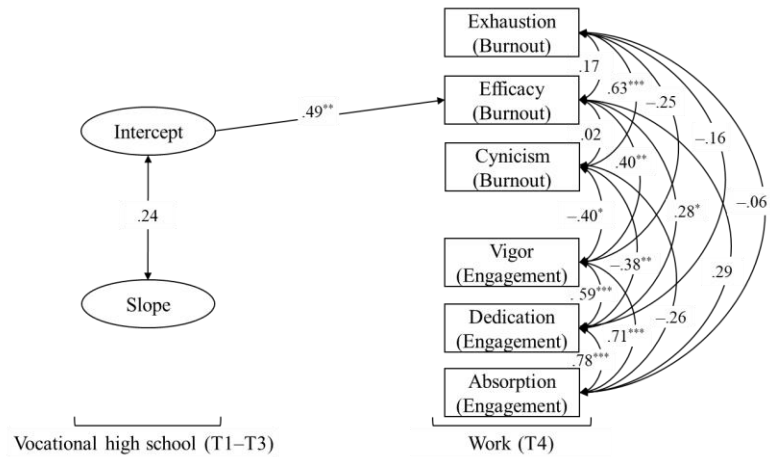
A: Students in tertiary education (synthesis model)



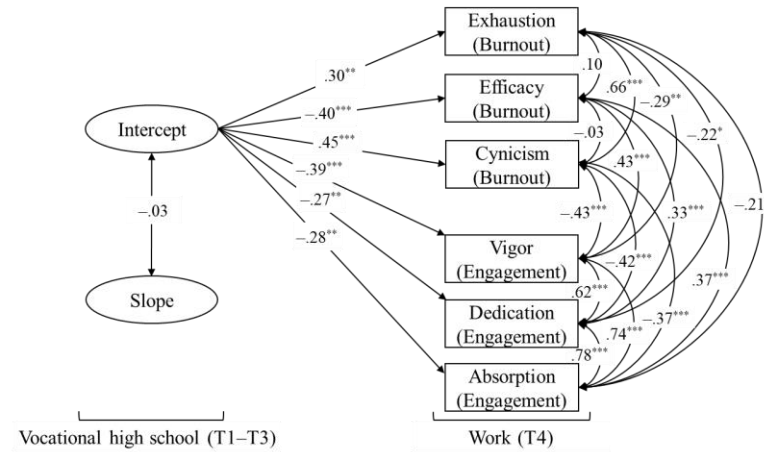
B: Students in tertiary education (confusion model)



C: Workers (synthesis model)



D: Workers (confusion model)



T = time

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

Table 1

Means, standard deviations, Cronbach's alphas, and correlations among the study variables

Variables	<i>M</i>	<i>SD</i>	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.
1. Sex	0.63	0.49	.01	.05	.03	-.10	-.13*	-.12*	.13	-.02	-.04	.24**	-.05	.12	-.02	-.01	.00	-.05	-.06	-.03
Identity																				
2. Synthesis T1	3.22	0.70	–	.59***	.54***	-.42***	-.35***	-.40***	.00	.23***	-.15*	-.19*	.35***	-.31***	.11	.18*	.15*	.34***	.26**	.31***
3. Synthesis T2	3.27	0.69		–	.65***	-.43***	-.52***	-.49***	-.07	.22**	-.23***	-.19*	.33***	-.27**	.23***	.22**	.16*	.21*	.21*	.23**
4. Synthesis T3	3.41	0.70			–	-.40***	-.44***	-.53***	-.08	.21**	-.25***	-.09	.33***	-.23**	.19**	.24***	.21**	.26**	.20*	.17*
5. Confusion T1	2.62	0.68				–	.58***	.62***	.10	-.17*	.09	.24**	-.35***	.38***	-.02	-.01	.06	-.34***	-.24**	-.24**
6. Confusion T2	2.68	0.75					–	.67***	.16*	-.23**	.18**	.22*	-.21*	.29***	-.19**	-.14	-.15*	-.21*	-.13	-.14
7. Confusion T3	2.57	0.67						–	.16*	-.24***	.26***	.20*	-.28**	.31***	-.08	-.11	.01	-.29***	-.20*	-.18*
Study burnout T4																				
8. Exhaustion	2.62	1.36							–	-.16*	.56***	–	–	–	-.41***	-.36***	-.24***	–	–	–
9. Efficacy	3.07	1.11								–	-.21**	–	–	–	.46***	.45***	.40***	–	–	–
10. Cynicism	2.28	1.44									–	–	–	–	-.44***	-.54***	-.36***	–	–	–
Job burnout T4																				
11. Exhaustion	3.41	1.54										–	-.04	.70***	–	–	–	-.38***	-.28**	-.28**
12. Efficacy	2.60	1.21											–	-.21*	–	–	–	.52***	.40***	.44***
13. Cynicism	2.39	1.53												–	–	–	–	-.53***	-.48***	-.45***
Study engagement T4																				
14. Vigor	2.96	0.96													–	.77***	.71***	–	–	–
15. Dedication	3.38	0.93														–	.63***	–	–	–
16. Absorption	2.95	0.93															–	–	–	–
Work engagement T4																				
17. Vigor	2.37	1.64																–	.66***	.77***
18. Dedication	3.09	1.78																	–	.80***
19. Absorption	2.51	1.78																		–

Note. Sex: 0 = boy, 1 = girl; T = time; *M* = mean; *SD* = standard deviation; α = Cronbach's alpha coefficients.

p* < .05; *p* < .01; ****p* < .001.

Table 2

Growth parameters from the latent growth curve model of identity synthesis and confusion

Growth parameters	Mean	Variance
Synthesis		
1. Intercept	3.20 ^{***}	0.28 ^{***}
2. Slope	0.10 ^{***}	0.02
Confusion		
3. Intercept	2.65 ^{***}	0.28 ^{***}
4. Slope	-0.03 [*]	0.01

^{*} $p < .05$; ^{***} $p < .001$.

Table 3

Standardized coefficients of path analyses linking identity development to task burnout and engagement

Outcome variables T4	Explanatory variables T1-T3			
	Identity synthesis		Identity confusion	
	Intercept	Slope	Intercept	Slope
Students in tertiary education				
School burnout				
Exhaustion	-.09	-.17	.17*	.16
Efficacy	.32***	.09	-.26**	-.18
Cynicism	-.33**	-.29*	.20	.38*
School engagement				
Vigor	.27**	.23	-.11	-.12
Dedication	.32**	.23	-.09	-.23
Absorption	.27**	.21	-.01	-.08
Workers				
Job burnout				
Exhaustion	-.37	-.32	.30**	-.05
Efficacy	.49*	-.11	-.40***	.07
Cynicism	-.48	.25	.45***	-.08
Work engagement				
Vigor	.45	-.19	-.39***	.03
Dedication	.37	-.16	-.27**	.02
Absorption	.51	-.39	-.28**	.06

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

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Kazumi Sugimura is a Professor at the Graduate School of Humanities and Social Sciences, Hiroshima University, Japan. Her research interests include identity development in adolescence and young adulthood and cross-cultural differences in identity development.

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Authors' Contributions

KS conceived the study, participated in its design, conducted the data collection, and coordinated and drafted the manuscript; SH performed the statistical analysis, participated in the interpretation of the data, and drafted the manuscript; KH participated in the design of the study, the interpretation of the data, and drafted the manuscript; EC participated in the interpretation of the data and drafted the manuscript. All authors read and approved the final manuscript.

Data Sharing Declaration

Data used in the present study are available at OSF, <https://osf.io/9qm8z/>.

Preregistration

This study was not preregistered.

Conflicts of Interest

The authors report no conflict of interests.

Compliance with Ethical Standards

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Ethics Approval

The formal Institutional Review Board of Hiroshima University approved this project (Project title: Identity Development in Vocational high school students). The study was performed in accordance with the ethical standards as laid down in the 1964 Declaration of Helsinki and its later amendments.

Informed Consent

All participants answered the questionnaires after signing an informed consent agreement.