Literacy development of low-achieving adolescents: The role of engagement in academic reading and writing

de Milliano, I. I. C. M.

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Chapter 2

Writing proficiency and development: the roles of affective, cognitive and behavioral engagement in the classroom

Seeking ways to increase academic success of low-achieving adolescents, this longitudinal study explored the role of cognitive, affective and behavioral engagement in writing proficiency and development of a group of 63 students. In the course of grades 7 to 9 students’ self-efficacy beliefs, intrinsic values, utility values, reported effort and reported self-regulation were investigated. In addition, the time students were on-task in literacy activities in language arts and social studies was coded. Furthermore, students’ writing proficiency was examined in each grade. Intrinsic value and behavioral engagement in social studies explained differences in writing proficiency among low-achieving adolescents, whereas self-efficacy beliefs, utility value, reported effort, reported self-regulation and behavioral engagement in language arts did not. More importantly, the study shows that although the adolescents in our study are low-achieving, they improve significantly in writing proficiency from grade 7 to 9. However, not all low-achieving adolescents progressed to the same extent. Although engagement is regarded as an import predictor of academic achievement in the literature, none of the affective, cognitive and behavioral engagement aspects investigated could explain differences in writing development among low-achieving adolescents. Theoretical and practical implications of this study are discussed for a better understanding of the role of engagement in low achieving adolescents’ writing development.

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6 This chapter is based on: De Milliano, I., Van Gelderen, A., Sleegers, P., Van Schooten, E., (under review). Cognitive, affective and behavioral engagement in the classroom as predictors of writing proficiency and development of low-achieving adolescents.
2.1 Introduction

Learning to write begins at school entry and develops through formal schooling years and beyond. Through the grades students are increasingly asked to demonstrate their knowledge through all kinds of writing. In addition, the explosion of electronic and wireless communication in daily life brings writing skills into play as never before (Graham & Perin, 2007). Yet, studies in a range of countries signal that many adolescents have difficulties in composing texts at levels required by the school curriculum and from the perspective of future career and societal requirements (Alliance for Excellent Education, 2006; Baumert et al., 2001; Inspectie van het Onderwijs, 2008; Hofman, Spijkerboer & Timmermans, 2009; OECD, 2000; Salahu-Din, Persky & Miller, 2008). Although a great deal of research has examined factors that enhance writing proficiency (Alexander, Graham & Harris, 1998; Bereiter & Scardamalia, 1987; Englert, Raphael, Fear & Anderson, 1988; Hayes & Flower, 1980; Graham, 2006; McCutchen, 1995), few studies have focused on the group of low-achieving adolescents who have difficulties composing comprehensible texts (Juzwik et al, 2006; Klassen, 2002). Consequently, there is little understanding of the differences that exist within this group of low-achievers and which educational factors (e.g. instruction, curriculum), psychological (e.g. knowledge, engagement) and personal background factors (e.g. gender, SES or ethno-linguistic background) improve their writing proficiency and facilitate their development in writing proficiency. One concept that recently has received increasing attention as a possible important predictor of writing proficiency and learning is the concept of engagement. In this study, we focus on low-achieving adolescents’ engagement in literacy in school contexts in relation to the level and the development of their writing proficiency.

Engagement is defined as students’ feelings, thoughts and behaviors concerning a more or less specified object, such as school, learning, reading or writing (Appleton, Christenson & Furlong, 2008; Fredricks, Blumenfeld & Paris, 2004; Guthrie, Wigfield & You, 2012; Linnenbrink & Pintrich, 2003). Research has shown that students’ involvement in school and learning decreases throughout the years. The strongest declines are observed in early adolescence and among low-achieving students (Archambault, Eccles & Vida, 2010; Durik, Vida & Eccles, 2006; Eccles, Wigfield & Schiefele, 1998; Harter, Whitesell & Kowalski, 1992; Jacobs et al, 2002). In addition, studies suggest that differences between students in ability, motivation and effort in school work increase in early adolescence (Nicholls, 1990; Stipek, 1998). This period of personal development is often described as turbulent because of school transition (from primary to secondary) and several socio-emotional changes related to the
forming of new social identities with consequences for participation in school and for literacy (Anderman & Maehr, 1994; Ramey & Ramey, 1994). As writing becomes increasingly demanding through the grades, engagement in carrying out reading and writing activities in the classroom may be important for writing development (Boscolo, 2012; Bruning & Horn, 2000). By focusing on active engagement in the classroom, this study aimed to make a contribution to the existing literature on writing development and the role of engagement in literacy of low-achieving adolescents.

2.2 Theoretical background

2.2.1 Engagement

Contemporary definitions of engagement emphasize that engagement is a multidimensional construct, including affective engagement, cognitive engagement and behavioral engagement (Appleton et al., 2008; Fredricks et al., 2004; Guthrie et al., 2012; Linnenbrink & Pintrich, 2003). Affective engagement refers to motivational factors, including students’ feelings and emotional reactions to a task or school in general, their beliefs about their ability to perform a task and subjective task values about the importance and interest of the task. Cognitive engagement refers to students’ willingness to exert mental effort needed to perform challenging academic tasks as well as the use of self-regulatory strategies to guide one’s cognitive efforts. Behavioral engagement refers to the active participation of students in academic activities in the classroom. In summary, engagement is defined by the interplay of motivational processes, cognitive strategies and active behavior. Affective engagement is what energizes students’ behavior, whereas behavioral engagement indicates whether students are actually engaged. Cognitive engagement indicates the depth of students’ engagement (the degree of cognitive effort invested). In this study, we used this multidimensional construct of engagement to examine students’ motivation, their cognitive efforts and actual behavior towards writing within their classrooms. Since researchers in the field of writing have focused on cognitive processes for a fairly long time, we start by outlining this facet of engagement, followed by the affective and behavioral aspects.

2.2.2 Cognitive engagement

Cognitive engagement refers to the use of cognitive strategies during writing for executing and coordinating writing processes as well as students’ willingness to exert mental effort to foster written communication. The application of strategies is also referred to as cognitive self-regulation (Torrance, Fidalgo & Garcia, 2007; Zimmerman & Risemberg, 1997). A great deal of research has been done regarding cognitive self-regulation and its relation with texts produced by writers of diverging proficiency...
(Graham, 2006). Together, the findings suggest that better writers are more strategic than poorer writers. Writers who plan and revise their writing more intensively and who consider their formulation more precisely write texts of better quality (De Milliano, Van Gelderen & Sleegers, 2012). Low-achieving adolescents’ writing can be characterized to a great extent by the model of ‘knowledge telling’ (Bereiter & Scardamalia, 1987). Knowledge telling involves retrieving content relevant to the topic from long-term memory and writing it down without much planning or reviewing (Harris, Graham, Brindle & Sandmel, 2009). Using cognitive strategies requires the expenditure of mental effort. Especially for low-achievers this may be a very hard task, given their poor knowledge of both conceptual and linguistic issues (Englert et al., 1988; Kellogg, 1987; McCutchen, 1986; Olinghouse & Graham, 2009). On the other hand, self-regulation of low-achieving adolescents is not in vain as research findings indicate that developing writers gain more knowledge about writing strategies over time and that instruction directed at self-regulation can enhance writing skills, especially of low-achieving students (De La Paz, Swanson & Graham, 1998; Englert, 1992; Graham & Perin, 2007; Harris et al., 2009). Based on these findings, we assume that low-achieving adolescents who put more effort in writing and who use more self-regulative activities perform better in writing and obtain more progression in writing proficiency over time.

2.2.3 Affective engagement

During the last decades there has been increased interest in the role of affective processes in writing. Recent models of the writing process also include affective or motivational variables (Hayes, 1996; Zimmerman & Risemberg, 1997). Affective engagement refers to the motivational processes during writing. Motivation is defined as the beliefs, values and goals individuals have for domain specific activities (Eccles & Wigfield, 2002). It is often assumed that students’ beliefs about their ability to perform a task (self-efficacy) and their subjective values about the relevance and importance of the task (subjective task values) influence students’ effort, persistence and performance on the task (Wigfield & Eccles, 2000), especially when activities are cognitively demanding. Writing is such a demanding activity, as many different cognitive activities are involved (Bruning & Horn, 2000; Graham, 2006; Graham, Berninger & Fan, 2007; Hidi & Boscolo, 2006; Klassen, 2002; Pajares, 2003; Schunk & Zimmerman, 1994). Accordingly, motivation for writing may not only lead to increased writing achievement, but also to growth in skills over time as students who are motivated tend to put more effort in learning. In examining students’ affective engagement in writing proficiency and development, we focus on two of the most
studied motivational components in the field of writing; self-efficacy and subjective task values.

Self-efficacy for writing is a persons’ belief in the ability to effectively complete writing tasks (cf. Bandura, 1997), whereas subjective task values is a complex composite comprising attainment values, intrinsic values, utility values and costs (Eccles, 2005). Research into the role of self-efficacy (Klassen, 2002; Pajares, 2003; Pajares & Valiante, 2006), shows that self-efficacy beliefs play an important role in predicting writing achievement. Research into subjective task values of writing has mainly focused on interest in a topic rather than on writing as an appealing activity itself (Hidi & Boscolo, 2006). Some research explored the idea of writing as interesting activity of itself. The available evidence suggests that students’ desire to write influences their writing performance (Boscolo, 2012; Graham et al., 2007; Lipstein & Renninger, 2007). Although findings of different studies suggest that self-efficacy for writing and subjective task values are important predictors for writing proficiency, less is known about the relationship between these predictors and the development of writing proficiency over time. No longitudinal studies have been conducted so far (Klassen, 2002; Graham & Harris, 2012). By examining the relation between self-efficacy and subjective task values as indicators of affective engagement on the one hand and writing proficiency and writing development among low-achieving adolescents on the other hand, we intend to determine whether affective engagement is a factor not only associated with students’ level of writing proficiency but also with growth in writing proficiency.

2.2.4 Behavioral engagement

Behavioral engagement refers to the extent to which students are actually performing academic tasks, including attending to and completing tasks responsibly, following rules and instruction, and exercising self-control (Cameron Ponitz, Rimm-Kaufman, Grim & Curby, 2009). Behavioral engagement is students’ participation in a set of learning opportunities and tasks as offered by teachers in the classroom. Students’ behavioral engagement in academic activities is viewed as an important predictor of academic achievement as students’ participation in academic activities is a prerequisite for learning (Fredricks et al., 2004; Greenwood, Horton & Utley, 2002; Pressley et al., 2001). For writing, no research is known directed at the relationship between behavioral engagement in the classroom and writing achievement. In the field of reading, studies conducted in kindergarten and elementary schools (Berliner, 1979; Dolezal, Welsh, Pressley & Vincent, 2003; Guthrie et al., 2012; Hughes & Kwok, 2007; Ponitz, McClelland, Matthews & Morrison, 2009) have shown that behavioral engagement in the classroom is positively related to reading achievement. In their
longitudinal study, Ladd and Dinella (2009) examined the effect of behavioral engagement of students (5 to 13 years old) on a variety of reading achievement tests. The findings showed that, while statically controlling for reading achievement in grade 1, the reading development of more engaged students improved more than for less engaged students. In this study, we therefore, examined the impact of low achieving students’ behavioral engagement in literacy practices in the classroom on their writing proficiency and writing development.

Given the fact that engagement is assumed to be responsive to variation in learning contexts and the learning opportunities and tasks offered by teachers in classrooms (Finn & Rock, 1997), we paid attention to the context in which writing activities are enacted in the classroom. Writing is an activity that is not limited to the language arts but is also enacted across varying disciplines involving different purposes, forms and processes (Applebee & Langer, 2006; Kiuhara, Graham & Hawken, 2009). In the language arts, writing practices mainly focus on increasing writing proficiency, whereas in content area lessons, writing is a tool for acquiring specific content knowledge (Graham & Perin, 2007). We, therefore, focused on two different subject domains: language arts and social studies. Consistent with the engagement perspective, we presume that behavioral engagement in literacy practices is different in the two subject domains.

2.3 The present study

Although the different aspects of engagement are assumed to play important roles in writing development of low-achieving adolescents (Graham, 2006; Hayes, 1996; Zimmerman & Risemberg, 1997), the relative strength of these roles for low achieving adolescents are largely unknown, because this issue has scarcely received empirical attention. Particularly, the relationship between engagement and writing development is unknown, as no longitudinal studies have been performed yet. Studies hitherto, studied relationships of specific aspects of engagement and with writing achievement at the same point of measurement or in cross-sectional designs in heterogeneous samples regarding writing proficiency (both higher and lower achieving students) (Klassen, 2002; Pajares, 2003). Consequently, there is some empirical evidence suggesting that better writers are more engaged than poorer writers. However, especially for the group of low-achieving adolescents it is of importance to know to what degree their affective, cognitive and behavioral engagement in writing at school contributes to their writing proficiency. It is yet unknown whether there are differences between these low achievers in the role that different types of engagement play in writing proficiency. In addition, it is also unknown to what degree
their engagement in writing at school contributes to their growth in writing skills over time.

There is a need for writing research that focuses on low-achieving adolescents (Graham & Harris, 2012). Our current understanding of writing is based primarily on students with broad ranges of proficiency or disabled writer populations. In such populations, patterns emerging in the lowest achieving groups are obscured by the large differences between students. Therefore, findings from these types of writers may not hold true for low-achieving adolescents (Graham & Perin, 2007; Klassen, 2002). Insights in differences that exist among low-achieving adolescents are necessary to understand how education can improve low-achieving adolescents’ writing proficiency in a way that fits students’ individual skills and attributes. Therefore, we explored cognitive, affective and behavioral aspects of engagement in writing of low-achieving adolescents following them from grades 7 to 9 in relation to their writing proficiency level and development of writing proficiency across these three grades. The following questions were addressed:

1) How are affective engagement, cognitive engagement and behavioral engagement related to writing proficiency of low-achieving adolescents?

2) Do low-achieving adolescents progress in writing proficiency from grades 7 to 9?

3) Do affective, behavioral and cognitive aspects of engagement contribute to explaining differences in writing proficiency development of low-achieving adolescents?

2.4 Method

2.4.1 Participants

Low-achieving adolescents are defined in this study as students in the lowest 30-percentile of academic skills as measured by an aptitude test measuring language, reading and mathematics prior to admission of Dutch secondary education. In the Netherlands, these low-achieving students are enrolled in the two lowest tracks of prevocational secondary education. The sample in grade 7 involved 63 students (36

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7 Regular secondary education in the Netherlands is divided into three tracks: prevocational secondary education (VMBO), senior general secondary education (HAVO), and pre-university education (VWO). Prevocational education is further divided into four tracks: the basic vocational program, the middle-management vocational program, the combined program, and the theoretical program (Ministry of Education, Culture and Science, 2006).
boys and 27 girls) recruited out of 10 classes from 9 different ethnically mixed schools in the lowest tracks of secondary prevocational education. In grade 7, the students were between 12 and 14 years old ($M=14.7$). Of the sample in grade 7, 32 students were native speakers of Dutch; the other 31 students were non-native speakers of Dutch having various ethnic-linguistic backgrounds. Students diagnosed with a learning or behavioral disorder (e.g. dyslexia, ADHD), were excluded from our sample in order to ascertain that differences in writing development were not related to specific learning or behavioral disorders. In every class 6 to 7 students were selected. Due to attrition (e.g. illness, moving, problems at home or school), the number of participating students decreased in the course of our study. On the other hand, because of mobility of students, the number of classes and schools involved in the study increased. Ultimately, the sample consisted of 52 students distributed over 28 classes and 11 schools in grade 9.

2.4.2 Measures

2.4.2.1 Writing proficiency
The writing proficiency test consisted of three writing assignments in which students were asked to write a text. Each assignment specified a realistic communicative task connected to young people’s daily lives. The selection of assignments was based upon a pretest among a group of students from the same population, containing more diverse writing assignments. Students commented on these assignments and the assignments that were received most positively were selected for the final test. The three assignments covered a range of text types (instructive, argumentative and narrative). In Assignment 1, students were asked to write a letter to two students from Belgium who were going to visit the Netherlands as part of an exchange program. Their task was to provide instructions on where to meet, what to bring, etcetera. In Assignment 2, students were asked to imagine they were taking part in a competition for which they were saving coupons on candy bar wrappers in order to receive two free cinema tickets. However, they were unable to find wrappers with coupons, even though the deadline had not passed. The assignment was to write a letter to the candy bar factory, arguing that it was not their fault they were not able to send the required number of coupons and convincing the recipient to send them the cinema tickets. In Assignment 3, students were asked to write a short sequel to a story they had read, with a given start end closing sentence.

Each assignment was rated by two independent raters using a primary trait scoring procedure (Lloyd-Jones, 1977). For each assignment, the central communicative objective – or primary trait – was formulated. On the basis of this
Writing proficiency and development

primary trait, a set of rating criteria were specified (e.g. ‘letter conventions’, ‘line of reasoning’, and ‘consistency with original story’). The raters had to use these criteria to assign each student a single score. To arrive at this score, raters were provided with a scale of five benchmark texts. This scale was developed in a separate session in which a sample of forty texts was rated by two independent raters, following a procedure based on Blok (1986) and adopted in Schoonen et al., 2011). The five scale points represented the 10th, 25th, 50th, 75th and 90th percentiles of these forty texts. The final interrater reliability of the scores was satisfactory: For Assignment 1, $r = .89, .82$, and .77 in grade 7, 8 and 9 respectively; for Assignment 2, $r = .88, .83$ and .75 in grade 7, 8 and 9 respectively; and for Assignment 3, $r = .88, .86$ and .75 in grade 7, 8 and 9, respectively. Across all three years, one rater remained the same in order to avoid differences in severity of rating and to make the ratings comparable over years.

Writing proficiency in every grade was represented by a sum score of the scores for assignment 1, 2 and 3 (grade 7 Cronbach $\alpha = .69$, grade 8 Cronbach $\alpha = .71$, grade 9 Cronbach $\alpha = .52$). Next, a sum score representing writing proficiency across grades 7 to 9 was computed. The reliability of this score was good (Cronbach $\alpha = .83$).

2.4.2.2 Engagement

Affective and cognitive engagement were measured using questionnaires. To assess affective engagement, an adapted version of the Attitude Scale towards English as school subject developed by the Dutch Institute of Testing (CITO) was used. For the purpose of this study, the questions were adapted to reading and writing. Half of the items concerned writing and half of the items concerned reading.

Three aspects of affective engagement were assessed (10 items for each aspect): 1) self-efficacy (e.g. “I am good at writing”), 2) intrinsic value (e.g. “I enjoy writing”), 3) utility value (e.g. “Writing proficiency is important to get a job”). Students were asked to indicate the extent to which the items referring to the three aspects of affective engagement applied to them on five point scales ($1$ = not at all true, $5$ = very true).

Two aspects of cognitive engagement were assessed: 1) reported effort (10 items from the above mentioned attitude questionnaire; e.g. “I exert additional effort to become a better writer”), and 2) reported self-regulative behavior in reading and writing (33 items). The strategies represent the self-regulatory activities generally distinguished in the literature: orientation, planning, monitoring, controlling, testing and evaluation. The writing items (17 items; e.g. “While I’m writing, I consider whether my audience will comprehend what I mean.”) were based on cognitive models for writing (Bereiter & Scardamalia, 1987; Hayes & Flower, 1980; Hayes, 1996), the reading items (16 items; e.g. “While I’m reading, I check whether I still comprehend what I’m reading.”) were based on previous research into metacognitive knowledge.
relevant for reading (Baker & Brown, 1984; Pressley & Afflerbach, 1995). Students were asked to indicate how often they apply a range of reading and writing strategies on a three-point scale (0=seldom to 2=frequently).

The internal consistencies of the five scales for affective and cognitive engagement were established in each grade (7 to 9). The internal consistencies were found to be adequate to good (.76< Cronbach’s alpha >.89). Next, for each of the five scales a sum score representing the scores across grades 7 to 9 was computed. The measures of affective and cognitive engagement have quite satisfactory reliabilities across grades (Cronbach’s alpha is .78 for Self-efficacy, .84 for Intrinsic value, and .75 for Utility value, 84 for Reported effort, 82 for Reported self-regulation).

To measure students’ behavioral engagement in classroom activities, real-time observations were conducted in regular lessons of Dutch language arts (LA) and lessons in social studies (SS). For each student, two lessons per subject per grade were observed, resulting in an average of 12 hours per student. During classroom observations, two aspects were coded every ninety seconds for every student in the sample (1 to 7 students per class). The first aspect coded was whether the lesson was directed at Literacy Activities (e.g. writing, metacognitive knowledge, vocabulary, grammar, spelling and punctuation). The second aspect coded was whether the target student was On-Task (e.g. working on a problem, answering a question, listening to the teacher or a classmate making an on-task contribution). Since the duration of lessons varied over schools, the observations time differed for individual students. Therefore we corrected the time-on-task scores for observation time by dividing the time that students spent in a particular literacy activity by the total time students were observed. Next, the time that students were on task in the particular literacy activity was multiplied with this quotient\(^8\). Across the 167 hours of real-time observation, 8 hours were coded simultaneously by two observers. This means that 267 segments of 1.5-min each were coded twice (5% of a total of 6.680 segments). To estimate inter-observer-reliabilities we calculated Cohen’s kappa. For Literacy Activities kappa was .89, for On-Task behavior kappa was .80. These reliabilities are sufficient for our research purposes. Next, sum scores representing behavioral engagement in language arts and social studies across grades 7 to 9 was computed. Low correlations between grades were found. However, given the situated nature of behavioral engagement in actual classroom behavior, this is not surprising and did not prevent us from averaging

\(^8\) An example of how the scores were corrected for observation time. Student 1’s time-on task in literacy activity = time observed: 50 minutes; time spent in literacy activity: 30 minutes; time on-task in literacy activity: 15 minutes = (30/50)*15 = 9 minutes. Student 2’s time on-task in literacy activity = time observed: 100 minutes; time spent in literacy activity: 30 minutes; time on-task in literacy activity: 15 minutes = (30/100)*15 = 4.5 minutes.
the scores over grades as an approximation of students’ being on task in literacy activities.

2.4.3 Procedure
The writing proficiency test was administered in the spring semester in each of the grades in two 45-min sessions. The questionnaires were administered in each of the three grades in the fall semester in one 45-min session. Finally, for each subject (DL and SS) in each grade one lesson in the fall semester and one lesson in the spring semester was observed. The writing proficiency test was conducted in students’ classrooms during the school day and administered by trained research assistants. The students’ teacher was always present to maintain order. The questionnaires were administered by trained research assistants in separate group sessions during the school day. Students’ questions were answered by the test leaders according to a standardized protocol.

2.4.4 Missing data
Of our dataset 8.7 % was missing due to attrition. EM estimation was used to estimate and impute the missing data on the dependent variable (writing proficiency). For the independent variables (indicators of engagement), we averaged the scores that were obtained through the grades. As a check, all analyses were conducted both with and without imputed missings. In all analyses the patterns were similar.

2.4.5 Statistical analyses
Because the 63 students taking part in this study originally were selected from 10 different classes from 9 different schools, we checked whether multi-level analyses were necessary by means of the program MLwiN (Rasbash et al., 2000). Results from the multi-level analyses showed that adding a class level to the student level did not result in a significant improvement of the model fit. Therefore, all analyses were carried out uni-level. First, means and standard deviations were computed for all variables for the whole sample. To examine the relationships with writing proficiency level, correlations and effect sizes were computed for all engagement variables with average writing proficiency in grades 7 to 9. Students’ development in writing proficiency was examined using GLM for repeated measures. Finally, for examining effects of engagement on writing proficiency development, we used writing proficiency obtained in grade 7 as covariate explaining writing proficiency in grade 9.

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9 If desired the results can be retrieved by the author.
10 School and class level practically coincide in this study, since 10 classes come from 9 different schools, so testing for a school level next to a class level is not feasible.
We did not use change scores to analyze development, since several studies have shown the regression approach to be superior (Allison, 1990; Pike, 2004; Senn, 2006; Tu, Gunnell & Gilthorpe, 2008). The effects of engagement on development were explored for each of the three time spans: grade 7 to 8, grade 8 to 9, and grade 7 to 9.

2.5 Results

2.5.1 Descriptive results

Table 2.1 Means (standard deviations) of the study variables (N=63)

<table>
<thead>
<tr>
<th>Scale</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-efficacy</td>
<td>3.85 (.50) a</td>
</tr>
<tr>
<td>Intrinsic value</td>
<td>3.00 (.72) a</td>
</tr>
<tr>
<td>Utility value</td>
<td>3.94 (.47) a</td>
</tr>
<tr>
<td>Reported effort</td>
<td>3.15 (.68) a</td>
</tr>
<tr>
<td>Reported self-regulation</td>
<td>1.00 (.26) a</td>
</tr>
<tr>
<td>Language arts</td>
<td></td>
</tr>
<tr>
<td>Time spent</td>
<td>40.4 (12.8) b</td>
</tr>
<tr>
<td>Time-on-task</td>
<td>32.1 (11.7) b</td>
</tr>
<tr>
<td>Social studies</td>
<td></td>
</tr>
<tr>
<td>Time spent</td>
<td>29.6 (15.5) b</td>
</tr>
<tr>
<td>Time-on-task</td>
<td>22.3 (10.4) b</td>
</tr>
<tr>
<td>Writing proficiency grade 7</td>
<td>234.7 (96.1)</td>
</tr>
<tr>
<td>Writing proficiency grade 8</td>
<td>270.0 (95.6)</td>
</tr>
<tr>
<td>Writing proficiency grade 9</td>
<td>294.3 (68.9)</td>
</tr>
</tbody>
</table>

a) These scales are calculated as the average of the average scores on the scales in each of the grades 7, 8 and 9.

b) These means are the average of the average time observed in two lessons in each of the grades 7, 8 and 9.

The means in Table 2.1 indicate that the students on average have quite some confidence in their literacy abilities and perceive literacy activities in school as quite useful. This is indicated by the average scores for self-efficacy and utility value, being close to 4 on the scale ranging from 1 (not at all) to 5 (very much). Furthermore, the means indicate that the students are neutral concerning their enjoyment of literacy activities; on average the scores for intrinsic value are just above the scale middle point. The means for reported effort and reported self-regulation indicate that students put some mental effort in literacy activities since both average scores are at (or very near to) the scale middle point. For reported effort this is defined by the two extremes: ‘not at all’ and ‘very much’. For self-regulation it is defined by the extremes: ‘sometimes’ and ‘very frequently’ (for executing specific strategies). With regard to
students’ behavioral engagement, the means indicate that more time was spent on literacy activities in language arts than in social studies. In addition, students were more on task in literacy activities in language arts on average (32.1 minutes) than in social studies (22.3 minutes). When time on task is divided by the time lessons were spend on literacy activities, the means show that students were on task 80% of the time in language arts and 75% of the time in social studies. The means for writing proficiency are based on the scaling procedure described in section 2.2. No absolute interpretation of their meaning is possible, since the scales were based on the range of writing competence found in the sample.

2.5.2 Writing proficiency
To answer the first research question, correlations were computed between students’ engagement and their average writing proficiency across grades 7 to 9 (M=266.8, SD=73.2). Results show that writing proficiency is significantly predicted by intrinsic value (r=.365, p<.025, r²=.13) and time-on-task in social studies (r=.302, p<.05, r²=.09). The r² indicates that 13 percent of the variance is explained by intrinsic value and that 9 percent of the variance is explained by time-on-task in social studies. The low r²’s point to weak associations between these aspects of engagement and writing proficiency. Contrary to the expectations, results show no significant correlations for self-efficacy, utility value, reported effort, reported self-regulation and time-on-task in language arts with writing proficiency of low-achieving adolescents.

2.5.3 Writing development
To answer the second research question, a repeated measures ANOVA was conducted with the scores for writing proficiency in grades 7-9 as dependent variable. The results show that students progressed in writing proficiency from grade 7 to 9 (F(2,124)=16.123, p<.001; partial η²=.206). Within subject contrasts (repeated) show that also the differences between grades 7 and 8 is significant (F(1,62)=16.60, p<.001; partial η²=.211). In addition, the difference between grade 8 and 9 is significant (F(1,62)=4.552, p<.05; partial η²=.037). The effect sizes indicate that growth in writing proficiency is especially strong from grade 7 to 8. But students improved in writing proficiency in each grade.

To answer the third research question, the associations of the engagement variables with growth in writing proficiency were analyzed separately by means of linear regression for three time spans (7-8, 8-9 and 7-9). Writing proficiency scores in the previous grades were entered first to control for students’ initial writing proficiency. For all time spans, the results show that the writing proficiency in previous grades predicted writing proficiency in the later grades significantly (7-8 r²=.53, p<.001; 8-9 r²=.23, p<.001; 7-9 r²=.17, p<.001). Next, the engagement variables were entered
into the regression separately to examine their contribution to the residual variance in writing proficiency. Results showed that none of the engagement variables to the regression models had a significant contribution to the explanation of writing development. To illustrate the findings Figure 2.1 shows the developmental patterns of students with higher and lower scores on three engagement variables based on a medium split. The left plot shows students with higher and lower intrinsic values and the right plot shows students with higher and lower reported self-regulation. The developmental patterns show no clear differences in steepness of the developmental slopes, but rather signal that more engaged students are more proficient in writing.

![Intrinsic value](image1)

![Reported self-regulation](image2)

*Figure 2.1. Writing development patterns of students with higher and lower intrinsic values (left) and reported self-regulation (right).*

### 2.6 Conclusions and discussion

Educational researchers are increasingly interested in understanding students’ engagement in the classroom as a way to increase academic achievement and learning (Appleton et al., 2008; Fredricks et al., 2004; Guthrie et al., 2012; Linnenbrink & Pintrich, 2003). The main objective of this study was to explore to what degree cognitive, affective and behavioral engagement in the classroom predict writing proficiency and its development in a group of low-achieving adolescents. The study showed that, although the adolescents in our study are low-achieving and perform below levels required in school and at the workplace, they still improve in writing proficiency in the first three grades of secondary education. Contrary to pessimistic views about writing development of low-achieving adolescents (cf. Graham & Perin, 2007; Inspectie van het Onderwijs, 2008; Salahu-Din, Persky & Miller, 2008), these findings are encouraging in the light of the importance of writing proficiency for youngsters’ academic, professional and societal careers.
Results of this study also show that intrinsic value as an indicator of affective engagement was positively associated with writing proficiency, while a relationship with writing development was not evident. Our findings relating to the role of intrinsic value may indicate that although it may have contributed to writing development of low-achieving adolescents at younger ages, the effect of intrinsic value on writing development diminishes in adolescence. Although all these students struggle with writing, it is possible that at a younger age some of them experienced more enjoyment leading to more writing and better proficiency. Other low achieving students possibly already at a young age developed more negative attitudes towards writing, leading to less writing and less growth in writing proficiency. As a result, the correlation between intrinsic value and writing proficiency still exists in adolescence, because of the differences in previous writing experiences, but the effect on writing development may decline over time. Students who experience difficulties with writing are likely to develop more negative beliefs about the value of activities which they associate with difficulties (Archambault, Eccles & Vida, 2010). The development of negative beliefs may be accompanied with a decrease in involvement in learning that is generally found in adolescence and is the strongest for low-achieving adolescents (Durik, Vida & Eccles, 2006; Eccles, Wigfield & Schiefele, 1998; Harter, Whitesell & Kowalski, 1992; Jacobs et al, 2002). As such, the positive effect of intrinsic values on writing activities and proficiency may decline for low-achieving adolescents in the course of their writing development.

For utility value, no significant associations were found with writing proficiency nor with writing development. These findings suggest that low-achieving adolescents perceptions of the usefulness of writing is independent of their writing proficiency level and development. Students in our study were quite convinced of the importance of writing for their current and future goals; they scored on average around 4 on a scale ranging from 1 to 5. It is possible that students who report that writing is highly useful primarily refer to writing for future use. In that case, they would not feel the need to develop skills directed to better writing of writing tasks at school. They might therefore be more focused on getting the job done than on writing texts of good quality. If their attitudes towards writing are defined in this way, it is not likely that they will develop skills for strategic and successful text writing. Frequent practice with effortful and strategic approaches is what low-achieving adolescents need to do in order to enhance their writing proficiency (Graham & Perin, 2007; Harris et al., 2009). Furthermore, research has shown that such quite abstract motives for literacy activities of adolescents (such as “writing is important”) often become overruled by reasons for not enacting literacy activities (such as “writing is boring” or “it is more fun to play games”) (Van Kruistum, Leseman & De Haan, in prep). In addition, future
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research should provide more insights in the role of undermining motivations, such as task avoidance, lack of control and task difficulty. Studies found, for example, that when students believe they are externally controlled in reading (feeling coerced) they are likely to find reading aversive and report high levels of work avoidance and other school activities (Guthrie et al., 2007; Guthrie, Coddington & Wigfield, 2009; Assor, Kaplan, Kanat-Maymon & Roth, 2005).

Contrary to what theories on self-efficacy presume (Bandura, 1997; Klassen, 2002; Pajares, 2003; Pajares & Valiante, 2006), no indications were found for the impact of self-efficacy on both writing proficiency and writing development. Although these findings are not in line with the theoretical assumptions, they do correspond, however, with findings from other longitudinal studies into the role of self-efficacy in the field of reading that did not find empirical evidence of effects of self-efficacy on reading development (Aunola, Nurmi, Niemi, Lerkkanen & Rasku-Puttonen, 2002; Chapman & Tumner, 1997; Guthrie et al., 2007; Retelsdorf et al., 2011). The fact that self-efficacy does not seem to be a predictor of writing development among low-achieving adolescents may be related to the high self-efficacy scores found in our sample; around 4 on a scale ranging from 1 to 5. High self-efficacy beliefs are often found for low-achieving students. They can be a coping strategy of low-achievers to persist in the face of difficulties and can be understood as an effective coping strategy (Klassen, 2002; Harris & Graham, 1992). They are also likely to be fostered by the learning environment. The low-achieving adolescents in our study are enrolled in a tracked school system in secondary education. As a consequence, these students are surrounded by a comparison group with equally low academic and writing skills. Moreover, literacy tasks are adapted to their abilities and their teachers are inclined to boost students’ confidence. In such a learning environment, low-achieving adolescents may find themselves quite competent in writing despite the fact that their writing is poor compared with students with higher academic skills. Consequently, students’ self-efficacy beliefs may not match their actual performance. At high levels of self-efficacy, students even may feel overconfident resulting in failure to allocate resources and effort and therefore may even retard instead of boost learning (Salomon, 1984; Sawyer, Graham & Harris, 1992). This may explain why low-achieving adolescents in this study did not become better writers when they felt more confident in their writing skills. It also may explain why no effect of self-efficacy was found on their writing proficiency level, if we assume that such overestimation of the low achieving students’ writing skills was also present before they entered the 7th grade.

Next to affective engagement, we also examined the impact of cognitive engagement on writing proficiency and development. For reported effort and reported self-regulation no significant relationships were found with writing proficiency nor with
writing development. Given the strong body of research demonstrating positive links between self-regulation and writing proficiency (Graham, 2006), these findings were unexpected. One explanation may be that low-achieving students have much difficulty with self-regulatory aspects of writing (Bereiter & Scardamalia, 1987; De Milliano et al., 2012; Englert et al., 1988). Therefore, more self-regulation may not necessarily result in better writing proficiency or in more progression over time. For the same reason, the expenditure of more effort does not have to result in better texts or more growth in writing proficiency. In addition, efficient self-regulation is task and situation-specific. Dependent on the topic and goal of a particular task, prior knowledge, motivation to succeed and linguistic and regulative skills, writers may apply more or less successful self-regulation (Zimmerman & Schunk, 1989). These difficulties may explain that general measures of students’ effort and self-regulation while writing are not related to writing proficiency of low-achieving adolescents.

Another explanation is related to the way we measured self-regulation by using self-reports. In previous research it is noted that respondents do not always do what they say they do in such general retrospective self-reports (Cromley & Azevedo, 2006; Veenman, Van Hout-Wolters & Afflerbach, 2006). Research that takes the online relation between self-regulatory behavior and specific tasks into account, such as think-aloud procedures, is therefore needed to validate our findings.

In regard to behavioral engagement, a positive relationship was found between writing proficiency and time-on-task in social studies lessons, but not with time-on-task in language arts lessons. These findings are consistent with the idea that effects of engagement are sensitive to variation in learning contexts (Appleton et al., 2008; Finn & Rock, 1997; Fredricks et al., 2004; Guthrie et al., 2012; Linnenbrink & Pintrich, 2003). Nevertheless, the difference found between the effects of engagement between the two learning contexts is striking and requires an explanation. First, we have to emphasize that the effect found for engagement in social studies is on the level of writing proficiency and not on growth in writing proficiency. Therefore, we can exclude that the association points to a causal relation between writing proficiency and the nature of the literacy activities in the two types of lessons (more skill oriented in language arts vs. more content oriented in social studies). In other words, if the relations were causal, we would expect that students being more engaged in literacy activities in social studies, would not per se be the ones with better writing proficiency, but would be the ones that grew more in writing proficiency across the grades 7-9. The results do indicate, however, that better writers are more engaged in social studies than poorer writers. Engagement theorists propose that choice for activities and persistence is determined by students’ self-beliefs and their capabilities. In the classroom, the choice and persistence in activities is quite limited, however, and
strongly determined by the opportunities teachers create for students to actually participate in performing literacy activities. For example during whole-class instruction or individualized tutoring there is less choice for students to be on-task or off-task, compared to settings such as individual seat work or group seat work (Cameron Ponitz et al., 2011). Therefore, the different associations may be related to the setting of writing practices (whole-class, individual seat work or group seat work). In-depth analyses of our observational data showed no significant differences between the subject domains. Literacy instruction in both subjects was dominated by individual seat work in which comparable levels of engagement were achieved. In addition, no relations were found between writing proficiency and level of behavioral engagement in one of the learning settings.

Consequently, it is more likely that the focus of activities is causing the different associations between engagement and writing proficiency. Literacy practices that are instrumental for obtaining knowledge about subject contents in the social studies may be more challenging and engaging for better writers than for the poorer writers in our classrooms, resulting in more time on task on such practices of the former group. However, the positive association between engagement in social studies and literacy proficiency does not directly point to instrumental literacy practices causing progression in writing proficiency. As explained above the direction of the relationship might be the reverse: more proficiency resulting in more engagement in instrumental literacy practices in social studies lessons. This explanation points to the premises of content-oriented language learning as proposed by the approaches of Content-Based Language Learning (Brinton et al., 1989; Bygate et al., 2001) and Concept-Oriented Reading Instruction (Guthrie & Wigfield, 2000; Guthrie et al., 2004). These approaches emphasize the importance of instrumental reading and writing experience for achieving higher levels of engagement.

The question remains why we were not able to detect associations between students’ level of behavioral engagement in the classroom and their writing development, while it seems likely that students who participate more in the learning opportunities offered, will benefit more from education (Pressley et al., 2001; Greenwood et al., 2002). On one hand, the fact that we did not find relations between behavioral engagement and growth in writing is quite disappointing, because it suggests that for the low-achieving students in our study it did not matter how much they were involved in literacy activities in language arts and social studies. Their on-task behavior did not affect their writing development in a significant way. However, the relationship between behavioral engagement at school and writing proficiency is also determined by the quality of students’ behavior and the quality of the learning environment. Although time-on-task behavior does inform us about the amount of
behavioral engagement, it does not tell us much about the quality of students writing and reading. Nor does time-on-task behavior provide good indications of the quality of the learning environment that students were engaged in. The nature and setting of literacy activities and behavior of teachers determine to what extent students benefit from instruction (Brekelmans, Sleegers & Fraser, 2000; Furrer & Skinner, 2003; Guthrie et al., 2012). Future research into behavioral engagement should therefore not only look at time-on-task behavior, but also focus on the nature of students’ behavioral engagement in relation to the nature of the learning environments.

This study suggests that the role of engagement for writing proficiency is different for low-achieving adolescents compared to what is known from earlier studies directed at more heterogeneous and younger students. Our findings show the value of research direct at focused samples, and directed at the specific situation of low-achieving adolescents in particular. In addition, the results suggest the need to explore the different dimensions (cognitive, affective and behavioral) of engagement to obtain a better understanding of its complex and dynamic nature as well as its consequences. More importantly, however, the findings underline the importance of distinguishing between writing proficiency level and development in examining relationships between engagement and academic achievement. This study has shown that for low-achieving adolescents significant relationships between writing proficiency and engagement were not accompanied by significant relationships between aspects of engagement and writing development. This finding calls for caution in interpreting correlations between proficiency and engagement in terms of consequences for students’ future writing development. Instead, the correlations between proficiency and engagement (intrinsic value and behavioral engagement) presumably provide information about students’ preceding writing development (in our case before grade 7). Such correlations may explain why some low-achieving adolescents are more proficient than others, but they do not tell us which students grow more in writing proficiency in the studied period of adolescence. We therefore call for more longitudinal studies into writing proficiency of writers of different ages and levels of proficiency covering the multiple dimensions of engagement and making an explicit distinction between proficiency level and development.

While we believe that this study makes a unique contribution to the field of writing engagement, we also acknowledge its limitations. First, the small sample size calls for caution. Given this small sample we were able to find only sizeable effects of engagement. We therefore cannot exclude that with a larger sample relatively small effects will be found. In addition, we recognize that our findings are not based on a representative sample of low-achieving adolescents and therefore cannot account for all the differences that might exist between their learning contexts (let alone
international educational systems). Replication of this study using other samples of low-achieving adolescents is needed to validate our findings. Furthermore, more research is needed into other indicators of engagement, such as perceived autonomy (Guthrie et al., 2007), mastery and performance goals, (Meece & Miller, 2001; Pintrich, 2000), undermining motivations (Guthrie et al., 2009) and social motivations (Furrer & Skinner, 2003; Guthrie et al., 2007). These aspects of engagement may as well contribute to low-achieving adolescents’ writing achievement. Finally, the relationship between engagement and competence is claimed to be reciprocal (Morgan & Fuchs, 2007). The design and analysis used in our study did not capture such reciprocal effects. They could be unraveled by experimental research designs in which engagement is optimized. Still, we believe that this explorative longitudinal study has made an important contribution to increasing our understanding of low-achieving adolescents’ writing development and the role of affective, cognitive and behavioral engagement.