

## Engagement with School in Students with Special Educational Needs

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### ABSTRACT

Student' engagement with school is a strong predictor of both positive and negative academic trajectories indicators. Students with Special Educational Needs (SEN) are at increased risk for experiencing cumulative academic-related difficulties which tends to have a negative significant impact on students' engagement with school. Although some studies have described parceled dimensions of school in students with SEN, studies examining both the individual and contextual dimensions involved in students' engagement with school are scarce. The objective of this study was to describe multidimensional engagement with school in students with and without SEN, and in students with different SEN. 388 students participated in this study (mean age 13.46;  $SD= 2.72$ ): 150 with SEN. Students with Attention Deficit and Hyperactivity did not differ from students without SEN; students with visual and neuromotor impairment registered higher scores on some cognitive and contextual indicators of engagement; and students with intellectual disability registered lower levels of cognitive and contextual indicators of engagement. These results have strong implications for educational policies and practices, specifically for the promotion of adaptive academic trajectories in students with SEN.

*Key words:* engagement with school, special educational needs, cognitive engagement, psychological engagement.

### *Novelty and Significance*

#### *What is already known about the topic?*

- Students with Special Educational Needs (SEN) are at increased risk for experiencing cumulative academic-related difficulties which tends to have a negative significant impact on students' engagement with school.
- Students' engagement with school encompasses both individual characteristics and contextual influences.
- The understanding of individual and contextual influences on engagement with school in students with SEN is limited.

#### *What this paper adds?*

- This study described the dimensions of cognitive engagement and of contextual support for learning (from Family, teachers and peers) in students with SEN.
- We found a tendency for students with SEN register higher levels of psychological engagement, lower levels of cognitive engagement, and differences on the several indicators of students' engagement with school as a function of the nature of the medical condition underlying the SEN.

Student' engagement with school is a strong predictor of both positive and negative academic trajectories indicators. As a consequence, it is been acknowledged in recent years as a phenomenon of great importance for the understanding of academic trajectories. Low school engagement is a strong risk factor for maladaptive outcomes, from poor academic performance and school dropout, to disruptive and anti-social behaviors (Bryant, Schulenberg, O'Malley, Bachman, & Johnston, 2003; Chen, 2005; Caraway, Tucker, Reinke, & Hall, 2003; McNeeley, Nonnemaker, & Blum, 2002;

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Wang & Eccles, 2012). As a consequence, there is an increasing interest in designing interventions promoting student engagement as it constitutes a key to success at school (Gillies, Wilson, Soden, Gray, & McQueen, 2010), helps reducing behavioral problems (Simon-Morton & Chen, 2009) and contributes to the conceptualization and prevention of the dropout phenomenon (Landis & Reschly, 2013; Lawson & Lawson, 2013; Perdue, Manzeske, & Estell, 2009).

School engagement refers to the students' level of involvement, connectedness bonding and commitment to school as well as motivation to learn and to achieve (Jimerson, Campos, & Greif, 2003; Skinner, Pappas, & Davis, 2005; Gonzalez-DeHass, Willems, & Holbein, 2005). It is an indicator of the quality of effort devoted by students to educationally purposeful activities in order to achieve desired outcomes (Hu & Kuh, 2002). School engagement is a multidimensional construct (Fredricks, Blumenfeld, & Paris, 2004; Perry, 2008) including contextual, behavioral, emotional, and cognitive components, but a consensus about the number and the type of dimensions is still to be achieved.

However, a common feature of the several frameworks to students' engagement is the notion that engagement is a psychosocial process, resulting from the interaction between individual and contextual factors (Fredricks, Blumenfeld, & Paris, 2004). On the one hand, individual dispositional characteristics (such as personality), and psychological states (e.g. wellbeing) constitute the basis for the experiences towards school. On the other hand, contextual factors (e.g. family and school characteristics), exert a significant influence on the organization of psychological organizations underlying students engagement with school (Moreira, Oliveira, Cloninger, *et al.*, 2012; Moreira, Jacinto, Pinheiro, *et al.*, 2013). As revealed by recent longitudinal studies, family and school characteristics exert a significant influence on the changes of engagement over time (Wang & Eccles, 2012). Specifically, classroom environment (organization, visual stimuli and acoustic conditions) (Guardino & Antia, 2012), and school characteristics (including good school environment, and with a positive social and academic organization) are facilitators of students positive experiences towards school (Moreira *et al.*, 2015; Moreira, Oliveira, Dias, *et al.*, 2014; NRCIM, 2004; Wang & Eccles, 2012; Wang & Eccles, 2013)

Students' engagement with school is an interactive process, with interactionist perspectives conceptualizing engagement as a result of the degree to which school meet students psychological needs. In order to reach their full potential, students need that context offer the necessary conditions so that their psychological needs of autonomy, relatedness and competence are met (Deci & Ryan, 2010). As it is posit by several frameworks, individual characteristics interact with contextual dimensions in the shaping of psychological states, such as subjective experiences towards school (Bronfennbrenner, 2005; Higgins, 2006; Stephens, Markus, & Fryberg, 2012).

The relevance of a good fit between individual and contextual characteristics is a challenge that educational system face transversally to all students. However, it is even more challenging in the cases of students who present additional and specific needs, as a consequence of their medical condition, such as students presenting Special Educational Needs (SEN). Students presenting a SEN need that the context is able of offering them the needed conditions to reach their full potential, regardless of their

medical condition. Because the available contextual conditions that may be adequate for meeting psychological needs for the typical students may not be suitable for meeting the specific needs of students presenting SEN, an effective approach to the promotion of adaptive academic trajectories of students presenting SEN requires an adequate understanding of the several dimensions involved in their experiences with school.

On the one hand, and in terms of academic outcomes, there is a robust amount of evidences that students with SEN tend to register lower scores on school performance standardized tests, suggesting deficits on the core academic skills. In turn, this becomes a risk factor for future poor academic performance, as the academic work becomes more demanding and complex (Blackorby & Cameto, 2004). On the other hand, although most students with disabilities enjoy school, are motivated to schooling, engage in classroom activities (Blackorby & Cameto, 2004), a fully understanding of the specificities of the school engagement on SEN using multidimensional frameworks requires for additional research.

Students with SEN can experience negative developmental outcomes on several domains, including motor and cognitive dimensions, language and communication, difficulties on behavior and emotional control and social skills or learning disabilities. These characteristics constraint learning processes, they influence several types of outcomes, and therefore exert a substantial influence on trajectories of school engagement, and ultimately they lead to developmental paths associated to dropout (Janosz, Archambault, Morizot, & Pagani, 2008). School context imposes demands and challenges: in behavior (e.g. to follow rules; to wait for its turn); in academic tasks (e.g. understanding new concepts, problem solving) and in social interactions (e.g. group entry and belonging and conflicts) that require emotional and behavior self-regulation. SEN frequently have additional difficulties on these dimensions which place them at increased risk for poor school outcomes (Eisenhower, Baker, & Blacher, 2007). Students with disabilities experience restrictions to participation in school activities (Eriksson & Granlund, 2004; Eriksson, Welander, & Granlund, 2007), and experience lower levels of wellbeing (Moreira *et al.*, 2015). Namely, students with SEN who receive educational services in inclusive classrooms are more likely to show chronic disengagement, specifically in tasks requiring independent work (Rock, 2005). This is due to difficulties such as diverse cognitive abilities, multiple and varied instructional needs, academic performance bellow (or above, if gifted) their same-age peer group (Friend & Bursuck, 1999), cooperation, assertion and self-control levels above the national normative levels, in contrast with high scores for externalizing behavior problems, hyperactivity and inattention (Gresham, MacMillan, & Bocian, 1996), combined with the provision of largely undifferentiated instruction (McIntosh, Vaughn, Schumm, Hagger, & Lee, 1993).

In recent years, there is been a growing interest by school engagement in students with SEN, and some feature of engagement have been described in students medical conditions. However, these studies present mixed results, with some studies reporting lower levels of engagement in SEN, and others have reported no substantial differences on engagement between students with and without SEN. A group of studies found lower levels of engagement in students presenting Attention Deficit and Hyperactivity Disorder (ADHD), neuromotor impairments and Intellectual Disability. Students with

ADHD revealed lower levels of academic and behavior engagement due to symptoms of inattention (incomplete task assignment, off-task behavior in class, failure to listen to task instruction; shifting activities too often) and impulsivity (failure to inhibit responses, resulting in academic errors; poor planning; irregular study for tests) (Raggi & Chronis, 2006; Junod, DuPaul, Jitendra, Volpe, & Cleary, 2006). Students with neuromotor impairments (e.g. cerebral palsy), showed low levels of participation in classroom, varying in degree accordingly to the type of neuromotor condition (Schenker, Coster, & Parush, 2005). In students with intellectual and developmental disabilities, small-group or one-to-one instruction and proximity of regular or special education teacher seems to increase their typically lower academic engagement (Carter, Sisco, Brown, Brickham, & Al-Khabbaz, 2008). Another group of studies found tendencies for equivalence on school engagement in students with and without SEN. Students with visual impairment revealed moderate academic engagement (Bardin & Lewis, 2008), and comparisons between students with and without disabilities in the context of inclusive schools revealed no differences in academic engagement and behavior engagement (Wallace, Anderson, Bartholomay, & Hupp, 2002).

There are several reasons for these mixed results, from conceptual to methodological questions. From a conceptual point of view, these different studies conceptualized engagement also differently, ranging from an emphasis on behavioral to cognitive indicators of engagement. In fact, and similarly to what happens to students without SEN, a current challenge on students engagement research is the clarification of the equivalence of concepts and constructs. The integration of the findings coming from different studies requires the use of equivalent or at least comparable frameworks, the research findings may be meaningful both for theory and for educational policies and practices.

Although there are several frameworks to students' engagement with school, there is a consensus that engagement encompasses two basic features: individual and contextual characteristics. Therefore, we adopted the framework of Appleton, Christenson, Kim, & Reschly (2006) for describing school engagement in students with and without SEN. These authors developed the *Student Engagement Instrument* (SEI; Appleton *et al.*, 2006) which captures two major dimensions: Cognitive and Psychological engagement. Cognitive engagement refers to individual cognitive dimensions involved in students' experiences with school, including Future aspirations and goals, Control and relevance of school work, and Intrinsic motivation. Psychological engagement, also called by Affective engagement, captures the support for learning students receive from their parents, teachers and peers, throughout three subscales: Family support for Learning, Peers support for learning and Family support for learning.

By making this option, we are assuming that we are describing the two higher order dimensions underlying school engagement: individual and contextual characteristics. Although this framework is not informative about the variants of the individual dimensions (such as emotional states, etc.), it has the advantage of capturing universal and consensual features of students engagement with school. By doing so, this study will contribute to an integrative understanding of students engagement with school, allowing for direct comparisons between groups of students.

The objective of this study was to describe the cognitive and contextual dimensions of school engagement in students with and without Special Educational Needs. In this study we tested the hypotheses that students with and without SEN needs would differ in terms of individual and contextual dimensions of engagement with school.

## METHOD

### *Participants*

388 students participated in this study, 150 students with Special Educational Needs. Participants were attending regular schools (mass education schools). Those schools had special education teachers. We have no specific information about the Social Economic Status of each participant. However, these participants were attending regular schools, where students of different SES were nested. Therefore, it is very likely that our sample's distribution in terms of their SES was similar to the one of the regular Portuguese schools.

### *Instruments*

- *Participants understanding.* In order to assess the participants' ability to understanding the items content and the 5-point Likert scale, a pre-test was made to all participants. We implemented the methodology developed by Cummins and Lau (2004, 2005) for the assessment of the readiness of participants to understanding and answering to Likert-scale format self-report measures. This methodology consists in a set of exercises that assess the participant ability to understand the several components involved in items understanding and rating. This procedure was specifically designed to assess individuals with intellectual disabilities and their ability to answer to liker-scale items, and consequently to assess if the participants had the understanding skills needed to the use of Likert scales. The procedure consists in a sequence of steps implemented with resource to pictures and drawings, which become more complex, from a) the initial recognition of the emotional valence of two dichotomic facial expressions (for example, like or dislike), b) the progressive introduction of faces with mid-term emotional valences (for example, neither like neither dislike), to the association of the images to the items contents. The procedure was adapted to the Portuguese population, in accordance and with permission of authors. For a fully description of these procedures, please refer to Cummins and Lau (2004, 2005).
- *Student Engagement Instrument (SEI)* (Appleton, Christenson, Kim, & Reschly, 2006). The Portuguese version was used to assess school engagement. This is a multidimensional scale, assessing two main dimensions: i) cognitive engagement and ii) psychological engagement. The scale of cognitive school engagement assesses self-regulation, relevance of school work for the future, personal goals and autonomy. Three subscales compose it: a) control and relevance of school work; b) future ambitions and goals; and c) intrinsic motivation. The scale of psychological engagement assesses relational influences over students' experiences with school. It is composed by the subscales: a) Teachers support for learning; b) family support for learning; and c) peers support for learning. The whole scale has 35 items, answered through a likert scale from: 1 (totally in disagreement) to 4 (totally in agreement). The adaptation of SEI to Portugal revealed good psychometric characteristics, namely regarding reliability (Cronbach's

alpha of .84, varying from .64 in the subscale “future ambitions and goals” and .79 in the subscale “teacher-student relations” (Moreira *et al.*, 2009).

### Procedure

After obtaining the authorization from the school boards and from the legal representatives of the students we applied the Portuguese Version of School engagement Instrument (SEI) to students. The application of the instrument occurred in the classroom, with supervision from the regular teacher or the special education teacher. The anonymity was guarantee. The criteria to select the sample were: a) being supported by special education services, accordingly to Decreto-Lei 3/2008 of January 7th; b) age between 6 to 20 years old; and c) single diagnostic -each student should have only one health problem; those with more than one problem were excluded.

### Data Analysis

Data were analyzed with the software SPSS, version 19.0. Non-parametric tests were used in order to compare students with different medical conditions.

## RESULTS

The mean age of the entire sample was 13.46 years ( $SD= 2.722$ ). The students with SEN had visual impairment (VI;  $n= 29$ ; age range= 10-20; mean age= 13.59;  $SD= 3.168$ ), intellectual disability (ID;  $n= 95$ ; age range= 7-17;  $M= 12.73$ ;  $SD= 2.263$ ), attention deficit and hyperactivity disorder (ADHD;  $n= 12$ ; age range= 7-18;  $M= 13$ ;  $SD= 2.796$ ), and neuromotor impairment (NI;  $n= 14$ ; age range= 10-18;  $M= 14.21$ ;  $SD= 2.60$ ). Students without SEN were between 7 and 20 years old ( $M= 13.77$ ;  $SD= 2.781$ ).

Table 1 presents the descriptives of cognitive and psychological engagement’s dimensions, as well as of their respective sub-dimensions. Students with visual impairment and students with neuromotor impairment showed higher school engagement (total score). Cognitive engagement was higher in visual and neuromotor impairment conditions in comparison with other conditions. Psychological engagement (support for learning from

Table 1. Descriptives of cognitive and psychological engagement.

| Dimensions                    | Students with VI<br>( $n= 29$ ) |           | Students with<br>ADHD ( $n= 12$ ) |           | Students with<br>ID ( $n= 95$ ) |           | Students with NI<br>( $n= 14$ ) |           | Students without<br>SEN ( $n= 238$ ) |           |
|-------------------------------|---------------------------------|-----------|-----------------------------------|-----------|---------------------------------|-----------|---------------------------------|-----------|--------------------------------------|-----------|
|                               | <i>M</i>                        | <i>SD</i> | <i>M</i>                          | <i>SD</i> | <i>M</i>                        | <i>SD</i> | <i>M</i>                        | <i>SD</i> | <i>M</i>                             | <i>SD</i> |
| Total engagement              | 117.9                           | 14.63     | 112.2                             | 11.08     | 111.5                           | 14.68     | 120.0                           | 10.96     | 114.8                                | 11.99     |
| Cognitive engagement          | 53.1                            | 7.9       | 51.0                              | 5.80      | 50.5                            | 6.56      | 54.9                            | 4.90      | 53.1                                 | 5.70      |
| Intrinsic motivation          | 7.4                             | .818      | 5.7                               | 1.78      | 5.4                             | 2.01      | 6.1                             | 2.24      | 6.54                                 | 1.54      |
| Control of school work        | 28.7                            | 4.862     | 28.7                              | 2.87      | 28.8                            | 4.59      | 31.1                            | 3.45      | 29.1                                 | 3.77      |
| Future ambitions and goals    | 16.9                            | 2.957     | 16.6                              | 2.16      | 16.3                            | 2.67      | 17.7                            | 2.05      | 17.5                                 | 2.09      |
| Psychological engagement      | 64.8                            | 7.955     | 61.2                              | 5.98      | 61.0                            | 9.07      | 65.1                            | 7.31      | 61.7                                 | 7.10      |
| Family support for learning   | 14.5                            | 1.956     | 13.6                              | 1.98      | 13.1                            | 2.51      | 14.5                            | 1.63      | 14.2                                 | 1.83      |
| Teachers support for learning | 31.0                            | 3.941     | 28.7                              | 3.61      | 28.8                            | 4.69      | 30.6                            | 3.45      | 28.5                                 | 3.81      |
| Peers support for learning    | 19.3                            | 3.235     | 18.9                              | 3.03      | 19.0                            | 3.49      | 20.0                            | 2.66      | 18.98                                | 2.72      |

Notes: \*= $p \leq .05$ ; VI= Visual Impairment; ADHD= Attention Deficit and Hyperactivity Disorder; ID= Intellectual Disability; NI= Neuromotor Impairment.

family, teachers and peers) was higher in students with visual impairment and in students with neuromotor impairments than in other students including students without SEN. Teacher support for learning was higher in students with visual impairment and peer support for learning was higher in students with neuromotor impairment.

Reversely, students with intellectual disability revealed the lowest scores on every dimension of school engagement. Table 2 describes dimensions and subdimensions of engagement in students presenting visual impairment and in students without SEN.

There were statistically significant differences between students with visual impairment and students without SEN in intrinsic motivation, psychological engagement and teachers support for learning. These dimensions registered higher scores in students with visual impairment than in students without SEN.

Table 2. Dimensions and sub-dimensions of engagement with school in students with VI and students without SEN.

| Dimensions                    | Students with VI (n= 29) |              | Students without SEN (n= 238) |              | U      | Z      | p     |
|-------------------------------|--------------------------|--------------|-------------------------------|--------------|--------|--------|-------|
|                               | Mean rank                | Sum of ranks | Mean rank                     | Sum of ranks |        |        |       |
| Total engagement              | 150.3                    | 4359.5       | 132.0                         | 31418.5      | 2977.5 | -1.207 | .227  |
| Cognitive engagement          | 136.5                    | 3957.5       | 133.7                         | 31820.5      | 3379.5 | -.182  | .855  |
| Intrinsic motivation          | 171.8                    | 4982.0       | 129.4                         | 30796.0      | 2355.0 | -2.921 | .003* |
| Control of school work        | 129.6                    | 3757.0       | 134.5                         | 32021.0      | 3322.0 | -.329  | .742  |
| Future ambitions and goals    | 124.4                    | 3608.0       | 135.2                         | 32170.0      | 3173.0 | -.716  | .474  |
| Psychological engagement      | 165.3                    | 4794.5       | 130.2                         | 30983.5      | 2542.5 | -2.316 | .021* |
| Family support for learning   | 151.4                    | 4391.5       | 131.9                         | 31386.5      | 2945.5 | -1.320 | .187  |
| Teachers support for learning | 151.4                    | 4391.5       | 131.9                         | 31386.5      | 2104.5 | -3.438 | .001* |
| Peers support for learning    | 144.3                    | 4184.5       | 132.8                         | 31593.5      | 3152.5 | -.765  | .445  |

Notes: \*= $p \leq .05$ ; VI= Visual Impairment.

No significant differences in school engagement were found between students with ADHD and students without SEN (Table 3). Nevertheless, generally, students with ADHD, reveal lower scores in all dimensions of school engagement. Table 4 displays the comparison between students with intellectual disability and students without SEN. There were significant differences in cognitive engagement, intrinsic motivation, future aspirations and goals and family support for learning between students with intellectual disabilities and students without SEN. Students with intellectual disabilities registered lower scores in these dimensions and sub-dimensions.

Table 5 presents the comparison between students with neuromotor impairment and students without SEN.

Table 3. Dimensions and sub-dimensions of engagement with school in students with ADHD and students without SEN.

| Dimensions                    | Students with ADHD (n= 12) |              | Students without SEN (n= 238) |              | U      | Z      | p    |
|-------------------------------|----------------------------|--------------|-------------------------------|--------------|--------|--------|------|
|                               | Mean rank                  | Sum of ranks | Mean rank                     | Sum of ranks |        |        |      |
| Total engagement              | 105.5                      | 1265.5       | 126.5                         | 30109.5      | 1187.5 | -.985  | .325 |
| Cognitive engagement          | 95.8                       | 1150.0       | 127.0                         | 30225.0      | 1072.0 | -1.458 | .145 |
| Intrinsic motivation          | 87.3                       | 1047.5       | 127.4                         | 30327.5      | 969.5  | -1.945 | .052 |
| Control of school work        | 120.3                      | 1444.0       | 125.8                         | 29931.0      | 1366.0 | -.254  | .799 |
| Future ambitions and goals    | 96.7                       | 1160.5       | 127.0                         | 30214.5      | 1082.5 | -1.428 | .153 |
| Psychological engagement      | 118.0                      | 1416.0       | 125.9                         | 29959.0      | 1338.0 | -0.369 | .712 |
| Family support for learning   | 102.2                      | 1226.5       | 126.7                         | 30148.5      | 1148.5 | -1.168 | .243 |
| Teachers support for learning | 130.1                      | 1561.0       | 125.3                         | 29814.0      | 1373.0 | -.226  | .821 |
| Peers support for learning    | 120.8                      | 1449.5       | 125.7                         | 29925.5      | 1371.5 | -.232  | .816 |

Notes: \*= $p \leq .05$ ; ADHD= Attention Deficit and Hyperactivity Disorder.

Table 4. Dimensions and sub-dimensions of engagement with school in students with ID and students without SEN.

| Dimensions                    | Students with ID (n= 95) |              | Students without SEN (n= 238) |              | U       | Z      | p     |
|-------------------------------|--------------------------|--------------|-------------------------------|--------------|---------|--------|-------|
|                               | Mean rank                | Sum of ranks | Mean rank                     | Sum of ranks |         |        |       |
| Total engagement              | 150.9                    | 14335.0      | 173.4                         | 41276.0      | 9775.0  | -1.930 | .054  |
| Cognitive engagement          | 139.7                    | 13269.0      | 177.9                         | 42342.0      | 8709.0  | -3.276 | .001* |
| Intrinsic motivation          | 126.5                    | 12017.0      | 183.2                         | 43594.0      | 7475.0  | -4.986 | .000* |
| Control of school work        | 165.2                    | 15691.5      | 167.7                         | 39919.5      | 11131.5 | -.219  | .826  |
| Future ambitions and goals    | 135.7                    | 12888.5      | 179.5                         | 42722.5      | 8328.5  | -3.783 | .000* |
| Psychological engagement      | 160.8                    | 15273.5      | 169.5                         | 40337.5      | 10713.5 | -.746  | .456  |
| Family support for learning   | 137.7                    | 13084.0      | 178.7                         | 42527.0      | 8524.0  | -3.568 | .000* |
| Teachers support for learning | 173.8                    | 16512.0      | 164.3                         | 39099.0      | 10658.0 | -.818  | .414  |
| Peers support for learning    | 172.3                    | 16364.0      | 164.9                         | 39247.0      | 10806.0 | -.632  | .527  |

Notes: \* =  $p \leq .05$ ; ID= Intellectual Disability.

Table 5. Dimensions and sub-dimensions of engagement with school in students with NI and students without SEN.

| Dimensions                    | Students with NI (n= 14) |              | Students without SEN (n= 238) |              | U      | Z      | p     |
|-------------------------------|--------------------------|--------------|-------------------------------|--------------|--------|--------|-------|
|                               | Mean rank                | Sum of ranks | Mean rank                     | Sum of ranks |        |        |       |
| Total engagement              | 157.1                    | 2199.0       | 124.7                         | 29679.0      | 1238.0 | -1.616 | .106  |
| Cognitive engagement          | 144.9                    | 2029.0       | 125.4                         | 29849.0      | 1408.0 | -.975  | .330  |
| Intrinsic motivation          | 118.2                    | 1654.5       | 127.0                         | 30223.5      | 1549.5 | -.457  | .647  |
| Control of school work        | 164.8                    | 2306.5       | 124.3                         | 29571.5      | 1130.5 | -2.026 | .043* |
| Future ambitions and goals    | 132.7                    | 1857.5       | 126.1                         | 30020.5      | 1579.5 | -.330  | .741  |
| Psychological engagement      | 160.3                    | 2244.0       | 124.5                         | 29634.0      | 1193.0 | -1.787 | .074  |
| Family support for learning   | 134.5                    | 1883.5       | 126.0                         | 29994.5      | 1553.5 | -.434  | .664  |
| Teachers support for learning | 169.1                    | 2367.0       | 124.0                         | 29511.0      | 1070.0 | -2.255 | .024* |
| Peers support for learning    | 156.2                    | 2186.5       | 124.8                         | 29691.5      | 1250.5 | -1.576 | .115  |

Notes: \* =  $p \leq .05$ ; NI= Neuromotor Impairment.

Statistically significant differences were found between students with neuromotor impairment and students without SEN regarding control and relevance of school work and teachers support for learning.

## DISCUSSION

The objective of this study was to describe cognitive and contextual features of students' engagement with school in students with and without SEN. Results revealed that within the group of students with SEN, different paths and trajectories of school engagement are possible. While students with intellectual and developmental disabilities revealed low levels of global school engagement and in each of its' components, students with visual impairment and neuromotor impairment showed higher levels of school engagement, even in comparison with students without SEN.

The Teachers support for learning stands in these two last groups of students with SEN (visual impairment and neuromotor impairment) as a common ground for school engagement. In fact, instructional factors contribute to student outcomes and to the inclusion of students with special needs (Jordan & Stanovich, 2001). It is not enough to be physically present within classroom; students with disabilities must be actively engaged in the same learning opportunities as their classmates (Wehmeyer, Lattin, Lapp-Rincker, & Agran, 2003; Carter & Kennedy, 2006). Teacher-student interactions have a major role in the promotion of equal learning opportunities. When teachers are autonomy supportive, students reveal greater conceptual understanding, better academic



performance (Boggiano, Flink, Shields, Seelbach, & Barrett, 1993) and low levels of dropout (Vallerand, Fortier, & Guay, 1997), because these teachers act as facilitators who involve and satisfy psychological needs of students during instruction and create opportunities to develop intrinsic motivation for learning (Reeve, Jang, Carrell, Jeon, & Barch, 2004). These attitudes can explain the results obtained by students with visual and neuromotor impairment in teacher-students interactions. These students usually have problems with autonomy, namely in mobility and daily activities (Stelmack, 2001; Ghedini, Mancini, & Brandão, 2010; Schenker, Coster, & Parush, 2005). Reinforcement of autonomy in a supportive context can promote feelings of efficacy that maintain the levels of intrinsic motivation.

The perceptions and beliefs that teachers have about their learning and teaching (including their skills for promoting social-emotional components of learning) are important components of teachers' practices (Moreira, Pinheiro, Gomes, Cotter, & Ferreira, 2013). Teachers who attribute the students' learning difficulties to problems inherent to students may promote less cognitive engagement on their students than those who attribute to themselves the responsibility for academic success of their students. For example, teachers who perceive themselves as also responsible for their students' academic success tend to support and challenge more their students, and to give more instructions to students with disabilities (Jordan & Stanovich, 2001). We found in this study that students with visual impairment and students with neuromotor impairment reported higher levels of intrinsic motivation and of control and relevance of school work, respectively, than students without SEN. These results suggest that students with visual impairment are more intrinsically motivated in their investment and engagement with school than students without SEN. Similarly, students with neuromotor impairment have reported to have more control over the school work and have considered the school work more relevant than students without SEN. These results suggest that students with these two conditions have cognitive organizations in which schooling is intrinsically rewarding (in the case of VI) and in which the school work is extremely important (in the case of NI). Additionally, students with VI and NI reported higher levels of teachers' support for learning than students without SEN. These results reflect the effective support for learning which they feel from their teachers. Not surprisingly, teachers may perceive students with visual and neuromotor impairment as requiring more support, as the impact of the medical conditions on these students' psychosocial functioning may be more explicit than it is in other conditions. As a consequence, teachers may be more responsive and more supportive to these students, because they may perceive the need for support as more evident.

Students with Intellectual and (ID) reported lower scores in several aspects of engagement with school: intrinsic motivation, future aspirations and goals, cognitive engagement and parental support for learning. These results suggest that students with ID have lower future academic goals, they perceive school work as less relevant and have less control over the school work than students without SEN. In turn, low cognitive engagement is strongly associated with poor academic trajectories. This helps to understand why parents of students with ID have special concerns about their children's vocational options, future residential environments, social networks, and needs for

assistance (Hanley-Maxwell, Molfenter, & Maxwell, 2014; Kraemer & Blacher, 2001). But students with ID also reported lower levels of support for learning from their parents than the other students. It is a fact that students with more supportive adults in their lives reveal higher levels of engagement with school, including on cognitive dimensions (Wooley, Kol, & Bowen, 2007). Although cause-effect relations between family support for learning and students engagement with school have been reported by research, these associations are not linear. In fact, in the case of students with ID, the dynamics between the support for learning that students receive from their family, teachers and peers' and students' engagement with school are more complex. Although parent's expectations predict school processes and outcomes as well as levels of autonomy also in students with disabilities (Doren, Gau, & Lindstrom, 2012), parents' support for learning is also influenced by students characteristics (Harris & Goodal, 2008). Therefore, parents may modulate their investment on supporting their children's curriculum-oriented learning accordingly to their perceptions about their children's cognitive abilities -which tend to be confirmed by previous feed-back from grades and academic performance. These complex relations between expectancies, outcomes and motivation highlight the need for ecological frameworks embedding interventions related to school engagement, school dropout and school completion.

Students with ADHD reveal problems in behavior and emotional control and regulation (Barkley, 2010). The way the parents interact with their children with ADHD can influence those difficulties in regulation, having reciprocal and recursive effects in families (Granic & Patterson, 2006). Parental support for learning may be more challenging amongst students with ADHD, as these students are more likely to be disorganized with the material necessary to do homework and they need more prompts and commands to get to work (Fabiano, 2007). Nevertheless, no statistically significant differences were found between students with ADHD and students without SEN.

The peers support for learning reported by students with SEN was similar to the one reported by students without SEN. Peer support strategies enhance student's academic engagement within general curriculum (Carter & Kennedy, 2006). It also promotes higher levels of active engagement in students with severe disabilities (Carter, Cushing, Clark, & Kennedy, 2005). The familiarity with disability also promotes more positive attitudes of peers towards difference, which favor the sense of belonging and, consequently, school engagement (Sinclair, Christenson, Lehr, & Anderson, 2003). The promotion of positive engagement of students with SEN can't be seen separately from other functioning domains (Moreira, Dias, Vaz & Vaz, 2013), such as wellbeing (Moreira, Cloninger, Dinis, *et al.*, 2014). In fact, schools are able of creating the needed conditions for improving engagement for all students, and this can be done by combining interventions aiming the development of both individual strengths such as positive socio-emotional functioning (Moreira, Crusellas, Sá, Gomes, & Matias, 2010; Moreira, Jacinto, Pinheiro, *et al.*, 2014) and contextual conditions for engagement (Moreira, Oliveira, Dias, Vaz, & Torres-Oliveira, 2014).

Students with Special Educational Needs reveal more restrictions to participation in school and classroom activities than other students (Eriksson & Granlund, 2004; Eriksson, Welander, & Granlund, 2007). These restrictions can contribute to the adoption

of trajectories of school engagement that lead to developmental paths of dropout (Janosz *et al.*, 2008). Policies, school practices, family and peers support can influence their levels of school engagement (Sinclair *et al.*, 2003).

The results suggest that different configurations of cognitive and contextual dimensions of engagement with school may be found amongst students with SEN. Students with some conditions (ADHD) did not differ from students without SEN; other students have reported higher scores on some cognitive and contextual indicators of engagement (students with VI and NI); and other students have reported lower levels of cognitive and contextual indicators of engagement (students with ID). This means that different patterns of cognitive and contextual dimensions of engagement exist amongst students with different medical conditions. These medical conditions imply substantive differences on these students' psychosocial functioning; they shape the psychosocial environment underlying students' daily experiences with school, and therefore, they have a marked impact on individual's experiences with school and with learning.

As a consequence, understanding engagement with school in students with SEN is a highly challenging quest, also because of the interactive and dynamic nature of engagement with schools.

This is relevant at two levels of analysis. On the one hand, the characteristics of some processes underlying students' engagement are substantively affected and modulated by the individual's medical condition (for example, blindness or neuromotor conditions interfere on the control of school work). On the other hand the nature of the interpersonal relations -and consequent interpersonal support for learning- tends to be affected by the medical condition.

In recent years, several longitudinal studies have attested for the causal association between contextual (family's support for learning, teacher's support for learning and peers' support for learning) and individual dimensions of engagement (behavioral, emotional and cognitive engagement) (e.g. Wang & Eccles, 2012, 2013). However, studies describing trajectories of engagement and changes in engagement over time, controlling for both individual (such as having a SEN) and contextual characteristics are scarce and highly needed.

Research has shown that in inclusive schools no differences exist on behavioral and academic engagement between students with and without SEN (Wallace *et al.*, 2002). This means that schools can play a significant role in ameliorating the negative impact that the medical conditions have on student's experiences with school and on academic-related outcomes. However, additional research is needed that clarifies the mediation role that having a SEN plays on the cause-effect associations between contextual support for learning and individual dimensions of engagement with school.

Although the relevance of the trends found in this study, this research presents some limitations. It would be more informative to have more specific characterization about both age and socio-economic status of the participants. However, and as displayed above, the trends found in this study are consistent which make these results of interest both for research and practice.

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