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Adolescents' engagement profiles and their association with academic performance and  
situational engagement

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*Abstract*

This study examined adolescents' engagement profiles and their association with situational engagement and academic performance in lower secondary school settings. The data consisted of 301 Grade 7 students from Finland. By utilizing person-oriented approach with Latent Profiling Analysis on subscales capturing students' overall engagement, four subgroups of students with different overall engagement profiles were identified. These profile groups were further analyzed with respect to differences in student background (gender and maternal education), academic performance (GPA, and reading and mathematics tests), and lesson-specific situational engagement. The profile groups showed differences with respect to gender, maternal education, and GPAs as well as situational engagement. The findings provided new insights into the associations between overall and situational engagement by documenting concordance but also discordance between them, and by showing situational fluctuation of engagement in particular among students with high overall engagement.

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### **1. Introduction**

The predictive association between student engagement and academic learning has been widely acknowledged in the literature (Fredricks, Blumenfield, & Paris, 2004; Wang & Eccles, 2013). Nevertheless, prior studies have limitations because they have mostly approached engagement by focusing on students' typical engagement experiences over time (Eccles & Wang, 2012), here termed as overall engagement. While the situational fluctuation of student engagement has been evidenced in prior literature (e.g., Martin et al., 2015), attempts to capture situational variation in students' engagement via repeated measures in authentic learning situations (i.e., situational engagement assessed by self-ratings of students in situ) are still relatively rare. Although prior literature provides some theoretical propositions on how overall and situational engagement are connected (e.g., Lawson & Lawson, 2013), empirical analyses on this relationship are needed. Studies utilizing a person-oriented approach have identified subgroups of students with respect to engagement (Lawson & Masyn, 2015b; Wang & Peck, 2013), but information on situational engagement of students with varying profiles of overall engagement is lacking. This kind of information would be useful for identifying and supporting students with low engagement, and for providing teachers' insight into their students' situational engagement in the classroom and from lesson to lesson. In order to bridge the gap between the two separate strands of engagement literature, the present study set out to examine and increase understanding on the association between overall and situational engagement. A person-oriented approach is utilized to identify subgroups of students with similar patterns of overall engagement, and these subgroups are subsequently analysed with respect to their situational engagement, academic performance and background factors.

### 1.1 Student engagement

Student engagement is a multidimensional construct that combines different aspects related to students' commitment and involvement with school and learning (e.g., Appleton, Christenson, & Furlong, 2008). According to the widely acknowledged conceptualization by Fredricks et al. (2004) student engagement consists of three distinct, yet interrelated, components: behavioral engagement, emotional engagement, and cognitive engagement (see also Fredricks, Ye, Wang, & Brauer, 2019; Wang, Willet, & Eccles, 2011). In the literature, the term *behavioral engagement* is typically used to refer to students' active involvement and effort focused on learning and academic tasks, positive conduct (e.g., completing assignments and preparing for classes), and participation in extracurricular activities (Fredricks et al., 2004; Wang et al., 2011). *Emotional engagement* is seen to encompass students' sentiments toward school and learning, and a sense of belonging with respect to school and its people (e.g., Appleton, Christenson, Kim, & Reschly, 2006; Fredricks et al., 2004). *Cognitive engagement* captures students' cognitive investment in learning and schooling. Drawing from two somewhat distinct lines of literature, it focuses both on self-regulated strategies, which students use to master knowledge or skills, and on the value they place for schoolwork and its importance for their future (e.g., Appleton et al, 2008; Fredricks et al., 2004).

While the tripartite conceptualization presented above continues to be the most prevalent definition for the construct of student engagement (Fredricks, Reschly, & Christenson, 2019), also additional components, such as social engagement (Fredricks, Wang, et al., 2016) or agentic engagement (Reeve, 2013) have more recently been introduced into the conceptualization of student engagement. These somewhat varying definitions of what constitutes the core of student engagement can be considered to reflect the evolving nature of the field. In the similar vein, boundaries between dimensions of engagement are not necessarily clear cut for interlinking constructs as, for example, student effort can be seen to

function as an indicator of behavioral as well as cognitive engagement (e.g., Fredricks, Filsecker, & Lawson, 2016). In addition, an agreement is yet to be reached on whether indicators and facilitators of engagement (the latter construed, e.g., as competence experiences) should be distinguished and treated as separate to engagement (see e.g., Fredricks, Reschly, & Christenson, 2019). Another example of the continual evolution in the field is the conceptualization of the construct of disengagement, which first was construed as the absence of engagement, but has lately been viewed as an independent concept including maladaptive behaviors and emotions that cannot be explained always as low engagement (Fredricks, Ye, et al., 2019; Lawson, 2017; Skinner, Kindermann, & Furrer, 2009).

Despite of the differences in definitions and point of views among scholars, there is a wide agreement that engagement is a multidimensional construct, which critically adds to understanding of the whole of student behaviors, feelings, and cognitions within learning-related contexts. Engagement is also recognized as being malleable, which means that it is responsive to external support, and, therefore, it may be accommodated via interventions (Lawson & Lawson, 2013; Wang, Decol, & Henry, 2019).

## **1.2 Overall and situational engagement**

The present study is founded on the stance that student engagement needs to be approached on two levels: via students' self-reports of their behaviors, emotions, and cognitions captured in situ in actual learning-related situations (i.e., situational engagement) as well as via students' self-appraisals of their typical engagement with school and learning over time (i.e., overall engagement). The vast majority of prior studies have approached engagement by using measures that aggregate information across time from different situations and time points, and by aiming to capture students' average experiences (Eccles & Wang, 2012). These studies have provided valuable knowledge on the association between engagement and academic performance (e.g., Ladd & Dinella, 2009; Wang & Holcombe,

2010), and documented change in engagement longitudinally over time (Archambault, Janoz, Moritz, & Pagani, 2009). They have also provided information on the role that student characteristics play in engagement by documenting lower engagement among boys than girls (e.g., Lam et al., 2016), and by indicating that family's low socio-economic status may pose a risk for lower engagement (Li & Lerner, 2011; Linnankylä & Malin, 2008). In addition, they have increased our understanding on how engagement is not uniformly formed, but instead sub-populations with several different engagement dispositions can actually be recognized among students (Lawson, 2017; Lawson & Masyn, 2015a, 2015b). However, when engagement is approached at its overall level, situation-specific variations in students' learning-related experiences are not acknowledged and captured (cf. Eccles & Wang, 2012). Thus, knowledge on student engagement that can be gained by focusing on such variations is needed to move the field forward.

While only limited number of studies have focused on situational engagement with repeated assessments capturing students' experiences in authentic learning situations, those have consistently documented intra-individual variations in students' situational engagement (Vasalampi et al., 2016; 2018; Martin et al., 2015). These studies have also begun to accumulate evidence on factors that may have an influence on fluctuation in situational engagement. Recent studies have shown, for example, that situational engagement is higher in lessons of non-academic subjects than in academic subjects (Pöysä et al., 2018; Shernoff, Csikszentmihalyi, Schneider, & Shernoff, 2003), and that situational engagement is associated with emotional support in teacher–student interactions during the lesson (Pöysä et al., 2019). Thus, engagement is not only malleable over time, but fluctuates from one learning situation to another as well. Nevertheless, studies capturing both overall and situational engagement simultaneously are scarce, and investigations that would provide empirical evidence on the relations between the two, are still needed.

Despite the yet limited body of empirical findings on the relations between overall and situational engagement, assumptions about the conceptual link have been put forward in previous literature. In their prominent review of student engagement research and theory Lawson and Lawson (2013) laid out a persuasive framework according to which students' various acts of engagement that occur at particular moments in time (i.e., at the situational level), stem from students' prior dispositions of engagement as well as changing external conditions (see also Lawson, 2017). This notion of engagement dispositions does not, however, imply that these dispositions should be seen as inherently stable or deterministic (Lawson & Lawson, 2013). Rather, engagement dispositions are malleable and, they can, therefore, be molded, for example, by experiences gained at particular moments in time (Lawson & Lawson, 2013). Aligning with this proposition, the present study advocates the view that overall engagement (cf. engagement dispositions) and situational engagement (cf. acts of engagement) are transactionally related. Investigating the two constructs simultaneously can throw light, first, on whether the relation would be similar for students with different levels of overall engagement, and second, what kind of factors are associated with shaping of students' engagement.

In the present study, the tripartite definition of student engagement formed the basis for assessment at both overall and situational level, but some differences were inevitable with respect to operationalizations. First, when assessing students' overall engagement, the dimensions of behavioral, emotional, and cognitive engagement were retained as independent from one another (Appleton et al., 2006; Wellborn & Connel, 1987) whereas with respect to situational engagement, behavioral and cognitive engagement showed substantial association in the students' self-ratings (e.g., attending to a task, sustained cognitive problem solving and aim for mastery are likely to be highly linked), which is why in effect they were merged (see Vasalampi et al., 2016). Second, situationally bound facilitators (i.e., students' competence



experiences and help-seeking) were included in self-ratings at situational level while those were not separately assessed at overall level. The theoretical rationale for including competence experiences as situational facilitators draws from the self-system motivational model (Connell & Wellborn, 1991). Help-seeking, in turn, was conceptualized as a facilitator of re-engagement in interaction and learning tasks during the lesson (Marchland & Skinner, 2007). Finally, at the situational level, disengagement was seen as a relevant aspect of learning situations and in line with prior literature (cf. Skinner et al., 2009) the term disaffection was used and defined as maladaptive behaviors and emotions occurring within the lesson.

### **1.3 Person-oriented approach to assessment of student engagement**

Previous studies examining student engagement have largely been conducted using traditional variable-oriented designs, which focus on universal and linear associations between variables in a particular sample (see Bergman & Andersson, 2010). While such studies provide important insights into student engagement, they do not consider the potential of subgroups of individuals with different profiles or patterns of engagement. Thus, variable-oriented designs are likely to tap into the average student but may remain silent on actual individuals (Bergman & Trost, 2006; Fredricks, Ye, et al., 2019; Lawson & Masyn, 2015a). By focusing on patterns of similarities and differences within the measured indicators, person-oriented approach can provide novel insights on subgroups of individuals who engage in different ways (Bergman & Trost, 2006; Eccles 2016; Lawson & Lawson, 2013). For example, by revealing different engagement dispositions with person-oriented approach, Lawson and Masyn (2015b) were able further analyse the differences these subgroups had in their educational attainment outcomes. In the present study, person-oriented approach was used for its potential for bringing light to fluctuations of situational engagement which may be

different for different subgroups of students and have different associations with individual factors (gender and maternal education), and academic performance factors.

As conceptualizations and operationalizations of engagement are not uniform in research field, the prior engagement literature that utilizes a person-oriented approach show a broad diversity. Some studies, such as that by Wang and Peck (2013), have identified subgroups with different profiles of engagement using all three dimensions of engagement (i.e., behavioral, emotional, and cognitive) simultaneously, but some studies have focused only on some specific dimensions (e.g., Li & Lerner, 2011). The number of identified subgroups also differs, and sometimes only three patterns of engagement have been identified (e.g., Watt, Carmichael, & Callingham, 2017) whereas in some studies, the number of identified subgroups have been higher, for example six, or seven (e.g., Lawson & Masyn, 2015b; Archambault et al., 2009, respectively). Nevertheless, studies utilizing person-oriented approach to examine engagement through repeated ratings of situational engagement are exceptionally rare (for an exception, see e.g., Schmidt, Rosenberg, & Beymer, 2017). However, despite of diversity in the used variables and the number of identified subgroups, the prior findings can be seen to lead into a conclusion that more advanced knowledge of engagement can only be achieved by paying attention to within-group variations and to profiles of individuals who are engaged in different ways (e.g., Lawson & Masyn, 2015b; Schmidt et al., 2018). Such knowledge would critically enhance understanding on the role that engagement has in learning processes, and help to devise tools, tailored interventions, and guidelines for practitioners to support students in day-to-day practice (cf. Lawson, 2017).

#### **1.4 The present study**

The present study was set to reach a more comprehensive understanding of students' overall and situational engagement in lower secondary school settings. While evidence has accumulated on student engagement in general, studies assessing engagement with repeated

measures at the situational level in contextually bound learning situations are much more rare (Eccles & Wang, 2012). To our knowledge hardly any studies have set out examine overall as well as situational engagement simultaneously in order gain insight on variation of situational engagement in different subgroups of students. Although the present data and measures partly overlap with prior studies of the authors on intra-individual situational variation in students' engagement, and correlations between overall and situational engagement (see Pöysä et al. 2018; 2019; Vasalampi et al., 2016), the present study adds a unique contribution by utilizing the person-oriented approach for examining students' overall and situational engagement. The following research questions were set:

1. What kind of subgroups of overall engagement can be identified among Grade 7 students? Based on previous findings showing that engagement may vary among different subgroups of students (e.g., Lawson & Masyn 2015b; Watt et al., 2017), it was expected (Hypothesis 1) that several distinct subgroups would be identified.
2. To what extent do the identified subgroups differ in a) students' background factors (gender and maternal education), and b) academic performance (GPAs, and tests in reading and mathematics)? First, in line with earlier literature indicating higher engagement for girls than for boys (e.g., Lam et al., 2016), and lower engagement for students from family's with lower socioeconomic statuses (e.g., Linnankylä & Malmi, 2008), it was expected that subgroups would differ based on the distribution of students' background factors (Hypothesis 2a). Second, based on previous findings (e.g., Ladd & Dinella, 2009), it was expected that subgroups with higher overall engagement would manifest higher academic performance, whereas subgroups with lower engagement would manifest lower academic performance (Hypothesis 2b).
3. To what extent do the identified subgroups differ in a) mean levels of situational engagement (behavioral/cognitive engagement, emotional engagement, disaffection,

competence experiences, and help-seeking), and b) variation of situational engagement across lessons? As prior literature provides theoretical propositions on links between overall and situational engagement (Lawson & Lawson, 2013), it was expected (Hypothesis 3) that subgroups would differ on mean levels of students' situational engagement. Due to the lack of prior studies, no hypothesis was set for variation in situational engagement by subgroup (RQ 3b).

## 2. Method

### 2.1 Participants and procedure

The sample consisted of 301 Grade 7 students (49.8% girls;  $M_{age} = 13.7$  years) from 18 Finnish-speaking lower secondary schools. The data were collected during spring term of 2014. Each participant completed, first, group-administrated questionnaires regarding their overall engagement and tests assessing their academic performance. Second, participants provided data regarding their situational engagement at the end of at least three independent lessons.

The present study was conducted as part of an extensive longitudinal age cohort study, which investigated students' motivational and academic development throughout their comprehensive education during years 2006-2016. Altogether, First steps study (Lerkkanen et al., 2006-2016) comprised approximately 2,000 students along with their guardians and teachers from four municipalities located in different parts of Finland. In spring 2014, 1,809 students participated into group-administrated questionnaires and tests, and close to half of them (884 students; 48.9% of the total sample) were asked to provide at least one assessment of their situational engagement as well. The students' guardians had provided written consent for their child's participation in the study, and all participants have been treated according to APA ethical guidelines. A statement of ethics approval for the study was granted by the University of Jyväskylä's Committee of Ethics.

Guided by the aim of examining intra-individual variation in situational engagement across lessons, the present study utilized data collected only from students who had provided at least three end of the lesson assessments of situational engagement using the InSitu instrument. Therefore, students with only one or two assessments of situational engagement (i.e., 583 students of those 884 who had provided situational assessments) were excluded from the present data set. No statistical differences were found in overall engagement nor academic performance between students in the present subsample (301 students) and the rest of the students participating in the follow-up assessments in spring 2014 (1,508 students).

The students' ratings of situational engagement for the present analyses were drawn from lessons from different academic subjects. Due to unavoidable limits in resources for collecting situational assessments, the number of opportunities that students had for providing ratings of situational engagement differed between participating schools, and ranged between 3–23 ( $M = 6.24$  ratings/student,  $SD = 5.60$ ). More specifically, approximately 80% of the 301 participants attended schools where the assessment protocol included 3 to 6 opportunities (i.e., lessons) for students to participate in assessment of situational engagement, and approximately 20% of the participants attended schools where the assessment protocol provided 18 to 23 opportunities. In the latter case, the students attended schools where the majority of all teachers allowed the InSitu assessments at the end of all their lessons within a school week. Response rate, counted by acknowledging the number of opportunities that each student had to make situational assessments, was 92.8%. The data contained a total of 1,879 self-ratings of situational engagement: 545 ratings were from language arts lessons, 396 from mathematics lessons, 298 from foreign languages lessons (i.e., English and Swedish), 323 from science lessons (e.g., biology and physics), and 317 from lessons from other academic subjects (e.g., history and health education).

The sample was representative of the Finnish population (Statistics in Finland, 2018) with respect to the distribution of maternal education. In the current sample, 4.3% of the students' mothers had a low educational level (i.e., no vocational degree), 65.2% had an intermediate educational level (i.e., vocational school degree, vocational college degree, or bachelor's degree), and 30.5% had a high educational level (i.e., master's, licentiate's, or doctor's degree).

## 2.2 Measures

### 2.2.1 Overall engagement

The three dimensions of engagement (i.e., behavioral, emotional, and cognitive) were assessed at the overall level by using two self-rating measures: the Student Engagement Instrument (SEI; Appleton et al., 2006; Finnish short version SEI-F; Virtanen, Kiuru, Lerkkanen, Poikkeus, & Kuorelahti, 2016) and the middle school student version of the Rochester Assessment Package for Schools (RAPS; Wellborn & Connell, 1987). The SEI-F consists of 18 items rated on a four-point Likert scale (1 = *completely disagree*; 4 = *completely agree*). The SEI-F captures two types of cognitive engagement with subscales of *control and relevance of schoolwork* (6 items,  $\alpha = .82$ ; e.g., "When I do schoolwork, I check to see whether I understand what I'm doing"), and *future aspirations and goals* (3 items,  $\alpha = .87$ ; e.g., "Going to school after secondary school is important"). Emotional engagement is assessed with three subscales: *teacher–student relationship* (3 items,  $\alpha = .89$ ; e.g., "At my school, teachers care about students"), *peer support in learning* (3 items,  $\alpha = .84$ ; e.g., "Other students at school care about me"), and *family support in learning* (3 items,  $\alpha = .82$ ; e.g., "When I have problems at school, my guardian is willing to help me") (see Appleton, 2006; Betts, 2012). These five subscales of SEI-F capture both cognitively framed indicators of engagement (e.g., striving for cognitive mastery and having favorable aspirations) and indicators of emotional engagement (i.e., sense of belonging and having access to

relationships, which they perceive caring, and encouraging regarding their school work).

Composite mean scores were calculated for each of the five subscales.

The RAPS Scale (drawn from the Rochester Assessment Package for Schools; Wellborn & Connell, 1987) consists of five items assessing students' behavioral engagement, and it was used to capture the third dimension included in the tripartite definition of student engagement. Items (e.g., I work very hard on my schoolwork,  $\alpha = .79$ ) were rated on a four-point scale (1 = *strongly disagree*; 4 = *strongly agree*), and a composite mean score was calculated.

### **2.2.2 Student characteristics and contextual factor**

Variables representing student characteristics included *gender* (1 = girl; 2 = boy) and *maternal education* (1 = low educational level, i.e., no vocational degree; 2 = intermediate educational level, i.e., vocational school degree, vocational college degree, or bachelor's degree; 3 = high educational level, i.e., master's, licentiate's, or doctor's degree).

Students' *home group* variable contains membership information on each student's stable group in which lower secondary school students study the vast majority of their lessons. In Finland, students are assigned into these heterogeneous home groups at the beginning of lower secondary school.

### **2.2.3 Academic performance**

*Academic achievement.* Students' academic GPAs were collected from official school records provided by each school's administrative staff at the end of Grade 7. Grading from 4 (*fail*) to 10 (*excellent*) is guided by the national curriculum (providing criteria for passing grade-level learning goals). Mean grade of academic subjects was calculated and used as GPA.

*Reading comprehension.* The group-administered reading comprehension task was part of a reading test battery (YKÄ; Lerkkanen, Eklund, Löytynoja, Aro, & Poikkeus, 2018) with

national norms. In the task, students read silently an expository text and answered 12 questions based on its content (11 multiple-choice questions and one requiring re-arranging statements into the correct sequence). Students completed the task at their own pace, but the maximum time allotted was 45 minutes. For each correct answer, one point was given, producing a maximum score of 12 (Kuder-Richardson reliability = .68).

*Reading fluency.* A group-administered speeded task belonging to a reading test battery (YKÄ; Lerkkanen et al., 2018) with national norms was used to assess reading fluency. It consisted of 80 items each with of a picture and four phonologically similar words attached to it. The students silently read the four words and then drew a line connecting the picture with the word. The score was the number of correct answers within a two-minute time limit (Kuder-Richardson reliability = .85).

*Arithmetic fluency.* Arithmetic fluency was assessed using a group-administered test (Aunola & Räsänen, 2007). It included 28 items containing addition, subtraction, multiplication, and division problems. The task difficulty increases across the test. The score was the number of correct answers within a three-minute time limit (Kuder-Richardson reliability = .74).

#### **2.2.4 Situational engagement**

Students' situational engagement was measured with the In Situations (InSitu) Instrument (Lerkkanen, Vasalampi, & Nurmi, 2012; Vasalampi et al., 2016), using smart phones handed to the students immediately at the end of the classroom lesson. InSitu consists of 17 items rated on a five-point scale (1 = *not at all*; 5 = *very much*). InSitu assesses both the key indicators comprising the tripartite conceptualization of student engagement (Fredricks et al., 2004; Wang et al., 2011), and two types of facilitators of engagement. The indicators are assessed using the following three subscales: *behavioral/cognitive engagement* (7 items,  $\alpha = .82$ ; e.g., "How persistent were you in studying during the lesson?", "How important did you



find the studied content?"); *emotional engagement* (3 items,  $\alpha = .86$ ; e.g., "How much did you like the lesson?"); and *disaffection* (3 items,  $\alpha = .68$ ; e.g., "How boring was the lesson?"). Behavioral and cognitive engagement were intended as separated subscales (i.e., separate scales with respective items were originally created), but as prior explorative and confirmatory factor analyses (Vasalampi et al., 2016) indicated high correlations between behavioral and cognitive engagement in approaching tasks in authentic learning situations, these two dimensions were merged into one subscale at the situational level. The third indicator, disaffection, focused on the maladaptive behaviors and emotions occurring within the lesson at hand (cf. Skinner et al., 2009). The two subscales representing facilitators of student engagement assessed by InSitu consist of the following: *competence experiences* (2 items,  $\alpha = .78$ ; "How easy was the lesson for you?"); and *help-seeking* (2 items,  $\alpha = .79$ ; e.g., "How much did you ask for help from the teacher/another adult during the lesson?"). Competence experiences were seen as a situational facilitator allowing a student to engage in learning of engagement (cf. Connell & Wellborn, 1991) and help-seeking as a facilitator for becoming re-engaged (cf. Marchland & Skinner, 2007).

## **2.3 Analytical strategy**

### **2.3.1 Descriptive analyses**

Due to the hierarchical structure of the data comprising students nested in classrooms, intraclass coefficients (ICCs) were calculated to determine the proportion of variances at the classroom and individual levels. As ICCs between classrooms were small (ranging between .001 and .022), subsequent analyses for the identified subgroups were executed without applying a multilevel approach. Preliminary analyses calculation of descriptive statistics, independent samples t-tests to test for gender differences in overall engagement.

### 2.3.2 Latent profile analysis

Next, a person-oriented approach with latent profile analysis (LPA, Vermunt & Magidson, 2002) was used to identify subgroups of students with similar patterns of overall engagement. LPA is model-based variant of traditional cluster analysis in which the goal is to identify the smallest number of latent classes that adequately describe the associations among the observed continuous variables (Nylund-Gibson & Masyn, 2016; Vermunt & Magidson, 2002). By providing fit indices, it enables comparisons between a different number of classes and the number of underlying classes.

Within this study the enumeration process was conducted by utilizing log-likelihood ( $\log L$ ), Bayesian information criterion (BIC), adjusted Bayesian information criterion (ABIC), Akaike information criterion (AIC), and Vuong-Lo-Mendell-Rubin (VLMR) and adjusted Lo-Mendell-Rubin (LMR) likelihood ratio tests as well as theoretical and practical consideration. The model with the lowest  $\log L$ , BIC, ABIC, and AIC values is considered to provide a good fit to the data, and  $p > .05$  with VLMR and LMR indicates that the model with one less class should be rejected in favor of the estimated model (Lo, Mendel, & Rubin, 2001). Theoretical and practical consideration focuses on usefulness and model interpretability, and for example profile solutions with one or several subgroups with approximately 1% of participants or less are discarded because they do not allow statistical power for subsequent analyses.

The LPAs were conducted using the Mplus statistical package (versions 7.4 and 8.4; Muthén & Muthén, 1998–2017) with students' home group as the clustering variable. LPAs were carried out by utilizing the COMPLEX option in order to adjust for the standard errors due to nesting. During the enumeration process, profiles were specified in the following ways, first, by letting means vary between classes and setting variances to be equal between classes, second, by estimating averages for each classes with variances and covariances set as equal,

and, third, by estimating averages, variances and covariances separately for each class. The model resulting from the first specification of parameters was chosen as it provided the best fit with the data. Next, Wald tests of parameter constraints and pairwise comparisons were run in Mplus by using three-step approach to validate the profiles by comparing them in terms of the criterion variables (cf. Asparouhov & Muthén, 2014).

### **2.3.3 Comparison of subgroups**

As the third phase of the analysis, the identified subgroups (based on patterns of overall engagement) were compared in terms of students' background factors, academic performance, and situational engagement. Analyses comparing the subgroups on students' background (gender and maternal educational level, RQ 2a) and academic performance (GPA, reading fluency, reading comprehension, and arithmetic fluency, RQ 2b) were carried using multinomial regression analyses and pairwise comparisons using the Auxiliary function and the three-step procedure. Analyses concerning students' situational engagement were carried out with multilevel models using Wald tests to assess parameter constraints. The parameters of the models were estimated using robust maximum likelihood (MLR) as an estimator. All models were composed with two levels where the first level represented *within level* (modelling variation within individuals), and the second level represented *between level* (modelling variation between individuals), where variance tests and pairwise comparisons were utilized. A two-level multinomial regression analysis that included all five dimensions of situational engagement (i.e., behavioral/cognitive engagement, emotional engagement, disaffection, competence experiences, and help-seeking) was conducted (RQ 3a) to test the extent to which the identified subgroups (i.e., subgroup membership) predicted the individual mean level of students' situational engagement (i.e., individuals' mean level of InSitu ratings in each dimension averaged across lessons). A series of two-level multinomial regression analyses were conducted separately for the five dimensions of situational engagement in order

to test the extent to which subgroup membership predicted the variations of situational engagement (RQ 3b).

### 3. Results

#### 3.1 Descriptive statistics

Descriptive statistics for students' overall engagement, academic performance, and situational engagement as well as findings of comparisons between girls and boys using independent t-tests are shown in Table 1. Significant gender differences were found in four comparisons. Girls reported significantly higher overall behavioral engagement ( $t(299) = 3.07, p = .002$ ) than boys. Girls also had higher scores than boys in reading comprehension ( $t(299) = 4.08, p < .001$ ) and reading fluency ( $t(299) = 3.40, p < .001$ ), but no differences were found for arithmetic fluency or GPA. In situational engagement, girls reported significantly lower disaffection ( $t(299) = -3.77, p < .001$ ) than boys, but no other gender differences were found in situational engagement.

Table 1.

## Descriptive statistics

	Total <i>M(SD)</i> <i>N</i> = 301	Girls <i>M(SD)</i> <i>n</i> = 155	Boys <i>M(SD)</i> <i>n</i> = 146	t-test
<b>Overall engagement</b>				
Control and relevance of schoolwork (SEI-F, Cog.)	3.05 (.47)	3.06 (.44)	3.05 (.50)	ns
Future aspirations and goals (SEI-F, Cog.)	3.52 (.52)	3.63 (.43)	3.41 (.57)	ns
Teacher–student relationship (SEI-F, Em.)	3.01 (.64)	3.02 (.63)	3.00 (.65)	ns
Peer support in learning (SEI-F, Em.)	3.05 (.59)	3.06 (.64)	3.03 (.52)	ns
Family support in learning (SEI-F, Em.)	3.47 (.52)	3.52 (.52)	3.42 (.52)	ns
Behavioral engagement (RAPS)	3.16 (.49)	3.25 (.45)	3.07 (.52)	3.07**
<b>Academic performance</b>				
GPA of academic subjects	8.03 (.99)	8.30 (.87)	7.74 (1.03)	ns
Reading fluency	37.09 (8.23)	38.63 (7.68)	35.45 (8.50)	3.40***
Reading comprehension	6.39 (2.56)	6.96 (2.50)	5.79 (2.50)	4.08***
Arithmetic fluency	13.44 (3.73)	13.10 (4.29)	13.79 (4.29)	ns
<b>Situational engagement</b>				
Behavioral/cognitive engagement (InSitu)	3.15 (.73)	3.20 (.74)	3.11 (.71)	ns
Emotional engagement (InSitu)	3.10 (.78)	3.12 (.94)	3.08 (.84)	ns
Disaffection (InSitu)	2.31 (.83)	2.15 (.79)	2.45 (.84)	-3.77***
Competence experiences (InSitu)	3.54 (.86)	3.60 (.89)	3.49 (.83)	ns
Help-seeking (InSitu)	1.96 (.89)	1.71 (.76)	2.20 (.95)	ns

Note. Overall engagement: 1 = *completely disagree* to 4 = *completely agree*, Cog. = Cognitive engagement, Em. = Emotional engagement; GPA: 4 = *failed* to 10 = *excellent*; Situational engagement: 1 = *not at all* to 5 = *very much*. Number of InSitu ratings: total *N* = 1,879, girls *n* = 900, and boys *n* = 979.

\*\*\*  $p < .001$ ; \*\*  $p < .01$ ; ns = non-significant

### 3.2 Profile groups based on overall engagement

LPAs were conducted to identify subgroups based on the five composite scores of overall engagement (RQ1). The results from the series of LPAs are presented in Table 2. Based on the values of log L, BIC, ABIC, and AIC, the seven-group solution would have

provided a good fit to the data (in particular based on elbowing of BIC). However, in the five-, six- and seven-group solutions the smallest group had less than 4 members, which would have prevented subsequent statistical analyses. Based on this practical reason, and because of its best VLRM and LMR values, the four-group solution was determined to provide the most optimal fit with the data.

Table 2.

Fit indices for the series of latent profile analyses (LPAs)

Number of classes	log L	BIC	ABIC	AIC	VLMR	LMR	n	n	n	n	n	n	n	n
1	-1428.43	2925.43	2887.37	2880.87			301							
2	-1214.14	2536.83	2476.58	2466.27	0.001	0.001	147	154						
3	-1165.42	2479.40	2396.94	2382.84	0.476	0.485	18	129	154					
4	-1098.29	2385.13	2280.47	2262.57	0.054	0.056	14	84	114	89				
5	-1066.55	2361.65	2234.80	2213.11	0.351	0.357	25	101	85	2	88			
6	-1035.84	2340.23	2191.17	2165.69	0.337	0.343	2	76	40	12	85	87		
7	-862.84	2034.23	1862.97	1833.69	0.482	0.486	78	4	16	73	37	61	32	
8	-979.95	2308.44	2114.98	2081.90	0.236	0.235	10	3	3	35	60	79	45	64

In the four-group solution, three of the groups showed concordant patterns across the subscales used to capture students' behavioral, emotional, and cognitive engagement (Figure 1). The first profile, *High-Overall-Engagement (High-OE)*, included 89 students; the second profile, *Low-Overall-Engagement (Low-OE)*, included 14 students; and the third profile, *Mid-Overall-Engagement (Mid-OE)*, included 114 students. The fourth profile was similar to the Mid-OE profile except for high values in Future aspirations and goals. The fourth profile, named *Mid-Overall-Engagement-with-High-Future-Goals (Mid-OE+High-FG)*, included 84 students. The four-group solution was validated with Wald tests of parameter constrain and paired comparisons, which showed that the groups differed from each other on the criterion

variables on which the LPAs were based (Table 3). Students' response rates on InSitu assessment did not show any differences between the students in the four profile groups ( $F_{3,298} = .684, p = .562$ ).

Table 3.

## Mean differences in overall engagement between the profile groups

Composite scores of overall engagement	1 High-OE ( <i>n</i> = 89)	2 Low-OE ( <i>n</i> = 14)	3 Mid-OE ( <i>n</i> = 114)	4 Mid-OE+ High-FG ( <i>n</i> = 84)	Wald test $\chi^2(3)$	Pairwise comparisons
	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )		
Control and relevance of schoolwork (SEI-F, Cog.)	3.53 (.31)	2.29 (.56)	2.85 (.32)	2.94 (.30)	203.10 ***	1 > 2, 3, 4 / 2 < 3, 4
Future aspirations and goals (SEI-F, Cog.)	3.94 (.52)	2.31 (.31)	3.07 (.18)	3.90 (.15)	1474.68***	1 > 2, 3 / 2 < 4 / 3 < 4
Teacher–student relationship (SEI-F, Em.)	3.84 (.47)	2.45 (.72)	2.82 (.54)	2.77 (.53)	78.18 ***	1 > 2, 3, 4
Peer support in learning (SEI-F, Em.)	3.41 (.56)	2.69 (.56)	2.92 (.45)	2.89 (.61)	47.40 ***	1 > 2, 3, 4
Family support in learning (SEI-F, Em.)	3.91 (.20)	2.92 (.63)	3.21 (.45)	3.45 (.49)	177.28 ***	1 > 2, 3, 4 / 2 < 4 <sup>1</sup> / 3 < 4 <sup>1</sup>
Behavioral engagement (RAPS)	3.60 (.30)	2.38 (.50)	2.96 (.39)	3.12 (.35)	239.28 ***	1 > 2, 3, 4 / 2 < 3, 4

Note. Overall engagement: 1 = *completely disagree* to 4 = *completely agree*, Cog. = Cognitive engagement, Em. =

Emotional engagement;

Pairwise comparisons reported between groups in which differences are statistically significant with  $p < .001$ , except for

<sup>1</sup> at  $p < .01$

\*\*\*  $p < .001$

### **3.3 Differences in student background factors and academic performance between profile groups**

Next, analyses were conducted to examine the extent to which the identified profile groups differed in students' background factors (gender and maternal educational level; RQ 2a) and academic performance (GPA, reading fluency, reading comprehension, and arithmetic fluency; RQ 2b).

The results of multinomial regression analysis and pairwise comparisons suggested some differences between profile groups with respect to students' background factors. The proportion of boys was higher in the Low-OE profile than in the Mid-OE+High-FG and High-OE profile groups ( $\beta = -2.89, p = .015$ ;  $\beta = -2.75, p = .018$ , respectively). Furthermore, the results indicated that maternal educational level was significantly higher in the Mid-OE+High-FG profile group than in the Mid-OE profile group ( $\beta = .67, p = .035$ ).

The results of multinomial regression model and pairwise comparisons for students' academic performance suggested that the four profile groups differed with respect to GPAs, but not in reading comprehension, reading fluency, or arithmetic fluency. Statistically significant differences in GPA were found between each profile group (Table 4). The three profile groups showing concordant patterns across the five dimensions of overall engagement (High-OE, Low-OE, and Mid-OE) demonstrated corresponding levels of high, low, and mid GPAs (e.g., students in the High-OE group had the highest mean level of GPA). In the fourth profile group, Mid-OE+High-FG, the average GPA was second highest, after the High-OE profile group, but no statistical differences was found on GPAs between High-OE and Mid-OE+High-FG profile groups.



Table 4. Mean levels of GPAs and estimates of paired comparison analyses between the profile groups

	<i>M(SD)</i>	Estimates based on paired group comparisons		
		Low-OE	Mid-OE	Mid-OE+ High-FG
High-OE ( <i>n</i> = 89)	8.50 (.91)	-2.45 ***	-1.28***	ns
Low-OE ( <i>n</i> = 14)	6.84 (.70)		1.17*	1.98***
Mid-OE ( <i>n</i> = 114)	7.64 (.93)			.81***
Mid-OE+High-FG ( <i>n</i> = 84)	8.26 (.85)			

Note. Means represent average values for profile groups calculated by utilizing students'

individual mean GPAs with 4 = *failed* to 10 = *excellent*

\*\*\*  $p < .001$ ; \*  $p < .05$ ; ns = non-significant

### 3.4 Comparison of latent profile groups with respect to students' situational engagement

Final step of the analysis was to determine the extent to which the identified profile groups differed in the students' individual mean levels of situational engagement (RQ 3a) and in variation of situational engagement across lessons (RQ 3b).

**Comparison of individual mean levels of situational engagement.** The two-level model examining the extent to which the profile groups differed in variation of the students' individual mean levels of situational engagement across the lessons was saturated. Wald tests of parameter constraints were significant, suggesting significant differences between the profile groups in all five components of situational engagement, behavioral/cognitive engagement, emotional engagement, disaffection, competence experiences, and help-seeking, respectively (Wald's  $\chi^2(3) = 96.81, p < .001$ ; Wald's  $\chi^2(3) = 56.05, p < .001$ ; Wald's  $\chi^2(3) = 48.13, p < .001$ ; Wald's  $\chi^2(3) = 72.48, p < .001$ ; Wald's  $\chi^2(3) = 24.36, p < .001$ , respectively). The subsequent analyses using paired comparisons specified differences between the profile groups.

**High-OE profile group.** Paired comparisons suggested, first, that in the High-OE profile group, the individual mean levels of students' situational behavioral/cognitive engagement, emotional engagement, and competence experiences were significantly higher, and disaffection and help-seeking significantly lower than in the other three profile groups (Table 5).

**Low-OE profile group.** Comparisons between the Low-OE profile group and the other profile groups (Table 5) indicated that both situational behavioral/cognitive engagement and emotional engagement were significantly lower in the Low-OE profile group than in all other profile groups. Furthermore, situational competence experiences were significantly lower in the Low-OE profile group when compared to the High-OE and Mid-OE+High-FG profile groups, but not when compared to the Mid-OE group. For the situational disaffection and help-seeking, significant differences were found only in comparison to the High-OE profile group.

**Mid-OE profile group.** Comparisons between the Mid-OE profile group and the other profile groups (see Table 5) indicated that situational behavioral/cognitive engagement and emotional engagement were significantly higher in the Mid-OE profile group than in the Low-OE profile group, but significantly lower than in the High-OE profile group. Situational emotional engagement was also significantly lower in Mid-OE profile group than in Mid-OE+High-FG profile group. Furthermore, situational competence experience was significantly lower and situational help-seeking significantly higher in Mid-OE profile group than in the High-OE and Mid-OE+High-FG profile groups. With situational disaffection, differences were found only in comparison to the High-OE profile group.

**Mid-OE+High-FG profile group.** Comparisons between the Mid-OE+High-FG profile group and the other profile groups (Table 5) indicated that situational behavioral/cognitive engagement, emotional engagement, and competence experiences were

Table 5. Mean levels of situational engagement and estimates of paired comparison analyses between the profile groups

	<i>M(SD)</i>	Estimates based on paired group comparisons		
		Low-OE	Mid-OE	Mid-OE+ High-FG
<b>1 High-OE (<i>n</i> = 89)</b>				
Situational behavioral/cognitive engagement	3.54 (.52)	-1.20***	-.60***	-.46***
Situational emotional engagement	3.48 (.72)	-1.16***	-.60***	-.41***
Situational disaffection	1.92 (.64)	.74***	.54***	.48***
Situational competence experiences	3.98 (.63)	-.86***	-.64***	-.27**
Situational help-seeking	1.71 (.65)	.41*	.44***	.21*
<b>2 Low-OE (<i>n</i> = 14)</b>				
Situational behavioral/cognitive engagement	2.30 (.71)		.60***	.74***
Situational emotional engagement	2.30 (.87)		.56**	.75***
Situational disaffection	2.65 (.78)		ns	ns
Situational competence experiences	3.07 (.87)		ns	.59**
Situational help-seeking	2.01 (.63)		ns	ns
<b>3 Mid-OE (<i>n</i> = 114)</b>				
Situational behavioral/cognitive engagement	2.92 (.45)			ns
Situational emotional engagement	2.84 (.58)			.19*
Situational disaffection	2.47 (.58)			ns
Situational competence experiences	3.31 (.54)			.37***
Situational help-seeking	2.10 (.66)			-.23**
<b>4 Mid-OE+High-FG (<i>n</i> = 84)</b>				
Situational behavioral/cognitive engagement	3.08 (.60)			
Situational emotional engagement	3.08 (.67)			
Situational disaffection	2.40 (.58)			
Situational competence experiences	3.73 (.67)			
Situational help-seeking	1.86 (.59)			

Note. Means represent average values for profile groups calculated by utilizing students' individual mean levels of situational engagement.

\*\*\*  $p < .001$ ; \*\*  $p < .01$ ; \*  $p < .05$ ; ns = non-significant

significantly higher in the Mid-OE+High-FG profile group than in the Mid-OE and Low-OE profile groups, but lower than in the High-OE profile group. Furthermore, situational help-seeking was significantly lower in the Mid-OE+High-FG profile group than in the Mid-OE profile group, but significantly higher than in High-OE profile group, and situational disaffection was significantly lower in the Mid-OE+High-FG profile group than in the High-OE profile group.

**Variation of situational engagement across lessons.** Finally, the two-level models examining differences in variation of students' situational engagement across lessons demonstrated significant results for both situational emotional engagement and situational disaffection (both models saturated and Wald tests of parameter constraints were significant: Wald's  $\chi^2(3) = 10.68, p = .014$ ; Wald's  $\chi^2(3) = 10.00, p = .019$ , respectively). Subsequent pairwise comparisons (between level) suggested bigger variances of situational emotional engagement in the High-OE and Mid-OE+High-FG groups than in the Mid-OE group ( $\beta = .16, p = .042$ ;  $\beta = .24, p = .005$ , respectively), and a smaller variance of situational emotional engagement in the Low-OE group than in the Mid-OE group ( $\beta = -.30, p = .037$ ). Furthermore, the results of pairwise comparisons with regard to situational disaffection showed significantly smaller variance of disaffection in the High-OE and Mid-OE profile groups than in the Mid-OE+High-FG profile group ( $\beta = -.21, p = .003$ ;  $\beta = -.15, p = .025$ , respectively). For the models on situational behavioral/cognitive engagement, competence experiences, and help-seeking, the results did not show any significant differences in variation of students' situational engagement across lessons between the profile groups.

#### 4. Discussion

The present study contributes to the literature by utilizing person-oriented approach to identify subgroups of students with different overall engagement profiles, and by examining these subgroups with respect to background factors, academic performance, and lesson-

specific situational engagement. The findings indicated differences in GPAs between students belonging to the four distinct profiles of overall engagement. Moreover, the findings provided new insights into the associations between overall and situational engagement by identifying some concordance between them, but also showing situational fluctuation of engagement in particular for the group of students with high overall engagement.

First, as expected (Hypothesis 1), distinct subgroups based on students' self-ratings of their overall engagement were identified. Three of the subgroups, named as High-Overall-Engagement (*High-OE*; 29.5% of students), Low-Overall-Engagement (*Low-OE*; 4.7% of students), and Mid-Overall-Engagement (*Mid-OE*; 37.9% of students), showed relatively concordant patterns of low, moderate, and high overall engagement (i.e., these profiles showed flat levels of overall engagement on all five indicators at their respective levels). The students with moderate overall engagement (*Mid-OE*) constituted the largest profile group, and in line with the findings of another Finnish lower secondary school sample (Virtanen, Lerkkanen, Poikkeus, & Kuorelahti, 2018), students with the lowest overall engagement (*Low-OE*) constituted the smallest profile group. The fourth profile group manifested a mixed pattern across the five subscales capturing the three dimensions of overall engagement. This profile group, named as Mid-Overall-Engagement-with-High-Future-Goals (*Mid-OE+High-FG*; 27.9% of students), differed from the *Mid-OE* profile group only by higher level of future aspirations and goals, and stronger sense of family's emotional support and reassurance when needing support in their learning at school. The *Mid-OE+High-FG* and the *High-OE* profile group did not differ with respect to future aspirations and goals.

The finding that the majority of students (72.1%) manifested concordant profiles across behavioral, emotional, and cognitive overall engagement can be seen to provide support to prior views that different dimensions of engagement are somewhat reciprocally linked (e.g., Fredricks et al., 2004; Wang & Peck, 2013; Wang et al., 2011). The identification

of a mixed profile representing almost one third of the students, however, points out that assumption of comparable levels of the three dimensions engagement does not hold for all students. It seems that some individuals may convey high cognitive engagement with respect to appreciation of school and high future education goals, but at the same time report less high behavioral and emotional engagement (see also Linnankylä & Malin, 2008). Capturing this mixed profile complements the prior literature by consolidating the notion that students represent a heterogeneous population where distinct subgroups of engagement can be identified (see also e.g., Lawson & Masyn, 2015b), and highlights the importance of utilizing person-oriented approach in order to offer individualized forms of opportunities to become engaged in learning. In addition, the present findings raise future aspirations and goals into a pivotal role of cognitive engagement, and concur with examining them along with self-regulation strategies when striving to understand the multifaceted nature of cognitive engagement (see also Betts, 2012; Fredricks & McColskey, 2012).

Second, comparison of the profile groups showed in line with Hypothesis 2a, that the subgroups differed to some extent based on distribution of students' background factors. Consistent with prior findings (e.g., Lam et al., 2016; Li & Lerner, 2011), the proportion of boys was higher than that of girls in the Low-OE group and lower than that of girls in the Mid-OE+High-FG and High-OE groups. In contrast to some prior findings (e.g., Linnankylä & Malin, 2008) maternal education level was found to be independent of profile group membership when comparing High-OE, Mid-OE, and Low-OE groups to each other. However, maternal education was higher in the Mid-OE+High-FG group than in the Mid-OE group, which suggests that parents and their education may have an important role in shaping of students future goals and supporting their engagement (see e.g., Skinner & Pitzer, 2012). In motivational research, the role of parents is widely acknowledged, for instance, there is ample evidence that parents' beliefs have links to their children's beliefs, especially with respect to

school-, classroom-, and learning-related competence beliefs and values (see Lazarides, Harackiewicz, Canning, Pesu, & Viljaranta, 2015). More research is needed on this finding to learn about mechanisms through which parental education impacts children's cognitive engagement.

In keeping with Hypothesis 2b and prior literature (e.g., Wang & Holcombe, 2010), association was found between level of engagement and students' GPAs: profile groups with higher overall engagement manifested higher academic performance, whereas groups with lower overall engagement manifested lower academic performance. Interestingly, students who reported moderate overall engagement but relatively high future aspirations and goals (i.e., Mid-OE+High-FG profile group) did not differ in academic GPAs from students who reported high overall engagement across all the three domains (i.e., High-OE profile group). This finding, which links academic success with value students place on schoolwork for their future paths, corroborates prior studies suggesting the high importance of future goals (e.g., Simons, Vansteenkiste, Lens, & Lacante, 2004).

Third, the four profile groups were examined with respect to level and variation of situational engagement to gain insight on the associations between overall and situational engagement. In line with expectations (Hypothesis 3) and prior findings showing correlations between overall and situational engagement (Vasalampi et al., 2016), the results indicated that the students' situational ratings of behavioral/cognitive and emotional engagement were highest in the High-OE profile group and lowest in the Low-OE profile group. However, in the Mid-OE and Mid-OE+High-FG profile groups the links between students' situational and overall engagement were not as consistent. Emotional engagement assessed with InSitu after lessons was significantly higher among students in the Mid-OE+High-FG profile group than in the Mid-OE group, but no significant differences were found between these profile groups for behavioral/cognitive engagement. Therefore, these findings suggest that situational

engagement should not be assumed as identical students manifesting somewhat moderate overall engagement. Of specific interest is why the two profile groups showed differences in emotional engagement in the lessons rather than behavioral/cognitive engagement although students in the Mid-OE+High-FG profile group had higher GPAs than students in Mid-OE profile group. Based on these findings, it can be speculated, for example, that experiences of emotional engagement, such as enjoyment and interest in the lesson, may fluctuate more and may be more susceptible to contextual changes than situational behavioral/cognitive engagement.

In addition, while students belonging to the High-OE profile reported systematically lower levels of disaffection than students in the other three profile groups did, level of situational disaffection did not differentiate the other profile groups. Therefore, only uniformly high overall engagement seemed to function as a protective factor against maladaptive behaviors and emotions experienced in lessons. Even high future aspirations and goals, on its own, did not seem to set a buffer against feelings of boredom or lack of interest in the lessons. This finding can be seen to support conceptualizing of disengagement and engagement as distinct constructs (see Skinner et al., 2009), but more research is needed to capture the dynamics of disaffection via repeated measurements in classroom situations with a more in depth focus on potential differences among students showing somewhat high, moderate, and low overall engagement.

Moreover, with respect to situational competence experiences, profile groups with concordant patterns of low or moderate overall engagement did not differ from each other, but they differed from the High-OE and Mid-OE+High-FG groups. This finding is not surprising considering the higher academic skill level (as indicated by higher GPA) of the High-OE and Mid-OE+High-FG profile groups which is likely to feed into higher self-efficacy, achievement motivation, task value, and higher likelihood of facing tasks with their subject-



specific skills (see, e.g., Eccles, Fredricks, & Baay, 2015). This finding suggests a need for ways of scaffolding competence experiences in classroom situations especially among those students with low or moderate overall engagement and low or moderate future goals and aspirations.

Finally, analysis on intra-individual variation in situational engagement indicated profile group differences in emotional engagement and disaffection in classroom situations. Intra-individual variation in emotional engagement (i.e., variances of InSitu ratings between lessons) was higher among students in the High-OE and Mid-OE+High-FG profile groups than in the Mid-OE profile group, and, in turn, higher in the Mid-OE group than in the Low-OE group. With respect to disaffection, intra-individual variation between lessons was lower among students in the High-OE and Mid-OE profile than students in the Mid-OE+High-OE profile group. Therefore, the findings seem to suggest that students with higher overall engagement, are likely to be more responsive to changing factors within the contexts, which is shown by a higher range of variation of positive emotions (high interest in some lessons and low in some others) but a narrow range of variation of negative emotions (variance in disaffection low between lessons). It can be speculated that differences in instructional practices and task characteristics (Fredricks 2011; Lam et al., 2016), teacher's emotional support (Pöysä et al., 2019), or students' perceptions of peers' attitudes toward subjects and tasks (King, 2016) may be picked up by and having a stronger impact on students who exhibit higher overall engagement. This may also imply that students with lower overall engagement do not respond as readily to externally changing factors and their situational emotional engagement may remain low despite of teacher endeavors to support their engagement in the lessons. With respect to disaffection, question remains if concordant level of overall engagement could serve as a protective factor against changing experiences of disaffection. All in all, these findings suggest that students with different patterns of overall engagement

have both unique strengths and liabilities with respect to fluctuation of situational engagement.

Taken together, the findings of the present study contribute to the literature by increasing understanding on the links between students' overall and situational engagement. Based on the findings bringing forth subgroup differences among students in how their overall engagement may affect and reflect their behaviors, emotions, and cognition in lesson to lesson situations in the classroom, some steps can be taken towards seeing overall and situational engagement as transactionally associated. It seems that students' situational experiences may be partly formed on basis of their generalized perceptions and affects about school as well as the value they place for schoolwork and its importance for their future. The view of dynamic shaping of engagement is in line with the proposal made by Lawson and Lawson (2013) that situational acts of engagement, that occur in particular moments of time, are formed partly on basis of engagement dispositions. Based on the four distinct profiles, it seems that students identified with high or low overall engagement show somewhat corresponding levels of situational engagement, but among students with moderate overall engagement (Mid-OE and Mid-OE+High-FG groups) the links between students' situational and overall engagement were not as consistent. In addition, the findings suggested that intra-individual fluctuation in situational engagement may have associations with overall engagement, and that the level of overall engagement is likely to affect the students' experiences of facilitating factors of engagement present in classroom situations. These findings provide, therefore, a unique empirical support complimenting prior theoretical views on relations between overall and situational engagement, and adds by specifying findings with respect to different profiles. Knowledge on how overall engagement is related to situational engagement is particularly important when designing interventions and supporting students through pedagogical choices, as those actually take place in series of different situations.

Understanding on how students arrive into different situations guided by their overall engagement, may also set the stage on more individualized support. In general, the findings highlighted the importance of examining student engagement by utilizing a person-oriented approach and acknowledging the impact of overall engagement when examining situational engagement.

#### **4.1 Limitations and future research**

The present study includes some limitations. First, due to the criterion of a minimum of three ratings of situational engagement for each participant, the results were based on data provided by a subgroup of 301 students. Although the preliminary analyses showed no differences in overall engagement between the current sample and other students participating in the follow-up, the number of students in the Low-OE profile was quite small. Thus, in future studies utilizing a person-oriented approach, the sample should preferably be bigger. Increasing the sample size would allow collecting students experiences tied into specific subjects or other contextual factors as well. Second, for the analyses of situational engagement InSitu items capturing behavioral and cognitive engagement had to be merged into one indicator due to psychometric reasons. This created some disparity between the construct of indicators of overall and situational engagement. Such links between aspects included in behavioral and cognitive engagement have also been reported in previous research with respect to these dimensions (e.g., Reshly & Christenson, 2012). Thus, future research should seek ways to distinguish between these two components at situational level. Third, by utilizing the person-oriented approach, it was possible to identify groups with different overall engagement, but the design did not allow specifying what promotes or hinders individuals' engagement in actual learning situations. Finally, a longitudinal follow-up design was not used in the strict sense in the present study as both overall and situational engagement were assessed in the Spring of Grade 7 and the interval between assessments was not long. The

next step would be to use several time points of parallel assessments at both overall and situational level to investigate effects of situational and overall engagement on each other, and continue to use person-oriented approach to track whether students' would remain within the same subgroup over time.

#### **4.2 Conclusion and practical implications**

By utilizing a person-oriented approach to examine the situational engagement and academic performance of individuals with varying profiles of overall engagement, the study complement the literature and provides practical implications. First, the present findings suggested that overall and situational engagement are related, but relation is not identical among all students. When planning interventions or developing ways to support students' engagement using different pedagogical practices, knowledge on situational engagement is critical for tailoring support to match the needs of each student. Second, the findings suggest that students with moderate overall engagement deserve more attention. They reported comparable levels of situational competence experiences and disaffection as students with low overall engagement, which needs to be acknowledged in the instructional practices. Third, the findings highlighted the importance of having future aspirations and goals. Based on results, those contributed to reaching higher situational engagement and academic performance, and, thus, it might be that students' situational engagement could be enhanced through aiming high in future. Finally, the results corroborated the added value of combining a person-oriented approach and focusing on students' overall engagement and their situational experiences simultaneously. Such design reveal distinctive features that are highly informative with respect to planning interventions and school-level guidance aimed at promoting engagement. By gaining insight on the links between overall and situational engagement, the schools can better accommodate students' individual needs and foster experiences of belonging, meaningfulness, and participation in learning situations.

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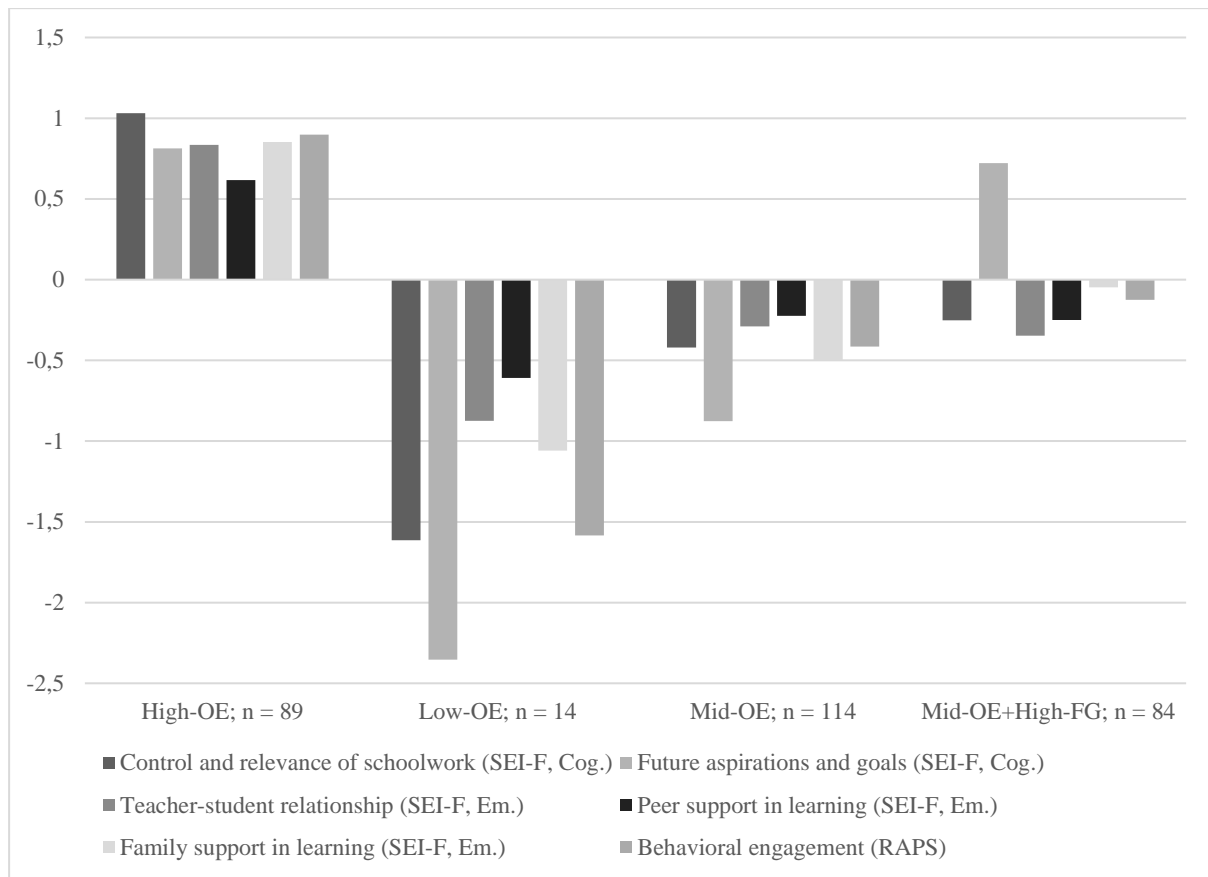


Figure 1. Patterns of overall engagement in four profile groups