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The role of psychological flexibility and socioeconomic status in adolescent identity development

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ABSTRACT

This study examined the roles of psychological flexibility and socioeconomic status (SES) in adolescents' identity development during the transition from lower secondary school to upper secondary education. Psychological flexibility was measured using the Avoidance and Fusion Questionnaire (AFQ-8; Greco et al., 2008) and identity processes were measured with the Dimensions of Identity Development Scale (DIDS; Luyckx et al., 2008). SES was assessed using the educational level of the highest-educated parent. The sample comprised 885 adolescents who answered surveys in Grade 9, as well as in the first and third year of upper secondary education. The results showed, first, that psychological flexibility was both concurrently and prospectively related to adolescents' identity formation (exploration in breadth and commitment making) as well as to their identity evaluation (exploration in depth, identification with commitment, ruminative exploration) processes. Second, the higher SES adolescents had, the more they had exploration in breadth and exploration in depth in the first year of upper secondary education. Thirdly, associations of psychological flexibility with commitment making and identification with commitments were stronger for adolescents with a higher SES than for adolescents with lower SES. The results suggest that psychological flexibility may play a key role in adolescents' identity development during critical educational transitions.

1. Introduction

During adolescence individuals go through multiple physiological, psychological, and social changes (Murberg & Bru, 2004; Steinberg, 2014). Planning one's future and making educational choices are among the most important developmental tasks for adolescents. Critical stages on an adolescent's educational path are transitions from one educational level to another, during which changes occur in the interpersonal environment, study demands, and achievement motivation (Eccles & Roeser, 2011; Liinamaa et al., 2022). Creating future plans and making commitments in terms of ideals, values, and goals, yields purpose and continuity—a sense of where you want to be heading in life (Manneström et al., 2019). Thus, adolescence and related transitions are critical times for identity development (Erikson, 1968; Nurmi, 2004).

An important protective factor during educational transitions is psychological flexibility (Petersen, 2021; Twohig, 2012), which is defined as acting in accordance with personal goals and values in the

presence of potentially intrusive thoughts and feelings (Hayes et al., 2012; see also Lappalainen et al., 2023). It plays an essential role in determining how people cope with and adapt to changing and often challenging life circumstances (Hayes et al., 2012). Psychological flexibility has shown to promote adolescents' subjective well-being and school engagement (Liinamaa et al., 2022; Puolakanaho et al., 2023). Although rarely examined, psychological flexibility might also promote adaptive identity development, that is, forming a continuous sense of self and identifying with personal values (Hitlin, 2003; Luyckx et al., 2010, 2013; Ragelienė, 2016). Adolescents may also have differing financial and social resources for identity development depending on their socioeconomic status (SES) (Rivnyák et al., 2021). For example, lack of financial and social resources can restrain adolescents' abilities to recognize and explore different options and commit to them (Luyckx et al., 2006, 2008b; Phillips & Pittman, 2003; Prioste et al., 2020) and increase ruminative exploration (Luyckx et al., 2006; Matheis & Adams, 2004).

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In order to support adolescent identity development during educational transitions it is important to gain further understanding regarding underlying mechanisms. Thus, the aim of this study was to investigate how psychological flexibility and SES are related to identity processes during the transition from basic to upper secondary education, and whether SES moderates these associations. To our knowledge, there has been no research on the latter issue to date.

2. Identity development in adolescence

According to Erikson's lifespan theory (1968), the most important developmental task in adolescence is identity development. Identity development refers to a process in which a person forms an individual and continuous experience of self and identifies with personally meaningful values, goals, and ideals (Erikson, 1968; Marcia, 1980, 1993). These commitments yield purpose and continuity—knowing where you want to be heading in life. This is critical for entering and coping with adult roles, tasks, and responsibilities, as well as for social integration and personal well-being throughout life. However, although adolescence is an intensive phase of life regarding identity development, identity is never fully gained or finalized (Carlsson et al., 2015; Fadjukoff et al., 2010). A sense of identity is an open-ended process that is affected by changes in the personal, social, and environmental context and thus is under continuous development (Kroger et al., 2010; Måneström et al., 2019; Meeus, 2011).

The most recent multidimensional identity models have stressed the continuous nature of identity formation (e.g., Crocetti et al., 2008; Luyckx et al., 2005). Identity process refers to qualitatively different, but parallel ways of pondering future plans and committing to them (Måneström, 2019). In the dual-cycle model (Luyckx et al., 2006, 2008), identity consolidation consists of two formation (exploration in breadth and commitment making) and two evaluation processes (exploration in depth and identification with commitment); that is, different identity options are continuously explored and re-evaluated and some commitments are being made.

Exploration in breadth (i.e., active exploration of alternatives) refers to the process of actively considering alternative options while *exploration in depth* (i.e., becoming more aware of the chosen commitments) refers to considering if the planned commitments are personally meaningful. *Commitment making* (i.e., choosing and adhering to one of these commitments) refers to consciously committing to personally meaningful goals and actions, and *identification with commitment* (i.e., identifying with and growing certain and confident about these commitments) refers to identifying with the value that has guided a commitment (see Beyers & Luyckx, 2016).

However, an individual can also get stuck in the search phase and experience frustration and difficulties in making choices on which direction to pursue in regard to personal development and life choices. This kind of identity search is called *ruminative exploration*, which is characterized by brooding over alternatives, indecision and worry about an unattainable sense of direction (Luyckx & Robitschek, 2014). It is considered a risk factor for suboptimal identity development (Beyers & Luyckx, 2016). Adolescents high on ruminative exploration experience difficulties with active and purposeful exploration of alternatives (Beyers & Luyckx, 2016). Self-rumination is associated with lower levels of perspective-taking and higher levels of depressive and anxiety symptoms (Joireman et al., 2002; Luyckx & Robitschek, 2014; Nolen-Hoeksema, 2000). It is also negatively related to self-generated plans and commitment to these plans (Ward et al., 2003). Ruminative exploration is considered a central challenge for contemporary youth struggling with seemingly endless opportunities of self-realization and labor market uncertainties (Côté, 2006; Måneström et al., 2019).

The above-described cycle between exploration and commitment making has been hypothesized as a possible course of identity development (Luyckx et al., 2006). In this study adolescents' identity development was examined with respect to changes in identity process during

the educational transition.

2.1. psychological flexibility and identity development

The concept of psychological flexibility stems from the theory of Acceptance and Commitment Therapy (ACT). The aim of ACT is to create a "mind" that is more flexible and open to new opportunities and more aware of consequences of actions (Hayes et al., 2012; see also Kiuru et al., 2021). The ACT-model proposes that adolescents' ineffective actions or problems can be caused by entangled mind processes leading to poorly developed self-awareness, failure to see the perspective of others, and weak skills to pursue for one's own goals and solve challenging life events. Psychological flexibility refers to individuals' capability to focus on their current situation and, depending on the opportunities provided by the situation, to act towards achieving their personal goals and values, even in the presence of unwanted thoughts, emotions, physiological sensations, and memories (Bond & Bunce, 2003; Flaxman et al., 2013; Hayes et al., 2012).

Psychological flexibility is associated with better mental health and well-being both in general (Gloster et al., 2017; Hayes et al., 2006; Kashdan & Rottenberg, 2010; Twohig, 2012) and in the youth population (Halliburton & Cooper, 2015; Petersen, 10 Nov. 2021). Psychological flexibility might equip adolescents with beneficial tools to cope with changing environments, roles, and relationships (Halliburton & Cooper, 2015). Low psychological flexibility, in turn, may manifest itself as fusion with negative perceptions about self and avoidance of unpleasant feelings, thoughts, and situations (Mellick et al., 2019; Pickett et al., 2012). There are many similarities between the processes of psychological flexibility and identity development. Common factors include openness to opportunities of the environment, awareness of personally meaningful things and future plans, and commitment to them (Kashdan & Rottenberg, 2010). However, there is relatively little research on the relationship between psychological flexibility and identity development, especially among adolescents. Beaumont's cross-sectional study of early adults (2011) showed that mindfulness skills were positively associated with active identity exploration in breadth.

In relation to identity development, psychological flexibility might promote broad and flexible identity exploration in breadth and exploring different options that are crucial in adolescence (Luyckx et al., 2010, 2013). Psychological flexibility might also foster the ability to identify one's interests and work towards them (Eccles & Roeser, 2011). An accepting attitude toward internal events, which is a part of psychological flexibility (Tirch et al., 2016), may promote exploration since one can confront and evaluate one's own choices, despite unpleasant thoughts or feelings, in an accepting way. Mindfulness and acceptance may also increase individual tolerance of identity stress (Lillis et al., 2009). Higher levels of psychological flexibility in adolescents with symptoms of anxiety and depression have also shown to be associated with less rumination (Bjornsson et al., 2010; Demehri et al., 2018). This study aimed to increase understanding of the role of psychological flexibility in adolescents' identity development during the transition from lower secondary school to upper secondary education.

2.2. SES, identity development and psychological flexibility

Socioeconomic status (SES) refers to a person's position in society and consists of the material resources of well-being, such as the level of family's education, occupation, and income (Finnish Institute for Health and Welfare, 2019; Melhuis, 2010). In the present study, adolescents' SES was operationalized as the educational level of the highest educated parent. The level of education is highly hereditary (Breen & Jonsson, 2005; Chmielewski, 2019; Volante et al., 2019) and it affects the quality of the home learning environment, experiences, parental action, and investment in resources (Guo & Harris, 2000; Sylva, 2010). Previous research has shown that parents' level of educational qualification has

even a stronger effect on children's academic skills than family income or occupational status (see Melhuis, 2010).

The relationship between socioeconomic status and identity development can be examined using the Family Stress Model (FSM; Rivnyák et al., 2021) and the Family Investment Model (FIM) (Conger & Donnellan, 2007). The theoretical models illustrate how economic and social challenges might hinder adolescent adaptive identity development. According to the FSM model financial challenges related to lower SES may create financial pressure and stress, which can weaken parents' parenting resources and lead them to use harsh and inconsistent parenting practices and be less supportive and affectionate toward their children (Luyckx et al., 2007; Masarik & Conger, 2017; Rivnyák et al., 2021). This, in turn, may disrupt adolescents' commitment to identity by making it more difficult to set goals and values (Luyckx et al., 2006, 2008b; Phillips & Pittman, 2003; Prioste et al., 2020) and increase ruminative exploration (Luyckx et al., 2006; Matheis & Adams, 2004). Accordingly, it has been found that adolescents of low socioeconomic status receive less support from their significant others compared to adolescents of higher socioeconomic status, which can in turn disrupt identity development (Phillips & Pittman, 2003).

The Family Investment Model (FIM), in turn, describes how parents invest financial and social capital to support their children's development and well-being (Conger & Donnellan, 2007). Due to lower financial, human, and social resources, parents with lower SES compared to higher SES may have to spend more resources in more immediate family needs (Conger & Donnellan, 2007; Martin et al., 2010; Mayer & Leone, 1997). Consequently, parents with low SES may provide less guidance and opportunities to adolescents to explore different activities and foster academic and social competence (Conger & Donnellan, 2007). Consequently, low SES may be a risk factor for weakened identity exploration, early termination of exploration, less stable identity commitments, and early commitment making regarding identity (Phillips & Pittman, 2003; Rivnyák et al., 2021).

There are some previous studies that touch on the associations examined in the current paper, i.e., studies regarding socioeconomic status as a moderator between associations of psychosocial factors and health outcomes (for a review, see Chen & Miller, 2013), socioeconomic status as a moderator between resilience and vocational identity (Keitzer et al., 2021), and psychological flexibility as a protective factor between COVID-19 pandemic and lockdown and mental health impacts (Pakenham et al., 2020). However, there is no research on whether SES moderates the relationship between psychological flexibility and development of identity processes to date. In the health domain, it has been proposed that promotive factors (e.g., positive emotions, sense of control) identified in the studies conducted with largely higher-SES populations may not necessarily be similarly effective in promoting health of disadvantaged groups (Chen & Miller, 2013). In a similar vein, in addition to considering psychological flexibility as universally beneficial, it is also important to examine the possible differential role of psychological flexibility in identity processes depending on adolescents' socioeconomic status. For example, SES might influence the relationship between psychological flexibility and identity development by enabling or restraining different processes (Conger & Donnellan, 2007; Rivnyák et al., 2021). Lack of parental economic and social resources might restrain adolescents' abilities to recognize and explore different options and commit to them, and may, in this way, be related to lower psychological flexibility. Experience of personal potential and self-reliance might also be weaker among adolescents with a lower SES than those with a higher SES (Hannah & Kahn, 1989; Phillips & Pittman, 2003), which can hinder exploring personally meaningful things and committing to them.

So far, relatively little longitudinal research has been conducted on the development of identity processes in different contexts (Manerström et al., 2017). Thus, our longitudinal study on the role of psychological flexibility and socioeconomic status in the development of identity processes during the critical educational transition can provide

important new knowledge about adolescent identity development.

3. Research questions and hypotheses

- 1) To what extent is psychological flexibility associated with the different dimensions of identity development (exploration in breadth, commitment making, identification with commitments, exploration in depth, and ruminative exploration) at the end of basic education (Grade 9) and the development in them from Grade 9 to upper secondary education? It was expected (Hypothesis 1) that psychological flexibility is positively related to exploration in breadth and commitment making and negatively related to ruminative exploration (Hitlin, 2003; Knafo & Schwartz, 2004; Luyckx et al., 2013; Ragelienė, 2016).
- 2) To what extent is SES associated with the different dimensions of identity (exploration in breadth, commitment making, identification with commitments, exploration in depth, and ruminative exploration) at the end of basic education (Grade 9) and the development in them from Grade 9 to upper secondary education? It was expected (Hypothesis 2) that higher SES is related to higher identity exploration (Phillips & Pittman, 2003; Rivnyák et al., 2021; Sartor & Youniss, 2002).
- 3) To what extent does SES moderate the associations between psychological flexibility and identity development from Grade 9 to upper secondary education? Due to the lack of previous studies, no hypotheses were set.

4. Method

4.1. Participants

This study is part of a broader longitudinal study following a community sample of Finnish adolescents across educational transitions. The adolescents were recruited from a large Finnish town (135,000 inhabitants) and a middle-sized Finnish town (20,000 inhabitants) in Central Finland. The procedures were in accordance with the principles of the Helsinki Declaration on research with human subjects. Written informed consent was obtained from the adolescents and their parents and the research plan of the project was approved by the Human Sciences Ethics Committee of the local university.

Our study focused on the critical educational transition from basic education to upper secondary education. The present study examined three measurement points: Grade 9 (T1, fall 2017), along with the first (T2, spring 2019) and third year (T3, fall 2020) of upper secondary education. The first measurement point was in Grade 9, which is the last grade of basic education before the transition to upper secondary education. The second measurement point was in the first year of upper secondary education right after the transition and the third measurement point was in the third year of upper secondary education. These measurement points allowed us to investigate adolescent identity processes before and after the educational transition. The adolescents' data of the first two measurement points were collected using paper questionnaires during normal school hours. Due to COVID-19 restrictions, the data of the last measurement point were collected remotely through an online questionnaire.

A total of 885 adolescents (mean age = 15.74 years, 497 girls) participated in this study in the fall of Grade 9 (T1), 831 adolescents in the first spring of upper secondary school (T2), and 722 adolescents in the fall of the third year of upper secondary school (T3). The sample was well representative of the entire population of Central Finland in terms of mother tongue (Official Statistics of Finland, 2020). In terms of family structure, the sample was fairly representative of the whole population of Finland (Official Statistics of Finland, 2019).

We conducted attrition analyses to compare adolescents with complete data ($n = 551$) with those having missing data at least one out of three waves ($n = 489$). These groups of adolescents did not significantly

differ in terms of psychological flexibility at T1 nor commitment making, identification with commitments, and ruminative exploration at any of three timepoints (T1, T2, T3). By contrast, adolescents with complete data had higher SES ($d = 0.31$), showed higher exploration in breadth at all three timepoints (T1: $d = 0.21$; T2: $d = 0.19$; T3: $d = 0.24$) and higher exploration in depth at T1 ($d = 0.24$) and T2 ($d = 0.21$) than adolescents with non-complete data. Effect sizes of these differences were nevertheless small. In our statistical analyses all the available data was used.

4.2. Measures

Psychological Flexibility (T1). Psychological flexibility was measured using the eight-item short version of the Avoidance and Fusion Questionnaire for Youth (AFQ-Y) (for reliability and validity, see Greco et al., 2008). The scale consists of eight items on a five-point scale (0 = *not true at all*, 4 = *very true*; e.g., “My life will not be good before I feel happy”; $\alpha = 0.88$). In our analyses, the items were reversed to measure psychological flexibility.

SES (T1). Adolescents’ socioeconomic status was measured using the educational level of the highest educated parent. Educational level was categorized as follows: 1 = no vocational education, 2 = employment or educational courses (minimum of 4 months), 3 = vocational upper secondary education, 4 = post-secondary education, 5 = bachelor’s or vocational college degree, 6 = university or other higher education, and 7 = postgraduate degree. The measures were recoded by going through the education levels of the parents and adding a numerical value (1–7) corresponding to the education level of the most highly educated parent.

Identity Processes (T1, T2, T3). The identity processes were measured using the Finnish version of the Dimensions of Identity Development Scale (DIDS) by Lyuckx et al. (2008). The DIDS consists of 13 statements on a five-point scale (1 = *totally disagree*, 5 = *totally agree*). Exploration in breadth was measured using three questions (e.g., “I actively think about different goals to pursue”; $\alpha = 0.70$ – 0.75), commitment making using two questions (e.g., “I have decided a life course that I will follow”; $\alpha = 0.92$ – 0.95), exploration in depth using two questions (e.g., “I wonder whether my plans are suitable for what I really want”; $\alpha = 0.70$ – 0.75), identification with commitments using two questions (e.g., “My plans for the future give me self-confidence”; $\alpha = 0.88$ – 0.89), and ruminative exploration using two questions (e.g., “I worry about what I want in my life”; $\alpha = 0.80$ – 0.85).

5. Statistical analyses

The analyses were conducted as follows. First, to answer the first research question, regression analyses were utilized to examine the concurrent (within Grade 9) and prospective associations (from Grade 9 to first year of upper secondary education and from first to third year of upper secondary education) between psychological flexibility and the dimensions of identity while controlling for the levels of identity dimensions in the previous time point. To answer the second research question, SES was included in the regression analyses to examine concurrent (within Grade 9) and prospective associations (from Grade 9 to first year of upper secondary education and from first to third year of upper secondary education) between SES and the dimensions of identity while controlling for the levels of identity dimensions in the previous time point.

Our final research question examined whether SES moderates the associations between psychological flexibility and identity development. This question was analyzed both concurrently and prospectively by including both main effects of psychological flexibility and SES, as well as their interaction term in the regression models. Statistically significant interaction results were further investigated by plotting the interaction graphs. From the graphs, we interpreted how psychological flexibility (indicated as means and standard deviations on the x axis of the graph) is related to a particular dimension of identity (indicated as numerical values on the y axis of the graph) separately for adolescents of

high SES and low SES (indicated as two different lines on the graph). Statistical analyses were conducted using IBM SPSS Statistics 26.

6. Results

The means and standard deviations of the main study variables are presented in Table 1.

Psychological Flexibility and Identity Development. The results of the regression analyses are shown in Table 2. The results of the concurrent regression analysis in Grade 9 showed that psychological flexibility was related to all identity dimensions: a higher level of psychological flexibility was related to higher exploration in breadth, higher commitment making and higher identification with commitments, but lower exploration in depth and lower ruminative exploration. The results of the prospective regression analyses showed further that psychological flexibility also had small unique associations with higher commitment making and lower ruminative exploration in the first and third year of upper secondary education while the levels of the identity dimensions from the previous time point were controlled. Furthermore, a higher level of psychological flexibility was prospectively related to lower exploration in depth in the first year of upper secondary education and higher exploration in breadth and higher identification with commitments in the third year of upper secondary education.

SES and Identity Development. The results of the concurrent and prospective regression analyses are shown in Table 3. The results of concurrent regression analyses revealed no significant associations between adolescents’ SES and their identity development. However, in the prospective regression analyses two significant associations were found: a higher level of SES was prospectively related to higher exploration in breadth and higher exploration in depth in the first year of upper secondary education while the levels of the identity dimensions from the previous time point were controlled.

The Moderating Role of SES. Next, we examined SES as a moderator of the associations between psychological flexibility and identity development. The main effects of psychological flexibility and SES, as well as their interaction term were included in the regression models. The results showed that the interaction term Psychological Flexibility X SES significantly predicted commitment making ($\beta = 0.09$, $p < 0.05$) and identification with commitments ($\beta = 0.08$, $p < 0.05$), suggesting that SES significantly moderated the associations between psychological flexibility and commitment making and identification with commitments.

Figs. 1 and 2 show the interpretations of these interaction effects with showing associations of psychological flexibility with commitment making and identification with commitments separately for adolescents

Table 1
Descriptive statistics of psychological flexibility and identity dimensions.

	n	M	SD	Min.	Max.
Psychological flexibility (T1)	885	2.97	0.82	0	4
Exploration in breadth (T1)	880	3.64	0.86	1	5
Exploration in breadth (T2)	829	3.74	0.80	1	5
Exploration in breadth (T3)	721	3.83	0.87	1	5
Commitment making (T1)	881	3.47	1.11	1	5
Commitment making (T2)	829	3.42	1.12	1	5
Commitment making (T3)	721	3.23	1.17	1	5
Identification with commitments (T1)	880	3.20	1.06	1	5
Identification with commitments (T2)	829	3.07	1.09	1	5
Identification with commitments (T3)	721	3.03	1.16	1	5
Exploration in depth (T1)	880	3.16	1.00	1	5
Exploration in depth (T2)	829	3.29	1.04	1	5
Exploration in depth (T3)	721	3.41	1.07	1	5
Ruminative exploration (T1)	880	2.68	1.10	1	5
Ruminative exploration (T2)	829	2.79	1.12	1	5
Ruminative exploration (T3)	721	3.11	1.20	1	5

Note. T1 = ninth grade of basic education, T2 = first year of upper secondary education, T3 = third year of upper secondary education.

Table 2
Regression models for psychological flexibility and adolescents' identity development.

Identity dimension	Grade 9 identity development as dependent variable		Year 1 of upper secondary education identity development as dependent variable			Year 3 of upper secondary education identity development as dependent variable		
	Psychological flexibility		Grade 9 identity development	Psychological flexibility		Year 1 of upper secondary education identity development	Psychological flexibility	
	β	R ²	β	β	R ²	β	β	R ²
Exploration in breadth	.27***	.07	.42***	.01	.18	.45***	.11**	.23
Commitment making	.28***	.08	.44***	.09*	.22	.44***	.09*	.22
Identification with commitments	.33***	.11	.41***	.05	.18	.41***	.13**	.20
Exploration in depth	-.10**	.01	.29***	-.16***	.12	.46***	.01	.21
Ruminative exploration	-.38***	.15	.44***	-.17***	.28	.53***	-.10*	.32

Note. **p* < 0.05, ***p* < 0.01, ****p* < 0.001.

Table 3
Regression models for socioeconomic status and adolescents' identity development.

Identity dimension	Grade 9 identity development as dependent variable		Year 1 of upper secondary education identity development as dependent variable			Year 3 of upper secondary education identity development as dependent variable		
	Socioeconomic status		Grade 9 identity development	Socioeconomic status		Year 1 of upper secondary education identity development	Socioeconomic status	
	β	R ²	β	β	R ²	β	β	R ²
Exploration in breadth	.06	.00	.42***	.11**	.19**	.46***	.03	.22
Commitment making	.02	.00	.47***	.06	.22	.46***	-.00	.21
Identification with commitments	-.00	.00	.44***	.07	.20	.45***	-.08	.20
Exploration in depth	-.03	.00	.33***	.09*	.17*	.49***	-.02	.24
Ruminative exploration	.03	.00	.53***	.02	.29	.56***	.02	.32

Note. **p* < 0.05, ***p* < 0.01, ****p* < 0.001.

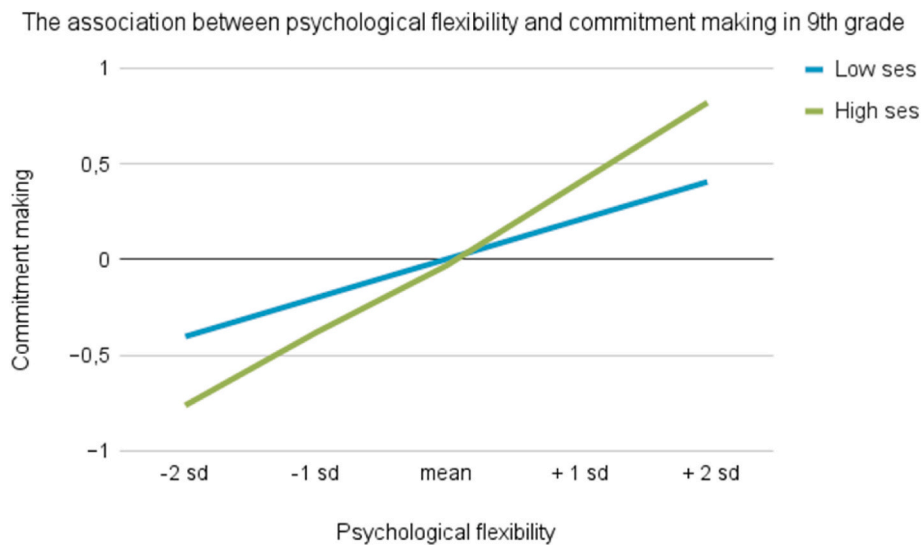


Fig. 1. The association between psychological flexibility and commitment making in 9th grade.

with high SES ($\geq +1SD$) and with low SES ($\leq -1SD$). The results revealed that for adolescents with high SES, a higher level of psychological flexibility was more strongly associated with both higher commitment making and higher identification with commitments in Grade 9 compared to adolescents with low SES.

SES, in turn, did not moderate any of the associations between psychological flexibility and exploration in breadth, exploration in depth or ruminative exploration.

7. Discussion

The current research provided new knowledge about the roles of psychological flexibility and SES in adolescents' identity development during the transition from basic education to upper secondary education. The results showed that psychological flexibility was associated both concurrently and prospectively with all five identity dimensions, that is, exploration in breadth, commitment making, identification with commitments, exploration in depth, and ruminative exploration. In turn, SES was only associated with identity exploration in breadth and

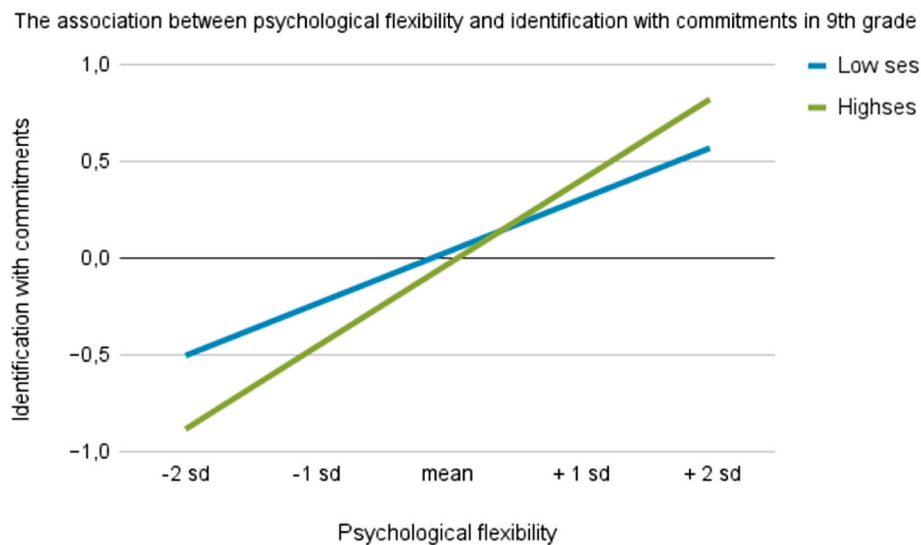


Fig. 2. The association between psychological flexibility and identification with commitments in 9th grade.

exploration in depth. In addition, SES moderated the associations between psychological flexibility and commitment making and psychological flexibility and identification with commitments. These results suggest that high psychological flexibility may promote identification and commitment to personally meaningful goals and actions especially with high SES adolescents during the transition from lower secondary school to upper secondary education.

7.1. Psychological flexibility and identity development

The first research question aimed to examine the relationship between psychological flexibility and dimensions of identity during the transition from comprehensive school to secondary school. In line with our expectations (see also Hitlin, 2003; Knafo & Schwartz, 2004; Luyckx et al., 2013; Ragelienė, 2016), psychological flexibility was positively associated with *exploration in breadth*. This is not surprising because flexibility has been found to be associated with openness to new experiences (García-Oliva & Piqueras, 2016), which enables an open attitude towards different possibilities (Hayes et al., 2006; Kashdan & Rottenberg, 2010; Tirch et al., 2016). A comprehensive and flexible seeking of different options and choices in adolescence is important for identity exploration and thus identity development (Luyckx et al., 2010, 2013). A psychologically flexible adolescent may be open to different options and has the flexibility to consider and weigh up factors that may affect their life and life course. They also base important decisions, such as school choices, on their values. The association between psychological flexibility and exploration in breadth was particularly pronounced in Grade 9 and in the last year of upper secondary education. At the very beginning of upper secondary school, psychological flexibility was not associated with exploration in breadth when the effect of exploration in breadth from the previous time point was controlled for. This suggests that other factors may explain identity exploration in breadth at the beginning of upper secondary school. Socioeconomic status could be one of those factors since in the current study it was associated with exploration in breadth at the beginning of secondary school.

The results also revealed, in line with our hypothesis (see Ragelienė, 2016), that psychological flexibility was related to *commitment making* during the entire educational transition from basic education to upper secondary education. As a core process of psychological flexibility, clarification of personal values is related to commitment making (Eccles & Roeser, 2011; Knafo & Schwartz, 2004). Working with values includes not only reflection on personally meaningful values but also committing to acting on them (Hayes et al., 2006). Adolescents, who engage in value

work, may make their decisions, such as secondary school choices, based on their values and they may thus be more likely to commit to those choices. Commitment to personally meaningful actions is easier when one accepts that this may sometimes involve unpleasant thoughts or emotions, such as insecurity or nervousness.

The results also add to previous research by showing that psychological flexibility was positively related to *identification with commitments* in Grade 9 and in the final year of upper secondary education. These results are in line with the previous, albeit limited body of research. For example, Bi and Li (2021) have argued that adaptability inherent in psychological flexibility is associated with identification with commitments and confidence about the direction of life and the choices made. By making successful, values-based choices, adolescents are likely to feel more confident, and their own lives and choices are likely to feel meaningful. An accepting attitude without the need to control thoughts and emotions may increase confidence in future plans, as one can then deal with adversity in a more constructive way (see also Ragelienė, 2016). Psychological flexibility was not associated with identification with commitments at the beginning of secondary school, with identification possibly being more related to, for example, new social networks and the status in the community.

Further, in line with our expectations, psychological flexibility was negatively related to *ruminative exploration* during the transition to upper secondary education. Both are associated with cognitive fusion, difficulty in distancing oneself from one's own thoughts and feelings, and thus becoming stuck in them, and lower well-being (Hayes et al., 2006; Muris et al., 2017). It is typical for adolescents with low psychological flexibility to ruminate, and life may not seem like it has direction. Uncertainty and rumination about further education and working life can be particularly evident during educational transitions. Rumination is a key factor in psychological inflexibility among anxious students, who experience less psychological flexibility because their mind is focused far from the present moment (Hayes et al., 2012). Psychologically flexible adolescents may be more accepting of their life situation, emotions, and thoughts about the future, without the negative, ruminative dimension of reflection.

Finally, the results also add to previous research by showing that psychological flexibility was negatively related to *exploration in depth* in Grade 9 (right before the transition) and in the first-year upper secondary education (right after the transition). In the third year of upper secondary education, psychological flexibility was no longer associated with exploration in depth, when the effect of exploration in depth from the previous time point was controlled for. Exploration in depth includes

uncertainty about the future and how the plans already made support personal goals and survival (Luyckx, Soenens, et al., 2008). Anxiety associated with low psychological flexibility has been negatively associated with exploration in depth (Crocetti et al., 2009; Meeus, 2011). Thus, it is possible that an interaction between anxiety and exploration in depth can negatively affect the identity development of adolescent with low psychological flexibility. This anxiety and uncertainty might be particularly pronounced immediately before and after education transitions, when planning one's future, making educational choices, and adapting to new educational environments are especially topical for adolescents.

7.2. Socioeconomic status, psychological flexibility, and identity development

The aim of the second research question was to examine the associations between SES and dimensions of identity during the transition from basic education to upper secondary education. In line with our hypothesis and previous research (Matheis & Adams, 2004; Prioste et al., 2020; Sartor & Youniss, 2002), SES was positively related to identity exploration in breadth and identity exploration in depth in the first year of upper secondary education. It may be that adolescents with higher SES are more likely to have more financial resources and social support for exploring different school paths, hobbies, and other options than do those adolescents with lower SES (Conger & Donnellan, 2007; Duncan & Magnuson, 2003; Phillips & Pittman, 2003). Re-evaluating commitments and choices that have already been made may also be economically and socially more possible for adolescents with higher SES. In addition, due to the fact that children of highly educated parents are more likely to pursue higher education than are the children of low educated parents (Breen & Jonsson, 2005; Chmielewski, 2019; Volante et al., 2019), it may also be that the adolescents with higher SES have less financial pressure to enter and commit early to working life than do adolescents from low-income families. This experience of financial security can enable a more comprehensive exploration of options and a re-evaluation of choices already made. Interestingly, SES was not related to identity exploration in breadth in Grade 9. It may be that at the end of basic education, regardless of SES, adolescents must consider and are able to consider different options for secondary education.

The final aim of this study was to examine the moderating role of SES in the associations between psychological flexibility and identity development. In the health domain it has been proposed that positive traits identified in the many psychological studies conducted with largely higher-SES populations may not necessarily be similarly effective in promoting health of disadvantaged groups (Chen & Miller, 2013; Keitzer et al., 2021). This has not been studied before in the context of the associations between psychological flexibility and identity processes.

The results showed that SES moderated the associations between psychological flexibility and commitment making, and psychological flexibility and identification with commitments. Psychological flexibility was more strongly related to higher commitment making and higher identification with commitments for adolescents with high SES than for adolescents with low SES. The results suggest that a lack of parental economic and social resources may restrain adolescents from benefiting from psychological flexibility during commitment-making for different options and plans. These findings are in line with those of Keitzer et al. (2021) who found that the associations between social resilience and vocational self-efficacy were stronger for the higher SES adolescents. It is possible that experience of weaker personal potential and beliefs of having less opportunities available (see also Hannah & Kahn, 1989; Phillips & Pittman, 2003) hinder adolescents with a lower SES to be psychologically flexible and committing to personally meaningful things. Adolescents having both high SES and high psychological flexibility, in turn, may have both high financial and social resources, and high psychological resources to not only explore issues that are

important to them but to also implement and commit to these issues and plans (Conger & Donnellan, 2007; Martin et al., 2010). Investing time in personally important activities may also further strengthen high SES adolescents' sense of being on the right track and thus strengthen their sense of identity.

At the same time, it is notable that the above described SES x psychological flexibility interaction effects were found only in Grade 9, that is, before the upcoming educational transition to upper secondary education and not in the time points after the transition. Similarly, SES did not moderate the associations between psychological flexibility and any of the exploration dimensions of identity. Hence, our results generally suggest that, aside of some exceptions discussed above, a high level of psychological flexibility was universally beneficial for all adolescents' identity development independent of the level of SES.

8. Limitations and future directions

This study has some limitations. First, the information on adolescents' psychological flexibility and identity development was received via questionnaires. Future research could combine questionnaires with interviews and observations. Second, psychological flexibility was measured as one composite construct with a widely used youth form of the AFQ. In future studies, it would be fruitful to examine psychological flexibility in more detail, through its sub-processes (Bi & Li, 2021; Tyndall et al., 2020), and their relationship with the dimensions of identity to gain insight into the role of these sub-processes in identity development. Third, SES was measured only through the education level of a more highly educated parent. In future studies, it would be important to include families' level of income and occupation when examining the role of SES in adolescents' development.

9. Conclusion and implications

Our research provided new information on the associations between psychological flexibility, SES, and identity processes during the transition from comprehensive school to upper secondary school. Overall, our results suggest that psychological flexibility plays an important role in adolescents' identity processes during the educational transitions and that SES moderates some of these associations. The results imply that by practicing psychological flexibility skills it may also be possible to support adaptive identity development (see also Luoma et al., 2008). Our results suggest that becoming aware of one's own values and committing oneself to act on them may be reflected in identity commitment and identification with commitments. In turn, low psychological flexibility can potentially reinforce ruminative identity exploration. Our research also showed that the more highly educated the parent, the more identity exploration in breadth and exploration in depth adolescents had to do, suggesting that adolescents with higher SES may have more economic and social opportunities to explore different options and reassess the choices they made. In addition, the associations between psychological flexibility and commitment making and psychological flexibility and identification with commitments were stronger for adolescents with higher SES. These results underlie the importance of providing economic and social support to adolescents from low socioeconomic backgrounds, so that opportunities to explore and identify personal values and find opportunities to choose and act in accordance with personal values in the context of education are as equal as possible, regardless of wealth.

Ethical approval

This study was conducted in compliance with APA ethical standards. The procedures were in accordance with the principles of the Helsinki Declaration on research with human subjects.

The research plan of the project was approved by the Human Sciences Ethics Committee of the University of Jyväskylä.

Informed consent

Informed consent was obtained from all the participants of the study.

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Data availability

The datasets generated and/or analyzed during the current study are not publicly available but are available from the corresponding author on reasonable request.

Declaration of competing interest

As an Editorial Board Member, Dr. Päivi Lappalainen had no involvement in the peer-review of this article and had no access to information regarding its peer-review. All other authors have declared no conflicts of interest.

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