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Title: The role of psychological inflexibility in adolescent satisfaction with the educational track and school dropout intentions

Year: 2022

Version: Published version

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Please cite the original version:

Liinamaa, S., Taulavuori, M.-S., Lappalainen, P., Puolakanaho, A., Lappalainen, R., & Kiuru, N. (2022). The role of psychological inflexibility in adolescent satisfaction with the educational track and school dropout intentions. *Journal of Contextual Behavioral Science*, 24, 141-148. <https://doi.org/10.1016/j.jcbs.2022.05.003>



The role of psychological inflexibility in adolescent satisfaction with the educational track and school dropout intentions[☆]

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ARTICLE INFO

Keywords:

Psychological inflexibility
School engagement
Upper secondary education
School dropout

ABSTRACT

This study aimed to obtain novel understanding of the associations between psychological inflexibility and adolescents' engagement with upper secondary studies. The participants were 885 Finnish adolescents (mean age 15.74 at the outset) whose psychological inflexibility was measured with the short form of the Acceptance and Fusion Questionnaire for Youth (AFQ-Y8) in the fall of the final (ninth) grade of basic education. School engagement was measured as satisfaction with the educational track and as school dropout intentions, and they were measured twice in the first study year after the transition to upper secondary education. The results showed that high psychological inflexibility in the ninth grade was associated with lower levels of school satisfaction and higher levels of dropout intentions at the beginning of upper secondary education. Furthermore, high psychological inflexibility predicted increased dropout intentions during the first year of upper secondary studies for adolescents in upper secondary general education (i.e., academic track), but not for students in upper secondary vocational education (i.e., vocational track). Generally, dropout intentions increased during the first study year for students on academic as well as vocational tracks, whereas satisfaction with the educational track decreased only among students in the vocational track. Overall, our results suggest that psychological inflexibility plays an important role in adolescents' engagement with upper secondary studies. The results imply that by practicing psychological flexibility skills it may also be possible to promote adolescents' school engagement.

1. Introduction

Adolescence is a time of various physical, cognitive, and social changes, and has been widely considered as a period of storm and stress (Arnett, 1999). Planning one's career and making educational choices are some of the most important developmental tasks for adolescents. Critical stages on an adolescent's educational path are the transitions from one educational level to another, during which changes occur in the environment, study ability, school motivation as well as school well-being (Eccles & Roeser, 2009). The success of the transition from basic education to upper secondary education and the continuation of the studies until graduation are especially important for an adolescent's future. Completing only compulsory basic education increases a risk for social exclusion (Hilli et al., 2017; Pekkarinen et al., 2018; Vasalampi et al., 2018) and has far-reaching consequences for the individual and

society (Sipilä et al., 2011; Talala et al., 2014). Therefore, it is important to engage adolescents to upper secondary studies and ensure that all the adolescents find a study place that is compatible with their interests and goals.

School engagement plays an important role in adolescents' educational careers (Markussen et al., 2011). "At its most general, engagement refers to the quality of a student's connection or involvement with the endeavor of schooling and hence with the people, activities, goals, values and place that compose it" (Skinner et al., 2009, p. 494). School engagement has been shown to decrease during adolescence (Wang & Eccles, 2012). Therefore, it is important to support adolescents' school engagement, especially during critical educational transitions. In order to prevent adolescents from dropping out of education as well as stopping their social exclusion, it is important to identify factors associated with school engagement in upper secondary education and thereby the

[☆] This study forms part of the study STAIRWAY – From Primary School to Secondary School. The study was funded by grants from the Academy of Finland (#266851, 324638) and Finnish Cultural Foundation.

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risk of dropping out of education. In this study, school engagement is investigated from the perspective of adolescents' satisfaction with their educational track and school dropout intentions after the transition to upper secondary education.

1.1. Engagement with upper secondary studies

School dropout is widely understood as the culmination of a longer process of school disengagement (Henry et al., 2012). Therefore, school engagement is a key factor in preventing school dropout (Markussen et al., 2011). According to Awang-Hashim et al. (2015), coming to class unprepared, not completing schoolwork, becoming disinterested in school, getting bad grades, or getting suspended are the signs of adolescents' school disengagement. School engagement is a multidimensional concept that includes behavioral, cognitive, and emotional dimensions (Fredricks et al., 2004). Students with a high level of school engagement are at lower risk of dropping out of upper secondary education (Haugan et al., 2019).

In this study, school engagement is examined from the perspective of satisfaction with the educational track, which can be assumed to describe the emotional aspect of school engagement. Emotional engagement refers to a student's emotions related to school, teachers, and other students (Jimerson et al., 2003). Emotional engagement is based on the student's attachment to school and members of the school community and is assumed to influence to the desire to be part of the school community (Fredricks et al., 2004). In addition, we examined school disengagement from the perspective of school dropout intentions. School dropout intentions can be assumed to describe poor emotional engagement and are known to be an important predictor of actual school dropout (Vasalampi et al., 2018). School dropout is widely understood as a process, therefore investigating adolescents' school dropout intentions instead of actual school dropouts provides information on the earlier stages of the process when the adolescent has not yet ended up dropping out of education. To reduce the number of dropouts, it is extremely important to provide support for those adolescents that are still involved in education.

1.2. The role of psychological inflexibility in adolescents' engagement with studies in upper secondary education

According to Hayes et al. (2006), the six processes of psychological inflexibility are as follows: (1) experiential avoidance, (2) cognitive fusion, (3) attentional rigidity to the past and future, (4) conceptualized self, (5) Unclear, compliant, or avoidant motives and (6) inaction, impulsivity, or avoidant persistence. Cognitive fusion and experiential avoidance are the key processes of psychological inflexibility that lead to behavioral narrowing (Hayes et al., 2006). Cognitive fusion refers to a phenomenon in which human behavior is excessively regulated by verbal processes (Hayes et al., 1999). When behavior is channeled by inflexible verbal processes, it often leads to experiential avoidance in which the individual seeks to avoid contact with one's unwanted private experiences and attempts to alter their frequency or form (Hayes et al., 1996).

Psychological inflexibility describes a situation, for example, when an individual gets stuck in a certain type of dysfunctional behavior, and therefore, is unable to plan one's own actions and act in accordance with long-term goals (Kashdan & Rottenberg, 2010). Therefore, adolescents with high levels of psychological inflexibility may not be able to set long-term educational goals or commit to pursuing them and instead avoid studying and spend their time on activities they only enjoy in the short term. Behavior describing adolescents' poor school engagement, such as neglect of schoolwork (Awang-Hashim et al., 2015), may potentially be experiential avoidance caused by unpleasant thoughts and emotions.

Among adolescents, psychological inflexibility has been studied mainly from the perspective of mental health problems. In adolescence,

psychological inflexibility is known to be associated with several mental disorders, such as depression and anxiety disorder (Hayes et al., 2006; Kashdan & Rottenberg, 2010; Muris et al., 2017). Additionally, among adolescents, psychological inflexibility has been shown to be associated with emotional instability as well as both internalizing and externalizing problems, lower life satisfaction and higher levels of somatic symptoms (Oppo et al., 2019; Szemenyei et al., 2020). It has also been found that psychological inflexibility decreases adolescents' ability to be fully present in the moment and, correspondingly, increases their tendency to suppress unpleasant thoughts and emotions (Muris et al., 2017). Additionally, adolescents' poor mindfulness skills have been associated with social withdrawal (Oppo et al., 2019).

The opposite concept of psychological inflexibility is psychological flexibility. Psychological flexibility refers to an individual's ability to fully contact the present moment as well as notice and accept one's own private experiences (Hayes et al., 2006; Puolakanaho et al., 2019). Psychological flexibility also describes the individual's ability to identify one's own values as well as to maintain and change one's behavior in order to serve those values (Hayes et al., 2006). In addition, it refers to the individual's ability to respond appropriately to environmental demands and internal experiences in pursuit of one's goals (Williams et al., 2012), and to maintain balance among important life domains and values (Kashdan & Rottenberg, 2010). Adolescents face a wide range of challenges and possible barriers, especially in the transition from compulsory basic education to upper secondary education, as they have to complete several school tasks at the same time as well as consider their future educational path (Puolakanaho et al., 2019). It can be assumed that psychological flexibility would help adolescents to face and cope with the challenges of their education and studies.

Psychological flexibility has been found to be closely related to self-compassion, self-worth, self-efficacy and self-regulation (Muris et al., 2017; Williams et al., 2012). Muris et al. (2017) showed that adolescents' lower levels of psychological flexibility were accompanied by lower levels of self-compassion, self-worth and self-efficacy. Additionally, school engagement has been shown to have associations with these related concepts of psychological flexibility. For example, it has been suggested that intentional self-regulation and school engagement are highly related concepts which reinforce each other during adolescence (Stefansson et al., 2018). In addition, it has been suggested that higher levels of self-compassion are associated with students' greater engagement with their studies (Babenko et al., 2018), whereas psychological inflexibility has been shown to be associated with university students' academic procrastination (Eisenbeck et al., 2019; Glick et al., 2014; Sutcliffe et al., 2019). Based on these findings, we propose that psychological flexibility itself may be associated with greater school engagement, and psychological inflexibility, in turn, is associated with lower levels of school engagement.

The role of psychological flexibility in the school context has been investigated in a few intervention studies. Fang and Ding (2020) suggested that adolescents' school engagement could be increased through an intervention based on acceptance and commitment therapy (ACT) developed to increase psychological flexibility. In addition, Grégoire et al. (2018) showed that the ACT-based intervention increased Canadian university students' engagement with their studies. A web-based ACT intervention, in turn, has been shown to promote adolescents' career preparation (Kiuru et al., 2021). Therefore, previous research suggests that psychological inflexibility may be associated with school engagement. The aim of this study is to examine whether adolescents' psychological inflexibility in the ninth grade of compulsory basic education is associated with their school engagement in upper secondary education. As far as we know, this subject has never been directly studied, so our study provides completely new information about the phenomenon.

1.3. Educational tracks in Finland

In Finland, after completing compulsory basic education, adolescents can choose from two upper secondary education options: an academic track or a vocational track (Ministry of Education and Culture, 2021). The academic track provides general education, but it does not qualify students for any particular occupation. The vocational track includes upper secondary qualifications and provides the basic skills required in the field. Before moving on to upper secondary education, a graduate of compulsory basic education may receive either voluntary additional basic education in the tenth grade or complete preparatory education for academic or vocational upper secondary education (Ministry of Education and Culture, 2021).

After completing compulsory basic education, most Finnish adolescents move on to upper secondary education. For example, in 2019, 93% of adolescents went directly to upper secondary education after the ninth grade of compulsory basic education (Official Statistics of Finland, 2019a). However, for example, in the 2018–2019 school year, 3% of adolescents in the academic track and 9.4% in the vocational track dropped out (Official Statistics of Finland, 2019b). The number of adolescents who dropped out of upper secondary education slightly increased compared to the previous school year. Approximately 15% of each age group completes only compulsory basic education (Official Statistics of Finland, 2019c).

Dropping out of upper secondary education is more common in the vocational track compared to the academic track (Dæhlen, 2017; Hakkarainen et al., 2015; Sagatun et al., 2014). Several possible reasons have been suggested for this difference. Previous research indicates that students in the vocational track have lower levels of school motivation and self-efficacy (Dæhlen, 2017; Vanttaja et al., 2019) and more difficulties in math and word reading (Hakkarainen et al., 2015). Students in the vocational track have also been shown to originate more frequently from families with low educational levels compared to the students in the academic track (Dæhlen, 2017; Hakkarainen et al., 2015).

1.4. Research questions and hypotheses

- (1) Do the adolescents in the academic track and vocational track differ in terms of their psychological flexibility and engagement with upper secondary studies? It was expected (Hypothesis 1; Official Statistics of Finland, 2019b; Vasalampi et al., 2018) that adolescents in the vocational track would have more dropout intentions than did the adolescents in the academic track during the first year of upper secondary education (Official Statistics of Finland, 2019b; Vasalampi et al., 2018). Due to the lack of previous research, we did not set hypotheses regarding school satisfaction and psychological inflexibility.
- (2) Does the level of psychological inflexibility in the ninth grade predict school engagement (school satisfaction, dropout intentions) and its development during the first year of upper secondary education? It was expected (Hypothesis 2; Fang & Ding, 2020; Grégoire et al., 2018) that high psychological inflexibility would be related to lower levels of school engagement and its decline during the first year of upper secondary education.
- (3) Are the associations between psychological inflexibility and school engagement different depending on the educational track? Due to the lack of previous research, we did not set a hypothesis for this research question.

2. Method

2.1. Participants

This study is part of a broader longitudinal study conducted in Finland following a community sample of adolescents through their critical educational transitions in two medium-sized towns in central

Finland. The procedures were in accordance with the principles of the Helsinki Declaration on research with human subjects. Written consent to participate was collected from participants and the research plan of the project was approved by the Human Sciences Ethics Committee of the local university. All questionnaires were administered during normal schooldays by two trained researchers who took care for peace and quiet during classroom situations. The participants were instructed to respond questionnaires as honestly as possible. They were told that researchers are interested on their experiences and that there are no right or wrong answers for the questions. It was highlighted that their responses were highly confidential and not shown to anybody else than researchers.

The present study examines three measurement points. The first measurement was conducted in the fall of ninth grade before the transition (fall 2017), whereas the second (fall 2018) and third (spring 2019) measurements were conducted during the first year of upper secondary studies after the participants had moved on to upper secondary education, either senior high school or vocational education). A total of 885 adolescents participated in this study. Of these adolescents, 885 participated in the ninth grade. In the first year of upper secondary education, 716 adolescents out of 885 (81%) participated in the fall and 676 out of 885 (76%) in the spring. Participants responded to the questionnaires in paper-form during the school day at all measurement points.

Of the participants, 56.2% ($n = 497$) were female and 43.8% ($n = 388$) were male. The average age was 15.74 years in the ninth grade (range 14.58–18.08). The sample was representative of the Central Finnish population in terms of mother tongue (Official Statistics of Finland, 2020). The sample was relatively representative of the general population in terms of family structure (Official Statistics of Finland, 2019d). The sample was relatively representative of the general population in terms of adolescents' educational track even though adolescents in the academic track were slightly overrepresented (Official Statistics of Finland, 2019a). Parents of the participants were slightly more educated compared to the general Central Finnish population

Table 1
Demographic information of the sample.

		<i>n</i>	%
Mother tongue ($n = 883$)	Finnish	844	95.6
	Bilingual	15	1.7
	Others	24	2.7
Educational track ($n = 807$)	Academic	517	64.1
	Vocational	281	34.8
	Other	9	1.1
Living with ($n = 865$)	Mother and father	599	69.2
	Mother	76	8.8
	Father	17	2.0
	Alternately with mother and father	92	10.6
	Mother and stepfather	61	7.1
	Father and stepmother	9	1.0
	Foster care or approved home	4	0.5
	Others	7	0.8
Mothers' educational level ($n = 692$)	No vocational education	11	1.6
	Short vocational courses	8	1.2
	Vocational education	209	30.2
	College of professional education	151	21.8
	University of applied sciences	108	15.6
Fathers' educational level ($n = 550$)	University	179	25.9
	Licentiate or doctorate	26	3.8
	No vocational education	22	4.0
	Short vocational courses	24	4.4
	Vocational education	223	40.5
	College of professional education	84	15.3
	University of applied sciences	73	13.3
	University	102	18.5
	Licentiate or doctorate	22	4.0

(Official Statistics of Finland, 2019c). The demographic information of the sample is summarized in Table 1.

As 166 participants dropped out of the study between the ninth grade and the fall of upper secondary education, cross-tabulation and an independent samples *t*-test were conducted to compare those who were involved in the study and those who dropped out. There were no differences between those who participated and those who dropped out regarding gender, mother tongue and former educational success. In contrast, there was a significant difference in psychological inflexibility, with adolescents who dropped out of the sample having a slightly higher level of psychological inflexibility ($t(216,73) = 2.325, p = .021$, Cohen's $d = 0.23$). In addition, the lower the parents' level of education, the more often adolescent dropped out of the sample and, respectively, the higher the parents' educational level, the more often the adolescent was involved in the sample in upper secondary education ($\chi^2(6) = 14.73, p = .022$, Cramer $V = 0.15$). Effect sizes were nevertheless small in these selectivity effects.

2.2. Measures

Psychological inflexibility was measured in the fall of ninth grade by the shorter version of the Avoidance and Fusion Questionnaire for Youth (AFQ-Y8; Greco, Lambert, & Baer, 2008). It has been shown that AFQ-Y and the shorter version AFQ-Y8 are reliable and valid for measuring psychological inflexibility (Greco, Lambert, & Baer, 2008; Livheim et al., 2016). AFQ-Y8 contains a total of 8 items related to thoughts, feelings, and behavior (e.g., "My thoughts and feelings mess up my life", "I stop doing things that are important to me whenever I feel bad"). The participants rated their agreement with each item on a 5-point Likert scale from 0 (not at all true) to 4 (very true). The mean score for the eight items of psychological flexibility was calculated (range of scale 0–32; $\alpha = 0.88$).

School engagement in the fall and spring of the first year of upper secondary education was measured by two indicators, that is, satisfaction with the educational track and school dropout intentions (see also Vasalampi et al., 2018). Students' satisfaction with the educational track was examined with four items (e.g., Are you satisfied with your current form of education?) on a 5-point Likert scale (1 = not at all, 5 = very much), whereas adolescents' intention to drop out of school was measured with two items (e.g., Have you considered changing your school or field of study and quitting the current one?) on a 5-point Likert scale (1 = not at all, 5 = very often). The mean scores for the items of school satisfaction and dropout intentions were calculated (range 1–5) separately for the autumn and spring of the first year of upper secondary education. Cronbach's alphas for the mean scores of school satisfaction were 0.90 in the autumn and 0.89 in the spring of the first year of upper secondary education. Cronbach's alphas for the mean scores of dropout intentions were 0.80 in the fall and 0.85 in the spring.

The control variables included adolescents' gender (0 = girl, 1 = boy), educational track (0 = vocational track, 1 = academic track) in the upper secondary education, and internalizing symptoms (mean score of five questions of the emotional symptoms subscale from the Strengths and Difficulties Questionnaire, $\alpha = 0.78$, Goodman, 1997) measured in the fall of the first year of upper secondary education.

2.3. Statistical analyses

The research questions were answered using the following analysis steps. First, we conducted independent samples *t*-tests to examine differences in psychological inflexibility, satisfaction with the educational track and dropout intentions between adolescents in the academic track and those in the vocational track.

Second, zero-order correlations between psychological inflexibility and school engagement were explored. After that general linear models were conducted: two models for predicting initial levels and two models for predicting changes in school engagement from fall to spring during

the first year of upper secondary education. The levels of satisfaction and dropout intentions in the fall of first year of upper secondary education were predicted with models in which background variables (gender, upper secondary education track, internalizing problems) were added as covariates and school class identification number as a random factor to the first step and psychological inflexibility in the ninth grade to the second step. The change of satisfaction and dropout intentions from fall to spring were predicted with models in which background variables and school class identification number were added to the first step, the level of fall of the same variable (school satisfaction/dropout intentions) to the second step and psychological inflexibility to the third step.

The final research question was whether there are differences in the associations between psychological inflexibility and school engagement between adolescents in the vocational track and those in the academic track. This was studied by adding the interaction term (educational track \times psychological inflexibility) in which dummy coded educational track variable was multiplied with standardized psychological inflexibility) to the previous general linear models in the last step (see also Aiken & West, 1991). Statistical analyses were conducted with IBM SPSS Statistics 27 Software.

3. Results

3.1. Differences between educational tracks

Table 2 presents descriptive statistics of the observed variables. First, the results showed no significant differences between educational tracks with regard to adolescents' psychological flexibility in the fall of ninth grade before the transition ($p = .668, d = 0.03$). Second, educational tracks did not differ in regards to students' satisfaction with the educational track ($p = .921, d = 0.01$) or dropout intentions ($p = .079, d = 0.143$) in the fall of the first year of upper secondary education. In turn, a significant difference between educational tracks was found in satisfaction with the educational track in the spring of the first study year ($t(313.673) = -2.724, p = .007, d = -0.252$): students in the academic track were more satisfied with their educational track than

Table 2
Descriptive statistics.

		n	M	SD	Min.	Max.
Psychological inflexibility (9th grade of basic studies)	Whole sample	877	8.27	6.57	0	32
	Academic track	515	7.91	6.13		
	Vocational track	277	8.10	6.61		
School satisfaction (fall of first year)	Whole sample	716	4.16	0.70	1	5
	Academic track	489	4.17	0.67		
	Vocational track	218	4.16	0.75		
School satisfaction (spring of first year)	Whole sample	675	4.18	0.70	1	5
	Academic track	472	4.23	0.64		
	Vocational track	203	4.06	0.81		
School dropout intentions (fall of first year)	Whole sample	716	1.78	0.98	1	5
	Academic track	489	1.73	0.95		
	Vocational track	218	1.88	1.15		
School dropout intentions (spring of first year)	Whole sample	674	1.87	1.09	1	5
	Academic track	472	1.81	1.05		
	Vocational track	202	1.99	1.49		

students in the vocational track were. In the spring a marginally significant difference between educational tracks was also found in school dropout intentions as such that students in the vocational track reported slightly more dropout intentions than students in the academic track did ($t(672) = 1.899, p = .058, d = 0.16$).

As additional analyses, gender differences in psychological inflexibility and school engagement were also examined. The results showed that the level of psychological inflexibility was significantly higher among female adolescents ($M = 9.45, SD = 6.63$) than among male adolescents ($M = 6.75, SD = 6.17$) in the ninth grade ($t(875) = 6.22, p < .001, d = 0.42$). In turn, there were no significant differences between female and male adolescents with regard to their satisfaction with the educational track and school dropout intentions in either the fall or the spring of the first study year (all p values $> .05$). Finally, also adolescents' internalized symptoms were connected both to higher inflexibility ($r = 0.64, p < .001$) and more frequent dropout intentions ($r = 0.10, p = .009$ and $r = 0.12, p = .002$), and lower satisfaction with the educational track ($r = -0.13, p = .001$ and $r = -0.15, p < .001$).

3.2. Associations between psychological inflexibility and school engagement

First, zero-order correlations between psychological inflexibility and satisfaction with educational track in upper secondary school were calculated. Adolescents' high psychological inflexibility in the ninth grade was weakly but significantly associated with a lower level of satisfaction with the educational track (fall: $r = -0.134, p < .001$; spring: $r = -0.176, p < .001$) and a higher level of dropout intentions (fall: $r = 0.131, p < .001$; spring: $r = 0.144, p < .001$) during the first year of upper secondary education.

Second, general linear models were conducted to predict adolescents' school engagement in the fall and changes in their school engagement from fall to spring of the first study year of upper secondary education. The results of these models are shown in Table 3. The results showed that when controlling for the effects of adolescent gender, educational track, internalizing symptoms, as well as school class differences psychological inflexibility predicted lower satisfaction with the

educational track and higher dropout intentions in the fall of first study year. Furthermore, the results showed that, when controlling for the effects of gender, educational track and the effect of school engagement in the fall, psychological inflexibility predicted decreased satisfaction with the educational track and increased dropout intentions during the first study year.

3.3. Educational track as a moderator in the investigated associations

To explore the moderating effect of educational track in the associations between psychological inflexibility and school engagement, we added the interaction term educational track \times standardized psychological inflexibility to the previous general linear models. The results showed, first, that educational track did not moderate the associations between psychological inflexibility and school satisfaction and dropout intentions in the fall, or changes in school satisfaction from fall to spring during the first year of upper secondary education (all p s of interaction terms > 0.05).

However, educational track was found to significantly moderate the association between psychological inflexibility and a change of school dropout intentions from fall to spring. In other words, the interaction term educational track \times psychological inflexibility was significant when a change of dropout intentions during the first study year was predicted: $\beta = 0.23, SE = 0.09, p = .012$, partial $\eta^2 = 0.012$. The follow-up analyses carried out separately for adolescents in the academic and vocational tracks showed that for adolescents in the academic track high psychological inflexibility in the ninth grade predicted increased dropout intentions during the first year of upper secondary education ($\beta = .20, SE = 0.06, p = .001$), whereas no similar association was found for adolescents in the vocational track ($\beta = -0.05, SE = 0.09, p = .580$).

4. Discussion

This study aimed to obtain novel understanding of the associations between psychological inflexibility and adolescents' engagement with upper secondary studies after the transition to academic or vocational track. As far as we know, this is the first study on the topic, so the results

Table 3

General linear models to predict adolescents' engagement with upper secondary studies after the transition with psychological inflexibility, gender, internalizing problems and educational track.

Models for satisfaction with the educational track					Models for school dropout intentions				
		β	SE	Partial η^2			β	SE	Partial η^2
School satisfaction (fall of first year)	Step 1:				Dropout intentions (fall of first year)	Step 1:			.006
	1. Gender ¹	−0.29**	0.09	.016		1. Gender ¹	0.32***	0.10	.019
	2. Educational track ²	−1.14	1.00	.000		2. Educational track ²	−0.24	1.00	.000
	3. Internalizing problems	−0.21***	0.04	.037		3. Internalizing problems	0.17***	0.04	.025
	Step 2:					Step 2:			
	4. Psychological inflexibility	−0.10*	0.05	.006		3. Psychological inflexibility	0.10*	0.05	.006
		β	SE	Partial η^2			β	SE	Partial η^2
School satisfaction (spring of first year)	Step 1:				Dropout intentions (spring of first year)	Step1:			
	1. Gender	−0.24*	0.10	.011		1. Gender ¹	0.23*	0.10	.010
	2. Educational track ²	−0.36	0.96	.000		2. Educational track ²	0.03	1.00	.000
	3. Internalizing problems	−0.19***	0.05	.031		3. Internalizing problems	0.13**	0.05	.015
	Step 2:					Step 2:			
	4. Satisfaction in the fall	0.59***	0.04	.324		3. dropout intentions in the fall	0.41***	0.04	.239
	Step 3:				Step 3:				
	5. Psychological inflexibility	−0.12**	0.05	.012		4. Psychological inflexibility	0.12*	0.05	.011

Note. β = unstandardized regression coefficients from the last step when all the variables are included in the model, ¹ 0 = girl, 1 = boy, ² 0 = vocational track, 1 = academic track. School class identification number was included as a random factor in order to control possible school class differences.. * $p < .05$, ** $p < .01$, *** $p < .001$.

provide completely new and valuable information. The first year of upper secondary education is a critical period of time for the adolescent to stay in education (Aho & Mäkiäho, 2014). Dropout is seen as the culmination of the longer process of school disengagement (Henry et al., 2012), whereas strong engagement prevents dropping out (Markussen et al., 2011). Psychological flexibility, in turn, is a skill that can be practiced (Hayes et al., 2006) and which is important in adapting to different life challenges (Biron & van Veldhoven, 2012; Hoare, McIlveen, & Hamilton, 2012; McCracken & Vowles, 2006). By contrast, psychological inflexibility is related to psychological distress in life (Kashdan & Rottenberg, 2010; Oppo et al., 2019; Szemenyei et al., 2020).

5. Differences between educational tracks in psychological inflexibility and school engagement

Our first aim was to examine differences between adolescents in the academic and vocational tracks in psychological inflexibility and school engagement. In line with our expectations (Hypothesis 1; see also Vasalampi et al., 2018), adolescents in the vocational track reported a higher level of dropout intentions in the spring of the first study year than did adolescents in the academic track. Students in the academic track were also more satisfied with their educational track than were adolescents in the vocational track in the spring of the first year of upper secondary education.

Dropout intentions are an important warning sign for actual dropout (Vasalampi et al., 2018), and dropout is more common among vocational students than it is among academic students (Official Statistics of Finland, 2019b). At the same time, it is notable that the differences between educational tracks were not visible in the fall but appeared towards the end of the first year of upper secondary education. One explanation for this may be that in vocational education, a potentially wrong educational choice is highlighted during the first year. It might also be so that the adolescents did not get into the school they wanted, and that is the reason they did not like to study and wanted to drop out.

Some earlier studies have shown that school engagement typically decreases during adolescence (i.e., Wang & Eccles, 2012). Our findings are in line with earlier research, as the level of dropout intentions increased for all the students during the first year of education, although the increase in vocational students was higher than in academic students. School satisfaction, in turn, decreased during the first year only for students in the vocational track, whereas satisfaction slightly increased for students in the academic track. This result is partly conflicting – in academic track both school satisfaction and drop out intentions increased simultaneously. It might be so that in the beginning of studies, academic students are very motivated and engage in their studies strongly, but when the pressure and demands get higher, some students might think of dropping out.

The role of psychological inflexibility in adolescents' engagement with upper secondary studies.

The second aim of this study was to explore associations between psychological inflexibility and school engagement. There are no earlier studies on this subject that we know of. Previous intervention studies have shown that interventions developed to improve psychological flexibility may have a positive impact on students' engagement with their studies (Fang & Ding, 2020; Grégoire et al., 2018). Based on these findings we assumed that a higher level of psychological inflexibility would be associated with a lower level of school engagement in upper secondary education. In line with Hypothesis 2, high psychological inflexibility in the ninth grade was associated with lower levels of school satisfaction and higher levels of dropout intentions in upper secondary education.

The results showed that the level of psychological inflexibility predicted all observed engagement variables: school satisfaction (fall and spring) and dropout intentions (fall and spring) even after controlling for the effects of adolescent gender, educational track, as well as school

engagement from the previous time point. This result is encouraging because it implies that adolescents' engagement with upper secondary studies may be enhanced through promoting their psychological flexibility. There is no earlier research about the associations between psychological inflexibility and school engagement, but our findings are in line with some earlier studies that have shown that psychological inflexibility is associated with procrastination in university students (Eisenbeck et al., 2019; Glick et al., 2014; Sutcliffe et al., 2019). It may be possible that procrastination is actually a sign of weak engagement with school.

Our third research question was to examine whether the associations between psychological inflexibility and school engagement were different between educational tracks. Due to the lack of previous research we did not set any hypotheses for this question. The results showed that high psychological inflexibility was associated with a lower level of school engagement for adolescents in both the academic and vocational tracks. The magnitude of these associations was not different between educational tracks except when predicting changes in school dropout intentions from fall to spring of the first study year. For adolescents in the academic track, a high level of psychological inflexibility in the ninth grade predicted increased dropout intentions during the first year of upper secondary education, whereas no similar association was found for adolescents in the vocational track. These results suggest that high psychological inflexibility is an especially important factor for adolescents in the academic track in anticipating their increasing number of dropout intentions during the first year of their upper secondary studies.

One explanation for this finding might relate to different types of demands of studies in the vocational and academic tracks. Generally, students have to face a lot of pressure in their studies, but especially academic students have high requirements already in the first year of their studies regarding higher level education. A reform carried out in recent years has increased the pressure as academic students have to get good grades since they determine their placement in higher level education (Ministry of Education and Culture, 2017). It is also known that as much as 15.5% of academic students experience burnout (Finnish institute for health and welfare, 2019). The academic track might require higher engagement in studies than the vocational track does, because academic studies require a lot of studying even after the school day. Academic students also have more choices as well as responsibility over their own studies. Already at the beginning of their studies, adolescents must decide which subjects they want to focus on, and wrong choices might complicate their transition to higher level education later.

It seems that for academic students, psychological inflexibility is harmful and can predict higher risk for dropping out as early as during the first year of studies. This result contrasts with previous research, which has shown that dropout is considerably more common in vocational education than in academic education (Official Statistics of Finland, 2019b). The results of this study, however, suggest that the reasons behind dropout intentions in vocational education might be partially different than those among academic students in senior high schools. Earlier studies have shown that adolescents who choose a vocational track often have a negative attitude towards studying and school (Vantaja et al., 2019) and vocational students have lower school motivation compared to academic students (Dæhlen, 2017). These findings point towards the idea that the reason for dropout intentions in vocational students might be that they have a negative attitude towards studying already at the beginning of studies. Despite these differences our results suggest that psychological flexibility training might be beneficial for both academic and vocational students. More research, however, is needed to clarify this. It is possible that a high level of psychological inflexibility manifests in different ways among academic and vocational students and is therefore related to different challenges in studies.

6. Strengths, limitations and future direction

As far as we know this study is the first to examine associations between psychological inflexibility and school engagement in upper secondary education. It is important to note that, in our study, the change of adolescents' school engagement during the first year of studies could be predicted by psychological inflexibility even after controlling for the earlier level of engagement. This result offers powerful evidence for the importance of psychological inflexibility for school engagement.

Other strengths of our study are a large and representative sample size and longitudinal design, which made it possible to study the same adolescents from the ninth grade until the spring of the first year of upper secondary education.

Nevertheless, this study also has its limitations. First, even though our results are promising and they held when controlling for the effects of adolescent gender, educational track, internalizing problems and the level engagement in the previous time point, the effect sizes of the unique associations between psychological inflexibility and school engagement were rather small. Except for objective educational track, all the data also collected with questionnaires from adolescents. In future studies it would be worthwhile to complement questionnaire data with other types of data collections, such as interviews, observations, or physiological measurements. Second, the measures used in this study also have some limitations. It is notable that in the present study only psychological inflexibility was examined unidimensionally with a widely used youth form of the AFQ. Future studies among adolescents are needed to examine psychological flexibility and inflexibility as separate concepts (cf. low inflexibility does not necessarily automatically mean high flexibility, Rölfs et al., 2018; Wolgast, 2014), and to examine different subdomains of psychological flexibility (Francis et al., 2016). Similarly, although the internal consistency of AFQ was good, some adolescents may also have not been able to answer realistically to relatively abstract questions of the AFQ. In future studies particular attention should also be paid for wording of the items in order to make them as understandable and concrete for adolescents as possible. One limitation regarding measures of school engagement was that we only examined emotional engagement with adolescents' subjective assessment. Future studies are needed to examine the role of psychological inflexibility also in cognitive and behavioral engagement. Third, it is also important to underline that we measured only adolescents' intentions to drop out, and not the actual dropout. Future studies are needed to examine adolescents' longer term educational and vocational careers. Our results are also based on associations, and we must be cautious to draw causal conclusions based on the data. Finally, it is worthwhile to note that in addition to psychological inflexibility, there are many individual and contextual factors that can affect school engagement in upper secondary school, so the individual role of psychological inflexibility needs to be examined in more depth in future studies.

7. Conclusions and practical implications

The results of this study suggest that improving children's and adolescents' psychological flexibility might be one way towards enhancing their school engagement and preventing school dropout. Previous studies have shown that interventions developed to improve psychological flexibility have been beneficial in enhancing students' engagement with studies (Fang & Ding, 2020; Grégoire et al., 2018). Psychological flexibility can be improved through internet-based interventions (Swain et al., 2015). Internet-based interventions are an easy and cost-effective way to improve children's and adolescents' psychological flexibility in different phases of their school path (Puolakanaho et al., 2019).

In order for the adolescents to engage with their studies, it is crucial they find their place of education compatible with their interests and goals. Guidance counselling before the transition is important: The goal

is to find every adolescent a suitable place of education and help them get there by, for example, encouraging them to raise their grades. Improving psychological flexibility might be a good way to help adolescents clarify their values and thereby their goals concerning upper secondary school. Our results suggest that by improving psychological flexibility it may be possible to support adolescents' engagement with their studies.

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.

Funding

This study was funded by the Finnish Cultural Foundation and the Academy of Finland (No.266851, 324638).

Data Sharing and Declaration

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

Conflict of interest

The authors declare that they have no conflict of interest. Given his role as an Editorial Board Member, Dr. Raimo Lappalainen had no involvement in the peer-review of this article and had no access to information regarding its peer-review.

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