

Assessing students' engagement: A review of instruments with psychometric qualities

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Abstract

Framework: Students Engagement in School (SES) has been occupying a central position in the discussions regarding factors of academic success and school dropout. A considerable amount of literature on this concept exists. Although its conceptualization varies according to authors and the theoretical framework they have adopted, there is a wide agreement concerning its multidimensional nature. Key dimensions of students engagement in school (i.e., cognitive, affective, behavioral and, more recently, agentic) have been described and empirically validated. Purpose:

This study aimed to review the literature on assessment of students engagement in school through a focus on the psychometric characteristics of several instruments.

Methodology: The present paper focuses on self-report measures which are multidimensional. These instruments were validated on heterogeneous samples.

Results: Twelve self-report measures designed to measure the students engagement in school were referred, along with four other instruments targeting teachers' perspective as well as observational measures. **Conclusions:** Various measures stem from different theoretical perspectives and were developed with different types of samples. Conceptual variations often expressed in the number of dimensions considered and in items content variability suggest limitations when comparing psychometric findings of different studies. **Suggestions:** Studies on instruments we reviewed in the present paper suggest the need for further research on the multidimensionality of school engagement construct. Research should go beyond investigation of differential and predictive validity of measures. Thus, there is little evidence regarding the validity of engagement in school measures, when investigation of effects of specific intervention programs is aimed or validity of their use in quasi-experimental studies with useful applications in the field of education.

Keywords: Students engagement in school, self-report measures, measures based on teacher report, observational measures

1. Introduction

Engagement refers to the extent of a student's active involvement in a learning activity (Skinner, Kindermann, & Furrer, 2009) or in school more generally (Appleton, Christenson, & Furlong, 2008; Fredricks, Blumenfeld, & Paris, 2004). It is a multidimensional construct that consists of several distinct, yet highly intercorrelated, aspects of task or domain involvement. According to different engagement theorists, students' involvement ranges from effort, persistence, and prosocial classroom conduct (behavioral engagement) to high interest and enthusiasm with low anxiety and boredom (emotional engagement) to concentration, strategic thinking, sophisticated learning strategies and self-regulation (cognitive engagement) to intentional acts of agency to enrich one's experience with the learning activity, subject matter, or school experience (agentic engagement). Given its multidimensional character, careful attention needs to be paid to its assessment.

The assessment of students' engagement is characterized by both its importance and its variability. Assessing engagement is important because the extent and quality of students' engagement is a strong predictor of students' learning, achievement, and academic progress (Jang, Kim, & Reeve, 2012; Ladd & Dinella, 2009). Assessing engagement is characterized by variability because several instruments fall under a variety of perspectives and serve a diversity of purposes (Lam et al., *in press*; Skinner, Kindermann, & Furrer, 2008; Wang, Willet, & Eccles, 2011). Some educators and engagement theorists assess only a single aspect of engagement while others utilize a two-dimensional, three-dimensional, or four-dimensional assessment strategy. The validation studies samples consist of students from elementary school to college and university population. Some countries (e.g., USA, UK) have adopted large-scale surveys, such as the *High School Survey of Student Engagement* (HSSSE) which is administered every year to middle and high school students, the *National Survey of Student Engagement* (NSSE) or the *National Longitudinal Survey of Children and Youth* (NLSCY) which was initiated in 1994-1995 and collects information about the way children develop every two years (Norris, Pignal, & Lipps, 2003). However, it has been suggested that these large-scale surveys present little evidence of their validity (NSSE, in particular), partly due to the difficulty in collecting external (criteria-related) data (Fredricks et al., 2011).

One necessity in clarifying and in advancing the assessment of students' engagement is to distinguish indicators of students' engagement from its causal factors and facilitating conditions (e.g., engagement-fostering aspects of the classroom environment, students' motivation) and from engagement-related outcomes such as learning, achievement, and class-specific grades (Lam et al., *in press*; Tinio, 2009).

As one example, the 35-item *Student Engagement Instrument* (Appleton, Christenson, Kim, & Reschly, 2006) was designed more to capture factors that affect engagement rather than indicators of engagement per se. Its scales assess, for instance, the quality of the teacher-student relationship (e.g., "Overall, adults at my school treat students fairly."), students' perceived control and school work relevance (e.g., "The tests in my classes do a good job of measuring what I'm able to do."), peer support to learning (e.g., "Other students at school care about me."), students' aspirations and future goals (e.g., "I plan to continue my education following high school."), and family support to learning (e.g., "My family/guardians are there for me when I need them."). Other scales assess both indicators of engagement as well as engagement-caused outcomes. For instance, the *College Student Course Engagement*

Questionnaire (SCEQ; Handelsman, Briggs, Sullivan, & Towler, 2005) is a 23-item questionnaire with four scales, two of which assess engagement indicators, including participation and emotionality, and two of which assess engagement outcomes, including skills and performance. Moreover, some inconsistencies have emerged in the conceptualization of engagement indicators. For example, “participation” has been conceptualized by different theorists as an indicator of the cognitive dimension, the behavioral dimension, and the agentic dimension (Fredricks et al., 2011; Reeve, 2013).

When selecting a measure of SES, two items are of particular importance. First, one needs to select from a range of possible engagement indicators. Some educators emphasize only a single engagement indicator, though most educators conceptualize student engagement by using either three or four indicators. Most contemporary engagement theorists highlight behavioral engagement, emotional engagement, and cognitive engagement as central engagement indicators (Christenson, Reschly, & Wylie, 2012; Fredricks et al, 2004), though others add agentic engagement (Reeve, 2013; Reeve & Tseng, 2011) or academic engagement (Reschly & Christenson, 2006) as a fourth important engagement indicator. Second, it is important to undertake a careful evaluation of the psychometric characteristics of any engagement questionnaire, particularly its reliability (internal consistency, test-retest reliability and inter-rater reliability) and validity (content, construct, factorial, and criterion-related validity). A major difficulty in the study of students' engagement concerns the lack of multidimensional measurement instruments possessing good psychometric properties (Lam et al., *in press*; Skinner, Kindermann, & Furrer, 2008; Wang, Willet, & Eccles, 2011).

The current paper reviews several widely-used engagement instruments, including questionnaires that assess only a single engagement indicator but also questionnaires that assess multiple engagement indicators (i.e., two, three, or four engagement indicators). In reviewing these many questionnaires, our focus is on the psychometric characteristics of multidimensional measures that have been validated using heterogeneous validation samples.

2. Instruments for assessment of engagement in school

The assessment of students' engagement in both short-term learning activities and in long-term schooling has been mostly based on the administration of self-report questionnaires for students. Researchers further assess student engagement by asking for teachers' ratings of students' engagement and by asking trained raters to observe and objectively score students' engagement during classroom visits.

2.1. Students' Self-report Measures

Measures Assessing One Engagement Indicator

A. Student Engagement Questionnaire (SEQ; Kember & Leung, 2009). The SEQ assesses the behavioral dimension of classroom engagement. It does so with 17 separate scales, and includes items such as "How often does your mind wander in each of these classes?" The SEQ was designed to measure behavioral engagement among university students. It uses a response scale from 1 to 6. The 17 scale have been shown to be reliable (range of internal consistency: .74-.86), and Kember and Leung (2009) provide some evidence for construct and criterion-related validity.

B. Behavioral Engagement Questionnaire (BEQ; Miserandino, 1996). Miserandino's BEQ, which is based on Wellborn's (1991) items and conceptualization of behavioral engagement, is a 32-item instrument that is typically used with elementary grade students, though it has also been used with middle school and high school students (Jang, Reeve, Ryan, & Kim, 2009). It assesses 7 aspects of behavioral engagement: "involved" (e.g., "I listen carefully in class."); "persisting" (e.g., "If a problem is really hard, I keep working at it."); "avoiding" (e.g., "When I have a hard problem on a test, I skip it."); "ignoring" (e.g., "I never seem to pay attention when we start a new subject."); "helpless" (e.g., "When I can't solve a problem right away, I just give up"); "participating" (e.g., "I participate in class discussions."); and "concentrating" (e.g., "When I come to a problem

I can't solve right away, I usually figure it out in the end.”). The BEQ uses a 4-point response scale (1 = not at all true; 4 = very true), and each scale has shown acceptable internal consistency. The scales are based on factor analyses and have been shown to predict important school outcomes such as class grades (Miserandino, 1996).

Cognitive Strategies is a subscale of the larger Approaches to Learning Instrument (Greene, Miller, Crowson, Duke, & Akey, 2004). The Cognitive Strategies subscale is a 12-item instrument to assess students' study strategies (e.g., “I try to plan an approach in my mind before I actually start homework or studying.”). The cognitive engagement scale uses a 4-point Likert response scale and is generally used with secondary school students. The scale has been shown to produce high internal consistency (.88), to be sensitive to engagement predictors such as teacher support and students' motivation (e.g., self-efficacy), and to predict engagement outcomes such as class-specific grade (Greene et al., 2004).

D. Metacognitive Strategies Questionnaire (Wolters, 2004). Wolters' developed a 17-item instrument to assess two aspects of cognitive engagement. The first aspect is an 8-item Cognitive Strategies scale (e.g., “When I study for math, I try to connect what I am learning with my own experiences.”), while the second is a 9-item Metacognitive Strategies scale (e.g., “Before starting a math assignment, I try to figure out the best way to do it.”). The scales use a 7-point response scale and were designed for secondary students and college students. The two scales show acceptable levels of internal consistency, are sensitive to predictors of engagement (e.g., students' self-efficacy), and predict class-specific grades (Wolters, 2004).

E. Student Perceptions of Classroom Knowledge-Building Scale (SPOCK; Shell & Husman, 2008). The SPOCK is an 8-item measure of students' academic self-regulatory processes to assess extent of cognitive engagement. It includes items to assess planning (e.g., “In this class, I make plans for how I will study.”), goal setting (e.g., “In this class, I set goals for myself.”), monitoring (e.g., “In this class, I try to monitor my progress when I study.”), and self-evaluation (e.g., “In

this class, I check myself to see how well I am understanding what I am studying.”). The scale uses a 5-point response scale (1 = almost never; 5 = almost always), was designed for college students, has shown acceptable internal consistency, is sensitive to engagement facilitators such as students’ motivation (e.g., self-efficacy), and predicts engagement outcomes such as knowledge building, asking questions in class, and study time (Shell & Husman, 2008).

F. Cognitive Engagement scales from the *Motivated Strategies for Learning Questionnaire* (MSLQ; Pintrich, Smith, Garcia, & McKeachie, 1991). To assess cognitive engagement, the MSLQ offers the following four scales: Elaboration (6-items; “I try to relate the ideas in this subject to those in other courses whenever possible.”); organization (4-items; “When I study for this course, I go through the readings and my class notes and try to find the most important ideas.”); critical thinking (5-items; “I treat the course material as a starting point and try to develop my own ideas about it.”); and rehearsal (4-items; “When I study for this class, I practice saying the material to myself over and over.”). The very widely-used scale uses a 7-point response scale (1 = not at all true of me; 5 = very true of me), was designed for secondary and college students, has shown acceptable internal consistency, has shown acceptable factorial validity, and has shown predictive validity by predicting class grades (Pintrich, Smith, Garcia, & McKeachie, 1993).

G. *Agentic Engagement Scale* (AES; Reeve, 2013). The AES is a 5-item instrument designed to assess agentic engagement. Its five items include the following: “I let my teacher know what I need and want; I let my teacher know what I am interested in; During this class, I express my preferences and opinions; During class, I ask questions to help me learn; and When I need something in this class, I’ll ask the teacher for it.” The scale has been used with elementary and secondary school students as well as with university students. The AES uses a 7-point response scale that ranges from 1 (strongly disagree) to 7 (strongly agree). Reeve (2013) and Reeve and Lee (2013) reported high levels of internal consistency, with a range of alphas from 0.81 (for middle school students) to 0.86 (for university

students) and these studies reported strong predictive validity of student achievement as well as clear discriminant validity to separate agentic engagement from the three other aspects of engagement (behavioral, emotional, and cognitive).

Measures Assessing Two Engagement Indicators

A. *Engagement vs. Disaffection with Learning* (EDL; Skinner, Furrer, Marchand, & Kindermann, 2008). The EDL is a 20-item instrument that measures both behavioral engagement and emotional engagement. The instrument assesses not only the presence of engaged learning (behavioral and emotional engagement) but also its absence (behavioral and emotional disaffection). Sample items from the four 5-item scales include the following: “In class, I work as hard as I can.” (behavioral engagement); “In class, I do just enough to get by.” (behavioral disaffection); “When I’m in class, I feel good.” (emotional engagement); and “When I’m doing work in this class, I feel bored.” (emotional disaffection). The EDL typically uses a 4-point response scale and has been used successfully with samples ranging from late elementary school through college students. Scores on all four scales show acceptable levels of internal consistency and are responsive to social-contextual engagement predictors, predict important outcomes such as achievement, and correlate with teachers’ ratings of students’ self-reported engagement (Skinner & Belmont, 1993; Skinner, Furrer, Marchand, & Kindermann, 2008).

Measures Assessing Three Engagement Indicators

B. *Academic Engagement Scale for Grade School Students* (AES-GS; Tinio, 2009). The AES-GS is a 34-item instrument that features the three scales of behavioral, emotional, and cognitive engagement. It was initially validated on a sample of compulsory and secondary school students. The reliability is high (values of Cronbach’s α coefficient around 0.89). A confirmatory factor analysis supported a three-latent factors structure, and evidence of convergent validity is reported.

C. *High School Survey of Student Engagement* (HSSSE; Center for Evaluation and Education Policy, Indiana University; Balfanz, 2009). The HSSSE is a 121-item instrument that features three dimensions of cognitive engagement (65 items), behavioral engagement (17 items), and emotional engagement (39 items). It was designed for use with compulsory and secondary school students. This widely used inventory lacks information on its reliability and validity, but more information about the instrument can be found at the following website: www.indiana.edu/~ceep/hssse/.

D. *Student Engagement in School Scale* (SESS; Lam et al., *in press*). This new measure of student engagement has been developed by a team of researchers from 12 countries, in order to capture the cognitive (12 items, for example: “When I study, I try to understand the material better by relating it to things I already know.”), affective (9 items, for example: “I am very interested in learning.”) and behavioral (12 items, for example: “I try hard to do well in school.”) dimensions of engagement in school among 5th to 12th grade students. It includes 33 items in which students are asked to indicate their agreement on a five-point scale, with 1 for strongly disagree and 5 for strongly agree. Lam et al. (*in press*) employed a sample of 3420 students to report good reliability (internal consistency and test-retest correlation), along with a three dimensional factor structure and satisfying concurrent validity.

E. *Student Engagement in Mathematics Classroom Scale* (SEMCS; Kong, Wong, & Lam, 2003). The scale design is framed within problems with engagement among students which present a wide range of motivations and more diverse interests. The scale is used with middle school students, features 57 items, and relies on a Likert-type scale with five points (from 1 – total disagreement to 5 – total agreement). Items measure three dimensions and ten narrower facets of engagement in mathematics: cognitive (superficial strategy, deep strategy, trust); affective (interest, success orientations, anxiety, frustration); and behavioral (attention, effort, time spent). Some examples of items are: “When I learn mathematics, I would wonder how much the things I have learnt can be applied to real

life.” (cognitive dimension); “In the mathematics class, I find the mathematics knowledge interesting and mathematics learning enjoyable” (affective dimension); “I listen to the teacher’s instruction attentively.” (behavioral dimension). For facets, the values of internal consistency ranged from .79 to .90.

F. *School Engagement Measure* (SEM; Wang, Willet, & Eccles, 2011). This instrument comprises 23 items that measure behavioral (e.g., “How often do you have trouble paying attention in classes?”), emotional (e.g., “I feel happy and safe in this school.”) and cognitive engagement (e.g., “How often do you try to figure out problems and planning how to solve them?”). The SEM uses a five-point Likert-type scale. Each of the dimensions includes two facets, as follows: behavioral engagement – attention ($\alpha = .70$) and conformity with school ($\alpha = .78$), emotional engagement – belonging to school ($\alpha = .75$) and valorization of schooling ($\alpha = .72$), cognitive engagement – self-regulated learning ($\alpha = .78$) and use of cognitive strategies ($\alpha = .77$).

G. *Utrecht Work Engagement Scale for Students* (UWES-S; Schaufeli et al., 2002). The UWES-S is a 9-item instrument that features scales to assess vigor (3 items), dedication (3 items), and absorption (3 items). Vigor is said to assess the behavioral aspect of engagement (e.g., “I feel bursting with energy while studying.”), dedication is said to assess the emotional aspect of engagement (e.g., “I am enthusiastic about my studies.”), and absorption is said to assess the cognitive aspect of engagement (e.g., “I am immersed in my studies.”). The brief scale was designed to assess short-term fluctuations in student day-to-day engagement, and it utilizes a 7-point response scale that ranges from 1 (totally disagree) to 7 (totally agree). The scales have been shown to report acceptable levels of internal consistency (.70 to .79), to show factorial validity, and to predict students’ classroom behavior, such as learning behaviors during class (Mills, Culbertson, & Fullagar, 2012; Salanova et al., 2002; Schaufeli et al., 2002).

H. *Motivation and Engagement Scale* (MES; Martin, 2009). This instrument comprises 11 scales, some of which assess indicators of engagement but others of which assess indicators of students’

motivation: self-confidence, learning focus, school valorization, persistence, planning, study management, disaffection, self-sabotage, anxiety, failure avoidance, and uncertain control. The engagement scales assess various aspects of behavioral (persistence), emotional (disaffection, anxiety), and cognitive (planning, study management) engagement. Each scale includes four items (e.g., “I’ve given up being interested in school.”). Martin (2009) reported internal consistencies (Cronbach’s α coefficient) that ranged from .61 and .87. Empirical evidence of construct and criterion-related validity are also provided.

Measures Assessing Four Engagement Indicators

I. *Student Engagement in School-Four-Dimensional Scale (SES-4DS;* Veiga, 2013). This new measure consists of 20 items and uses a Likert-type scale ranging from 1 (total disagreement) to 6 (total agreement). Attached is the English version. The validation study sample included 685 students attending middle and high schools from various regions of Portugal. The four dimensions of engagement feature 5-items per scale and include items such as the following: cognitive (e.g., “When writing my work, I begin by making a plan for drafting the text.”), affective (e.g., “My school is a place where I feel excluded.”), behavioral (e.g., “I am absent from school without a valid reason.”) and agentic (e.g., “During classes, I put questions to the teachers.”). For different groups of students, values of internal consistency ranged from .70 to .87. Evidence for factorial validity is provided (Tufeanu, 2013). Evidence for convergent validity is provided in the form of significant correlations with scores on The Student Engagement in School Scale (SESS; Lam et al., *in press*). The four-latent factor structure was replicated in three independent samples of Romanian high school students. Using a convenience sample of 529 high school students in grades 9th to 12th, Robu and Sandovici (2013) reported a four-factors solution which explained 54.12 % of total variance in item scores. For the corresponding subscales, values of internal consistency ranged from .73 to .79. Using confirmatory

factor analysis, the factor structure was replicated in another sample of high school students (N = 472). Starting from a cross-sectional design, Tufeanu (2013) conducted a study which aimed at exploring the relationship between academic underachievement and engagement in school among adolescents. Participants were 254 Romanian high school students in grades 9th or 10th. In order to explore the internal validity of Romanian version of SES-4DS, an exploratory factor analysis was performed. Data revealed a four-factors structure accounting for 55.29% of the common variance in items. In addition, underachievers (N = 49) scored significantly lower than non-underachievers (N = 181) in the cognitive, behavioral, and total engagement in school. This finding may be added to the body of yet unpublished empirical evidence regarding criterion-related (concurrent) validity of SES-4DS. A good psychometric version, with the items placed in semantic alternation, is on page 779 of this E-Book.

In addition to the above-described measures, other instruments may be found in the work of Fredricks et al. (2011) which reviews 21 engagement measures (out of which several have been published prior to 2003) and provides information on their psychometric qualities.

2.2. Teachers' Ratings of Student Engagement

While self-report measures are most widely used to assess students' engagement, some researchers prefer a more objective measure of students' engagement. To collect more objective engagement measures, educators and researchers generally ask for ratings either from teachers (this section) or trained classroom observers (next section). Here, we review five teachers' rating measures of students' engagement.

A. *Rochester School Assessment Package* (RSAP; Wellborn & Connell, 1987) has separate versions for students, parents and teachers to assess students' behavioral and emotional engagement as well as students' behavioral and emotional disaffection. Examples of items to assess behavioral and emotional engagement and disaffection

from the teachers' version are: "In my class, this student works as hard as he/she can." (behavioral engagement), "In my class, this student is enthusiastic." (emotional engagement), "When we start something new in class, this student thinks about other things." (behavioral disaffection) and "When we work on something in class, this student appears to be bored." (emotional disaffection). The validity of RSAP is supported by significant correlations among teacher ratings of students' engagement and students' own self-reported engagement ratings.

B. *Teacher Ratings Scale Of School Adjustment* (Birch & Ladd, 1997) provides perceptions that teachers have regarding the behavioral and emotional engagement of their preschool and 1st year students. The rating scale features four scales to assess students' school enjoyment, school avoidance, cooperative participation and self-directing.

C. *Teacher Rating Scale* (Lee & Reeve, 2012) provides four single items that ask teachers to assess students' behavioral, emotional, cognitive, and agentic engagement using a 7-point response scale (1 = strongly disagree; 7 = strongly agree). The scale uses only one comprehensive item for each teacher rating (instead of asking teachers to complete the same multi-item scales the students completed) to avoid overburdening teachers with an unreasonably long instrument. The four teacher ratings are as follows: "Behavioral engagement: This student shows high on-task attention and concentration, high effort, high persistence, especially on difficult tasks."; "Emotional engagement: This student shows frequent and strong positive emotions (interest, joy, and curiosity) and infrequent negative emotions (anger, boredom and discouragement)."; "Cognitive engagement: This student uses sophisticated learning strategies, is a panful and strategic learner, and monitors, checks, and evaluates work."; and "Agentic engagement: This student offers suggestions, asks questions, expresses interests, preferences, and likes vs. dislikes." The validity of the Teacher Rating Scale is supported by each item's significant correlation with students' own self-reported behavioral, emotional, cognitive, and agentic engagement.

D. *The Teacher-Child Relationship and Children's Early School Adjustment* (Betts & Rotenberg, 2007) allows the evaluation of perceptions that teachers have about children from 1st and 2nd grade.

E. The *Effortful engagement* scale is a 10-item teacher-report measure that uses 8 items from the Conscientiousness scale of the Big Five Inventory and 2 items from the Social Competence Scale. While the items were originally designed to assess students' conscientiousness and social competence, the items nevertheless ask explicitly about students' attention, effort, persistence, and participation in learning activities.

Additionally to instruments based on self-reports and inferences provided by teachers, there are observation grids grounded in a more qualitative type of research methodology.

2.3. Observers' Ratings of Students' Engagement

The *Engagement Rating Sheet* was developed explicitly for trained raters to visit classrooms to observe students' engagement during learning activities (Reeve, Jang, Carrell, Jeon, & Barch, 2004). It consists of single items to assess each of the four aspects of behavioral, emotional, cognitive, and agentic engagement. On the 5-item Engagement Rating Sheet, teachers use a 7-point response scale (1 = unengaged; 7 = engaged) to rate each student's behavioral (effort), emotional (enjoyment), cognitive (extent of learning), agentic (verbal participation), and overall (passive vs. active) engagement. The validity of the Engagement Rating Scale is supported its sensitivity to engagement facilitators, including teachers' supportive motivating style and students' self-reported motivation (e.g., psychological need satisfaction; Jang, Reeve, & Deci, 2010).

Observational measures often utilize scoring grids containing a list of various behaviors which are conceptually linked to students' engagement in school or disaffection. Through an evaluation which may be performed at certain time intervals, these grids allow the researcher or practitioners to classify the students according to the presence or absence of a specific behavior. They are mostly employed by

researchers bound to qualitative methodologies. Other researchers may also use them as a complement of self-report questionnaires, in order to compare perceptions that students have about themselves with what occurs in reality. A wide range of observation-based protocols may be found in previous studies, according to the conceptual framework that authors have adopted (Fredricks et al., 2011).

3. Conclusions

There is a real need for well-validated and reliable instruments which allow the multidimensional measurement of students engagement in school, as well as its prevalence and quality (Christenson et al., 2012; Fredricks et al., 2011; Fredricks & McColskey, 2012; Lam et al., *in press*; Skinner, Kindermann, & Furrer, 2008; Wang, Willet, & Eccles, 2011). Only a few psychometrically strong 3- and 4-dimensional measures of student engagement exists, so some researchers prefer to put together their own multidimensional measures of student engagement by selecting one measure at a time (e.g., one measure for behavioral engagement, another measure for cognitive engagement, etc.). A determinant contribution in the direction of psychometrically strong multiple-dimensional measures was provided more recently by Lam et al. (*in press*). In an attempt to broadening the multidimensionality of engagement, some authors developed four-dimension scales which have shown to be quite promising in terms of psychometric characteristics (Reeve & Tseng, 2011; Veiga, 2013). A variety of operational definitions support the design of the instruments we reviewed in this paper.

Engagement among students is assumed as an important indicator to consider when dealing with issues and challenges concerning school setting and students' adjustment. A considerable amount of empirical evidence suggests consistent relationships between engagement in school and the adjustment of students to their school career (Dotterer & Lowe, 2011; Fredricks, Blumenfeld, & Paris, 2004; Lam, Wong, Yang, & Liu, 2012; Wang & Holcombe, 2010) and in the extent to which they perform well academically in terms of learning, skills, and grades (Jang, Kim, & Reeve, 2012; Ladd & Dinella, 2009). There are a number of instruments designed to measure this construct in elementary, middle and high school-aged students, as well as in university undergraduates. However, several conceptual and methodological issues raised making this topic a research field in developing (Lam et al., *in press*;

Skinner, Kindermann, & Furrer, 2008; Veiga, 2013; Wang, Willet, & Eccles, 2011). The purpose of the present paper was not only to introduce the reader to a large number of widely used engagement measures but also to provide commentary on their psychometric properties.

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Annex

Student Engagement in School - Four Dimensional Scale (SES-4DS)

01. When writing my work, I begin by making a plan for drafting the text.
02. I try to connect what I learn in one discipline with what I learn in others.
03. I spend a lot of my free time looking for more information on topics discussed in class.
04. When I'm reading, I try to understand the meaning of what the author wants to transmit.
05. I review my notes regularly, even if a test is not coming up.
06. My school is a place where I feel excluded. (R)
07. My school is a place where I make friends easily.
08. My school is a place where I feel integrated.
09. My school is a place where it seems to me that others like me.
10. My school is a place where I feel alone. (R).
11. I am absent from school without a valid reason. (R)
12. I am absent from classes while in school. (R)
13. I deliberately disturb classes. (R)
14. I am rude toward teachers. (R)
15. I am distracted in the classroom. (R)
16. During classes, I put questions to the teachers.
17. I talk to my teachers about my likes and dislikes.
18. I comment with my teachers, when something interests me.
19. During lessons, I intervene to express my opinions.
20. I make suggestions to teachers about how to improve classes.

(R) Reversed items.