Soc Psychol Educ (2018) 21:427–446
https://doi.org/10.1007/s11218-017-9422-x

Are perceived school climate dimensions predictive of students' engagement?

Nicolas Fatou[1] · **Violaine Kubiszewski**[1,2]

Received: 3 May 2017 / Accepted: 21 November 2017 / Published online: 18 December 2017

Abstract Students' engagement is known to be associated with academic success and to prevent school dropouts. While many studies have considered this variable when examining school trajectories, more research is needed to investigate the factors that may sustain and promote engagement in school, regarded as a multidimensional construct (affective vs. cognitive vs. behavioral engagement). In the present cross-sectional study, associations between students' perceptions of *school climate* dimensions and their level of engagement were explored. The differential effects on these associations of sex and social background were also examined. Results from a sample of 955 high-school students showed that a model incorporating six dimensions of perceived school climate explained a large proportion of the variance in students' engagement, especially affective engagement. The perceived climate of relations between teachers and students appeared to be highly predictive of students' engagement. Analyses also revealed that the predictiveness of school climate factors for affective, cognitive and behavioral engagement varied slightly according to sex and social background. These results highlight important levers associated with students' engagement in school.

Keywords School climate · Student engagement · Adolescents · Behavioral regulation

✉ Violaine Kubiszewski
violaine.kubiszewski@univ-fcomte.fr

[1] "Educ" Research Federation, Franche-Comté Teacher Training College (ESPE), EA 3188, Laboratoire de Psychologie, Université de Bourgogne/Franche-Comté, 30, rue Mégevand, 25 230 Besançon Cedex, France

[2] Psychology Laboratory (EA 3188), University of Bourgogne/Franche-Comté, Besançon, France

1 Introduction

Over the past few years, promoting students' engagement in school has been an objective of many educational policies designed to reduce boredom and passiveness among young people, as well as school dropouts (Marks 2000). In order to develop students' engagement, a better view of the factors that sustain it is needed. Those factors related to the school environment appear to merit particular attention, as they could be useful for prevention purposes. However, very few studies have specifically sought to ascertain which perceived school contextual characteristics, if any, are predictive of student engagement (Krapp 2005; Wang and Eccles 2013).

The links between individuals' engagement and their environment have so far mainly been explored in work-related research, where the work environment is often conceptualized in terms of physical, psychosocial, relational or organizational demands/resources (Hakanen and Roodt 2010; Salanova et al. 2005; Schaufeli and Bakker 2004).

These studies have shown that employees' engagement in their firm (operationalized, for example, by their involvement in work activities or their constant presence) is closely linked to the institutional climate perceived. More specifically, relations with superiors or colleagues seem to be important (e.g., Doucet et al. 2008; Reio and Sanders-Reio 2011), as does the feeling of security (e.g., Bass et al. 2016). Organizational justice also appears to be an important variable regarding employees' work satisfaction and affective engagement (Di Fabio and Bartolini 2009; Simard et al. 2005). We can assume that the variables influencing employees' engagement are mirrored by some of the dimensions of school climate (feelings of justice, membership, security, and relationships are also present in the school environment) and could thus influence students' engagement. However, studies designed to test the effect of the perception of different dimensions of school climate on students' engagement are still needed.

1.1 Student engagement

The concept of student engagement has interested many researchers, mainly owing to the challenging results of many educational systems around the world (Archambault and Chouinard 2009; Archambault and Janosz 2007; Archambault et al. 2009; Christenson et al. 2012; Goulet et al. 2015; Janosz et al. 2008; Lawson and Masyn 2015). Student engagement appears to protect against school dropouts, and therefore constitutes an important factor for pupils succeeding at school and going on to university (Archambault et al. 2009, 2015; Fortin et al. 2004). One of the main objectives of studies dealing with engagement is often, therefore, to analyze and understand students' involvement in school in order to prevent school dropouts more effectively (Finn and Rock 1997; Fredricks et al. 2004, 2005).

The three dimensions of student engagement that are most often considered in the literature are behavioral, affective, and cognitive engagement. Regarding the *behavioral* dimension, approaches to students' behaviors differ widely between studies (Hospel et al. 2016). Some authors view students' behavioral engagement in

terms of their desire to participate by intervening during lessons or spending time on academic tasks (Hirschfield and Gasper 2011). For others, it refers to students' compliance with teachers' recommendations (Fall and Roberts 2012). In the literature, this notion has therefore been used to depict numerous behaviors, which have been measured in many different ways (Finn and Zimmer 2012). Most recent research, however, consensually defines students' behavioral engagement as all behaviors that are in accordance with school expectations, learning-related behaviors, and involvement in different school activities, whether or not the latter are related to learning (Berliner 2008; Fredricks et al. 2005; Noguera 2010). All these studies suggest that the more behaviorally engaged students are, the better their results. By contrast, the less students' behaviors comply with the school's explicit and implicit rules (e.g., listening in class, asking teachers questions, being undisciplined) the poorer their academic performances and the greater their risk of dropping out, independently of their social origin (Archambault et al. 2009; Finn and Rock 1997).

Student engagement has also been investigated from the angle of *affectivity* (e.g., Furrer and Skinner 2003), that is, young people's attraction to school, their perceptions of its usefulness, and feelings generated by school (e.g., interest, joy) (Fredricks et al. 2004). Parallels can be drawn between this dimension and school motivation (Fredricks et al. 2004), with some studies showing that individual motivation can be manipulated by, say, orienting the way a teacher gives instructions to create an environment that facilitates goal achievement (Urdan and Schoenfelder 2006; Urdan and Turner 2005). These studies suggest that teacher–student interactions play an important part in students' affective engagement, which is convergent with the results of many studies of emotional engagement (Janosz et al. 1998; Ryan et al. 1994).

Finally, a *cognitive* dimension of engagement has also been considered. This refers, for example, to students' mental efforts when confronting a learning task and the self-control exerted when learning (Connell and Wellborn 1991). Studies suggest that cognitive engagement can be promoted by an environment and a setting that sustain the possibility of playing an active role (Strambler and Weinstein 2010). Overall, studies point to the existence of differing cognitive strategies for boys and girls, with male strategies tending to favor performance and skill valorization, and female strategies determined more by the wish to learn and perform tasks fluently (Bouffard et al. 2006; Chouinard et al. 2007; Phan 2010; Régner et al. 2009).

Very few of the above-mentioned studies have considered student engagement as a multidimensional construct, even though Fredricks et al. (2004, 2005) proposed a definition that invites us to simultaneously consider the cognitive, affective and behavioral dimensions of engagement. Indeed, it's possible to consider a student as engaged on the basis of observable behaviors that cannot be categorized as either affective or cognitive. As a consequence, it seems important to tackle the three dimensions together rather than separately. Furthermore, student engagement appears to be malleable, and can evolve within individuals (Archambault et al. 2009; Christenson et al. 2012; Fredricks et al. 2005; Wang and Eccles 2013). This malleability invites to investigate the variables that can favor or hinder engagement in schools.

1.2 Variables possibly involved in students' engagement and role of school climate

Some research has shown that school context and its perception can influence students' engagement. Many studies suggest that teachers who support differentiated instruction, and who develop warm relationships with their students or are perceived of as being supportive, promote students' competence beliefs and engagement (Archambault et al. 2015; Chouinard et al. 2007; Cornell et al. 2016; Furrer and Skinner 2003; Martin 2005). Attending a school that favors a sense of belonging by using multiculturally aware teaching, organizing class outings or encouraging pupils to work in groups also increases students' engagement (Conchas 2001). By contrast, the feeling of being treated in an unjust manner appears to be associated with lower levels of engagement (Berti et al. 2010). All these variables fall within the conceptualization of *school climate*. Thus, school climate and its different dimensions could influence students and their school trajectories.

There are numerous approaches to and conceptualizations of school climate, and no single and unanimous definition of it at present. School climate is generally viewed as a multidimensional construct that encompasses a school's atmosphere, culture, values, resources, and social networks (Wang and Degol 2016). An important distinction is often made in the way it is considered. On one hand, it can be studied mainly at the group level, by aggregating the data of the individuals who work or study in schools in order to conduct school- or classroom-level analyses (e.g., Cornell et al. 2016; Marsh et al. 2012). On the other hand, researchers can target individual feelings about life at school and consider this individual level for analyses, in which case it is more a matter of *individual perceptions* of school climate (e.g., Gage et al. 2016; Wang 2009). Students' personal experiences of the school climate are assumed to mediate the effects of the actual school climate on behaviors and adjustment (Gage et al. 2016; Loukas and Murphy 2007). From this perspective, subjective perceptions of the school climate would be closely linked to individual features such as student engagement. In the present study, we therefore focused on students' perceptions of school climate, taken as reflecting their subjective experience of multidimensional school life viewed (Wang and Degol 2016). Janosz et al. (1998) and Janosz and Bouthillier's (2007) conceptualization of school climate tend to cover all the dimensions that are generally highlighted in researches, namely *relational climate*, referring to students' perceptions of their relationships with peers and adults at school; *educational climate*, relating to students' perceptions of learning transmission quality and the school's efforts to promote learning and other school tasks; *climate of security*, reflecting feelings of safety at school; *climate of justice*, covering students' perceptions of right and fair processes and adults' behaviors; and *affiliation climate*, concerning the importance given to the institution as a place to live and work in and adherence to its norms and values. For many researchers, through social identity processes, a high-quality school climate can foster students' connection to and social identification with their school, along with a feeling of closeness to others that favors positive individual features such as student engagement (Lee et al. 2017; Loukas et al. 2006).

While some of the above-mentioned studies examined links between student engagement and variables that could be included in one or other of the dimensions modeled by Janosz et al. (1998) and Janosz and Bouthillier (2007), research is needed to consider all these school climate dimensions together, and identify how they may be associated with student engagement. Such analyses would help to establish more precise interventions to pinpoint features of climate in schools that have the most robust connection to students' engagement.

1.3 Individual and social determinants of students' school trajectories

Some of the many individual or social factors associated with school trajectories may specifically influence the association between school climate and engagement. In particular, social background and sex are known to have an impact on school disengagement or perceptions of school climate (Archambault and Janosz 2007; Bourdieu et al. 1970) and need to be considered. For example, girls have a more positive perception of school climate than boys (e.g., Baudelot and Establet 2011). Moreover, they are more motivated in class, participate more strenuously and are more cognitively, behaviorally and affectively engaged (Archambault and Janosz 2007; Bang et al. 2011; Lan and Lanthier 2003; Virtanen et al. 2014). Regarding social background, authors like Bourdieu and Passeron (1964) claim that students' attitudes toward school and their adoption of behaviors expected by school are closely linked to their social background. Students from families whose social and behavioral skills are close to those expected in schools integrate school norms better (Bourdieu and Passeron 1964). Coming from a disadvantaged social background is a risk factor for poor adaptation to school expectations, negative perceptions of school, and dropout (Blaya 2010; Janosz 2000; Millet and Thin 2005).

1.4 Aim of the present study and hypothesis

The aim of this study was to examine possible associations between school climate dimensions perceived by students and their engagement (general, behavioral, affective, and cognitive). We predicted that previous results showing that some school climate dimensions linked to student engagement (Cornell et al. 2016; Estell and Perdue 2013; Fernández-Zabala et al. 2016; Kaplan Toren and Seginer 2015) would be replicated in a sample of French students. We also expected Janosz and Bouthillier (2007)'s model incorporating six dimensions of school climate to be predictive of students' engagement. Adolescence is a developmental stage in which relations with adults change, and support from teachers is important for school trajectories (Negoita 2016). Wang and Eccles (2012) noticed that many adolescents attach importance to their relationships with surrounding adults, and this variable has been linked to high levels of engagement (Archambault et al. 2015; Cornell et al. 2016; Tucker et al. 2002; Zimmer-Gembeck et al. 2006). We therefore hypothesized that in a model featuring all six school climate dimensions, the relationship between students and teachers is a strong predictor of students' engagement.

As mentioned above, students' sex and social background may also have an effect on school climate perceptions, engagement, and the association between the two. Thus, we looked for possible differential effects of sex and social background on the way that school climate dimensions are associated with students' engagement.

2 Method

2.1 Procedure and participants

Students enrolled in Grades 10, 11 and 12 from at an urban high school in the French city of Besancon (116,700 inhabitants, in the department of Doubs) were invited to take part in this study so as to obtain a sample made up of youths from the different high-school levels and pathways in France. Sixty-five percent of the school's classes were randomly solicited for this study. In all, 955 students (mean age = 16.5 years; more than 80% of the students invited) answered an online self-administered questionnaire in the school's computer rooms during a free period. At each session, the first author introduced students to the study, informing them that the questionnaire was related to certain aspects of their school experience that they might perceive of as more or less pleasant. It was made clear that participation was voluntary and responses would remain anonymous.

Of the participants, 367 (39%) were male (coded 1) and 588 (61%) were female (coded 2). The socio-occupational category of the head of the household was used to establish the adolescents' social background, based on the classification system used by the French authorities (high income A, high income B, average, and disadvantaged; Ministry of National Education 2015). Students were asked to indicate the socio-occupational categories of their father and mother with the aid of a list containing examples (Ministry of National Education 2015). They also had to indicate whether they lived with both their parents or mainly with only one of them. For students who lived with both parents, the head of the household was deemed to be the parent with the highest income. In the sample, 18% of students were classified as disadvantaged (coded 1; national = 22.3%), 44.3% had an average background (coded 2; national = 27.4%), 14.7% were in the High income B group (coded 3; national = 15.4%), and 23% were in the High income A group (coded 4; national = 34.9%). Although the overall pattern of distribution across the different social background groups was close to the national level, the Average group was overrepresented, and the High income A group slightly underrepresented.

2.2 Measures

2.2.1 Student engagement

We measured levels of student engagement with the validated French version (Bernet et al. 2014) of the School Engagement Measure (Fredricks et al. 2005). Students had to rate 17 statements related to behavioral (4 items; e.g., "I pay

attention in class"; α in this study = .69), affective (6 items; e.g., "My classroom is a fun place to be"; α in this study = .79), and cognitive (7 items; e.g., "I check my schoolwork for mistakes"; α in this study = .69) engagement on a 5-point Likert scale ranging from 1 (*Never*) to 5 (*All the time*). We calculated the mean overall score to assess general engagement, and assessed specific levels of behavioral, cognitive and affective engagement by calculating the mean scores for items belonging to each of these dimensions. The higher the mean score, the greater the students' engagement. In this study, Cronbach's alpha for all the items was .82.

2.2.2 Perception of school climate

Measures of participants' perceptions of the school climate were performed using items from the Socio-Educative Environment Questionnaire designed for secondary-school students (Janosz and Bouthillier 2007). These items investigated six subclimates: student–student relational (5 items; e.g., "Students mostly get on well together at this school"; α in this study = .88), teacher–student relational (5 items; e.g., "Relations between students and teachers are mostly benevolent at this school"; α in this study = .79), security (5 items; e.g., "At this school, many of the students are afraid of other students"; α in this study = .85); justice (3 items; e.g., "At this school, students are treated fairly"; α in this study = .84); educational (7 items; e.g., "At this school, we can feel it's important to study and obtain a diploma"; α in this study = .86), and affiliation (5 items; e.g., "I like this school"; α in this study = .89). Students had to rate each of these statements on a 5-point Likert scale ranging from 1 (*Totally disagree*) to 5 (*Totally agree*).

We calculated a mean overall score to obtain a level of general school climate perception. Mean perceptions of each of subclimate were also calculated separately. The higher the mean, the more positively the school climate was perceived. Cronbach's alpha for the entire scale reached .91 in this study.

2.3 Statistical analyses

In a first descriptive part, a possible effect of sex and/or social background on students' engagement was tested by means of Student's *t* test and analyses of variance (ANOVAs). Then, to identify the pattern of interaction between sex and social background, we ran 2 × 4 ANOVA tests. Correlational analyses were also carried out to investigate the associations between student engagement and school climate. Finally, multiple regressions were performed to investigate whether engagement can be predicted by considering perceptions of school climate. The first step included the different dimensions of perceived school climate as well as sex and social background as control variables. In the second step, interaction terms with sex and social background were added to the model. Where the interactions we tested were significant, they were interpreted by means of the slopes procedure outlined by Aiken and West (1991). For these regressions all measures were standardized. All the analyses were performed with Statistical 10.

3 Results

3.1 Students' engagement, sex and social background

Results in Table 1 show a significant statistical effect of sex on student engagement, with girls scoring higher on general, cognitive and behavioral engagement. No significant effect of students' social background on their engagement were found (Table 1). Moreover, as shown in Table 2, 2 × 4 factorial ANOVAs considering sex and social background revealed no interaction effects, except for behavioral engagement. Although there were no significant differences between the behavioral engagement of boys and girls in the High Income A, B and Average groups, in the Disadvantaged group, girls had significantly higher scores than boys (unequal N HSD post hoc test, $p < .05$).

3.2 Correlations between school climate factors and student engagement

Results set out in Table 3 show that student engagement was positively correlated with all six dimensions of school climate ($.19 < r < .50$). This was also the case when the behavioral or affective dimensions of engagement were considered ($.16 < r < .55$). Cognitive engagement was significantly correlated with general school climate, and with educational, student–teacher relational, justice and affiliation climates.

3.3 Associations between school climate dimensions and student engagement when considering sex and social background

The multiple regression analyses set out in Table 4 revealed that general student engagement was predicted by five of the six school climate dimensions we considered (i.e., not perceived student–student relational climate). Teacher–student relational climate emerged as one of the most important predictors. Overall, there were no interaction effects with sex, whereas teacher–student relational and security climates were found to interact with social background. More specifically, these two dimensions of school climate were especially predictive of general engagement for students with higher social backgrounds.

Multiple regression analyses were also performed for each of the three sub dimensions of student engagement (Table 5). Overall, it was for affective engagement that the six-factor school climate model explain the most variance ($R^2 = .45$ vs. $R^2 = .13$ for cognitive engagement and $R^2 = .27$ for behavioral engagement).

Regression analysis for affective engagement All six dimensions of school climate emerged as significant positive predictors of affective engagement. An interaction between sex and teacher–student relational climate was found. More specifically, Aiken and West (1991)'s method of slope analysis revealed that for boys, low perceived levels of teacher–student relational climate (− 1 *SD*) were

Table 1 Students' engagement mean scores according to sex and social background

	General student engagement	Affective engagement	Behavioral engagement	Cognitive engagement
Sex				
Boys ($n = 367$)	3.17	3.24	3.94	2.69
Girls ($n = 588$)	3.27	3.23	4.09	2.84
t	− 2.58***	.17 *(ns)*	− 3.53***	− 3.04***
Social background				
High income A ($n = 219$)	3.29	3.27	4.03	2.87
High income B ($n = 140$)	3.25	3.27	4.04	2.78
Average ($n = 424$)	3.21	3.24	3.99	2.72
Disadvantaged ($n = 172$)	3.23	3.15	4.07	2.80
F	1.18 (*ns*)	1.25 (*ns*)	.78 (*ns*)	2.04 (*ns*)

*** $p < .001$

Table 2 2 × 4 factorial ANOVAs summary of sex and social background interactions for general, affective, behavioral and cognitive student engagement

	Sum of square	Df	Mean of square	*F*
General student engagement				
Sex	2.31	1	2.31	8.33***
Social background	1.55	3	.52	1.86
Sex × Social background	1.87	3	.62	2.25
Affective student engagement				
Sex	.014	1	.014	.03
Social background	3.15	3	1.05	2.15
Sex × Social background	3.30	3	1.10	2.16
Behavioral student engagement				
Sex	4.61	1	4.61	11.87***
Social background	.69	3	.23	.59
Sex × Social background	3.98	3	1.33	3.41*
Cognitive student engagement				
Sex	6.59	1	6.59	13.28***
Social background	3.21	3	1.07	2.16
Sex × Social background	3.06	3	1.02	2.06

* $p < .05$, *** $p < .001$

Table 3 Correlation analyses

Variables	1	2	3	4	5	6	7	8	9	10	11
1. General students' engagement	1	.76***	.71***	.81***	.58***	.27***	.50***	.49***	.19***	.47***	.45***
2. Affective engagement		1	.44***	.30***	.66***	.43**	.54***	.47***	.24***	.46***	.55***
3. Behavioral engagement			1	.41***	.45***	.16***	.39***	.38***	.20***	.43***	.29***
4. Cognitive engagement				1	.26***	.05	.26***	.30***	.04	.24***	.21***
5. School climate					1	.67***	.80***	.71***	.47***	.69***	.73***
6. Student–student relational climate						1	.42***	.38***	.28***	.34***	.35***
7. Educational climate							1	.60***	.13**	.55***	.52***
8. Teacher–student relational climate								1	.11**	.49***	.39***
9. Security climate									1	.16***	.17***
10. Justice climate										1	.44***
11. Affiliation climate											1

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 4 Multiple regressions analysis results for a school climate model with six dimensions as predictors of general students' engagement

	General school engagement			
	Step 1		Step 2	
	β	SE	β	SE
Teacher–student relational climate	.23***	.033	.22***	.033
Affiliation climate	.21***	.031	.21***	.031
Educational climate	.17***	.037	.16***	.037
Justice climate	.17***	.032	.16***	.032
Security climate	.09***	.027	.08**	.026
Student–student relational climate	− .03	.030	− .03	.030
Sex	.08**	.026	.08**	.026
Social background (SB)	.02	.026	.01	.026
Sex × Teacher–student relational climate			− .06	.034
Sex × Affiliation climate			− .04	.032
Sex × Educational climate			− .008	.037
Sex × Justice climate			− .01	.032
Sex × Security climate			− .04	.027
Sex × Student–student relational climate			.05	.030
SB × Teacher–student relational climate			.07*	.034
SB × Affiliation climate			.007	.031
SB × Educational climate			− .03	.038
SB × Justice climate			.008	.033
SB × Security climate			.09**	.028
SB × Student–student relational climate			.009	.031
R^2	.38		.41	
F	73.55**		32.49***	

SB Social background

* $p < .05$, ** $p < .01$, *** $p < .001$

associated with lower levels of affective engagement, whereas the girls' affective engagement did not vary with teacher–student relational climate.

Regression analysis for behavioral engagement Five of the six dimensions of school climate emerged as significant positive predictors of behavioral engagement, the sixth dimension (student–student relational climate) proving to be a negative one. When we considered sex and social background, three interactions were significant: (1) for boys, high levels of security climate (+ 1 *SD*) were associated with higher levels of behavioral engagement, whereas the girls' behavioral engagement did not vary with security climate; (2) low levels of perceived security (− 1 *SD*) and (3) low levels of justice climate (− 1 *SD*) were associated with low levels of behavioral engagement, especially for students with more privileged social backgrounds.

Table 5 Multiple regressions analyses results for a model with six dimensions of perceived school climate as predictors of cognitive, affective and behavioral engagement

	Affective engagement				Behavioral engagement				Cognitive engagement			
	Step 1		Step 2		Step 1		Step 2		Step 1		Step 2	
	β	SE	β	SE	β	SE	β	SE	β	SE	β	SE
Teacher–student relational climate	.13***	.032	.13***	.032	.16***	.036	.15***	.037	.22***	.040	.21***	.040
Affiliation climate	.30***	.029	.30***	.030	.06*	.033	.08*	.034	.09*	.036	.09*	.037
Educational climate	.18***	.035	.18***	.035	.14***	.040	.13**	.029	.08*	.044	.08*	.044
Justice climate	.09***	.030	.10***	.030	.25***	.03	.24***	.035	.09*	.037	.09*	.038
Security climate	.09***	.025	.09***	.025	.14***	.029	.13***	.029	.01	.031	.01	.032
Student–student relational climate	.14***	.028	.14***	.029	− .09**	.032	− .10**	.033	− .13***	.035	− .13***	.036
Sex	.01	.024	.01	.024	.10***	.028	.11***	.028	.08**	.030	.08**	.030
Social background (SB)	.02	.024	.02	.024	− .03	.028	− .02	.027	.03	.031	.03	.031
Sex × Teacher–student relational climate			− .07*	.032			− .04	.037			− .04	.040
Sex × Affiliation climate			− .01	.030			− .02	.034			− .05	.037
Sex × Educational climate			.00	.036			− .00	.041			− .02	.045
Sex × Justice climate			− .01	.030			.01	.035			− .02	.039
Sex × Security climate			.04	.026			− .09**	.029			.00	.032
Sex × Student–student relational climate			.05	.029			− .02	.033			.08*	.036
SB × Teacher–student relational climate			.04	.033			.01	.038			.09*	.041
SB × Affiliation climate			.05	.030			− .01	.034			− .02	.039
SB × Educational climate			− .02	.036			− .00	.04			− .03	.044
SB × Justice climate			− .03	.031			.07*	.036			.00	.039

Table 5 continued

	Affective engagement				Behavioral engagement				Cognitive engagement			
	Step 1		Step 2		Step 1		Step 2		Step 1		Step 2	
	β	SE	β	SE	β	SE	β	SE	β	SE	β	SE
SB × Security climate			.04	.026			.07*	.030			.10**	.033
SB × Student–student relational climate			− .01	.029			.01	.033			.02	.037
R^2	.45		.46		.27		.29		.13		.16	
F	97.7***		40.4***		43.1**		19.5***		18.0***		8.9***	

SB Social background

* $p < .05$, ** $p < .01$, *** $p < .001$

Regression analysis for cognitive engagement With the exception of security climate, all the dimensions of school climate emerged as significant predictors of cognitive engagement, with student–student relational climate again being a negative one. When we considered sex and social background, we found three significant interactions: (1) for boys, low levels of student–student relational climate (− 1 *SD*) were associated with lower levels of cognitive engagement, whereas the girls' cognitive engagement did not vary with student–student climate; (2) high levels of perceived teacher–student relational climate (+ 1 *SD*) and 3) high levels of security climate (+ 1 *SD*) were associated with high levels of cognitive engagement, especially for students with a more privileged social background.

4 Discussion

The aim of this study was to examine the associations between perceived school climate factors and students' engagement (general, behavioral, affective and cognitive), also looking at the possible statistical effects of sex and social background on these links. The correlational design of the present study prevents us from drawing conclusions about possible causal links between school climate and engagement. Although school climate dimensions are referred to as *predictors* of students' engagement throughout this article, this was done to indicate that they were perceived of as independent variables in the analyses, rather than to suggest any causal direction. The same precaution needs to be taken for the term *effect* used several times to refer to statistical effects.

As predicted, analyses showed that, overall, student engagement was associated with perceived school climate dimensions. However, cognitive engagement was only correlated with four of the six subclimates we considered: student–student relational climate and security climate were not linked to students' cognitive engagement. Overall, our results support the claims of McCombs and Pope (1994), according to whom dimensions sustaining students' cognitive engagement and motivation mainly concern collective decision-taking by all members of the educational community (contributing to the affiliation climate perceived), a high level of educational requirement for all students (perceived educational climate), teachers allowing and encouraging pupils to take initiatives (perceived teacher–student relational climate), and the acceptance by adults in schools of the multiplicity of students' points of view and similar consideration of their ideas (perceived justice climate). Regarding the possible mechanism behind these links, it could be assumed that a positive perception of these school climate dimensions facilitates students' identification with the school group, as well as positive feelings and behaviors regarding the school's prevailing norms and values which, together, would promote student engagement (Lee et al. 2017; Loukas et al. 2006).

After exploring these associations in a pairwise manner, we tested a model that simultaneously included all six dimensions of the school climate perceived to explore how far it explained the variance associated with general, cognitive,

affective and behavioral engagement. This model appeared to be useful for predicting engagement, especially affective engagement. Our results also showed that some school climate dimensions have greater statistical effects than others. As expected, perceptions of teacher–student relations proved to be a strong predictor both of students' general engagement and their cognitive engagement. Healthy relationships with teachers presumably increase the probability of students conforming to adults' expectations and to the social norms they advocate, reduce the risk of absenteeism, and enhance wellbeing at school (Hogekamp et al. 2016; Lam et al. 2012; Li et al. 2010; Veenstra et al. 2010). Results of the present study suggest that the emphasis should be placed on improving teacher–student relationships. In addition to being specialists in their particular disciplines, all teachers should bear in mind that their position is strongly associated with students' engagement and dropouts' prevention. Moreover, teacher' training should focus on practical, tried and tested ways of strengthening positive interactions with students, such as the Praise Note System (Flannery et al. 2003; Rathel et al. 2014), increasing the positive-to-negative communication behavior ratio (Rathel et al. 2014), and School-Wide Positive Behavioral Support (Sugai and Horner 2006). Even though they can improve perceived school climate and students' engagement (Rathel et al. 2014), training in these kinds of practical interventions continues to be lacking in France.

More unexpectedly, we found that negative perceptions of relations between students was a significant predictor of cognitive (for boys especially) and behavioral engagement. Although these results are difficult to explain, we can assume that students who have poor perceptions of their relations with their schoolmates and whose need to feel part of a benevolent peer group is not satisfied engage more in their school to compensate for this lack, and overinvest in more controllable cognitive and behavioral aspects of their schooling that can give them satisfaction. As the present study adopted a cross-sectional approach, we can assume that the opposite association is equally valid, whereby being cognitively and behaviorally engaged in school would causes some students to become out of step with their schoolmates and their norms, possibly leading the latter to exclude or reject them. Such behaviors would result in more negative perception of student–student relational climate despite high levels of cognitive and behavioral engagement. This second tentative explanation is supported by the results reported by Bishop et al. (2003), who found that some behaviors related to cognitive and behavioral engagements, such as tutoring other students, academic efforts, enjoying school assignments, or taking supplementary optional courses attract abuse from peers. Whether or not this is the case, further research is needed to test and replicate this unexpected association.

Finally, even though no association was found between social background and student engagement, some perceived school climate factors appeared to be more strongly associated with engagement among students with more privileged backgrounds. Thus, low levels of perceived justice or security climate were particularly closely associated with low behavioral engagement among students with a higher social background. For these students highly positive teacher–student relations and a high perception of security also appeared to be key levers for

cognitive engagement. It is important to continue looking for factors that are similarly associated with engagement among disadvantaged students.

Certain limitations of the study must be taken into account. First, all the young people included in our sample were high-school students. Future studies should test the possibility of replicating the present results and extending them to other populations of students (e.g., elementary or middle-school students). Second, longitudinal or experimental approaches should be adopted to test the causal links between perceived school climate and student engagement. For now, the correlational design of our study cannot establish such causal relationships. Third, even though we took the precaution of including the three dimensions of engagement, in our measures we considered each of them as one-dimensional, however behavioral engagement, for example, should be considered as a multidimensional construct. In a recent study by Hospel et al. (2016), five sub dimensions were highlighted: participation, following teachers' instructions, withdrawal, disruptive behaviors, and absenteeism. In future research, the analyses carried out in the present study could be refined and extended by using a method that integrates such sub dimensions. Accordingly, we could have controlled for more variables, by taking account of contextual factors such as team turnover and school size (by sampling other schools), as well as other individual factors such as peer victimization or the need for relatedness, autonomy or competence, which seem important to consider in studies dealing with students' engagement and school climate (Fredricks et al. 2004; Mehta et al. 2013).

5 Conclusion

Taken together, the results of the present study contribute to the literature on student engagement by highlighting a range of levers, identified among six dimensions of school climate considered simultaneously, that could be used to promote general, affective, behavioral and cognitive engagement and prevent school dropouts. These contextual levers associated with students' perceptions need to be targeted by the education community, especially given that this community has no influence over some biological and family factors that are also known to be associated with student engagement. In practice, it is therefore important to develop effective interventions that improve students' perceptions of educational, security, justice, affiliation and, more specifically, teacher–student relational climates, which could foster their engagement. Our results also suggest that students' social background should be examined more often in studies related to the perception of school climate dimensions and engagement, as it can moderate their associations.

References

Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park: Sage.

Archambault, J., & Chouinard, R. (2009). *Vers une gestion éducative de la classe*. Montréal: Gaëtan Morin éditeur.

Archambault, I., & Janosz, M. (2007). L'engagement scolaire des garçons et des filles: Une analyse comparative des résultats de recherches empiriques. *Revue de Psychoéducation, 36*(1), 81–107.

Archambault, I., Janosz, M., Fallu, J.-S., & Pagani, L. S. (2009). Student engagement and its relationship with early high school dropout. *Journal of Adolescence, 32*(3), 651–670.

Archambault, I., Tardif-Grenier, K., Dupéré, V., Janosz, M., McAndrew, M., Pagani, L. S., et al. (2015). *Comparative study of school engagement among immigrant and non-immigrant students from disadvantaged backgrounds: Contributions of the school environment and teaching practices (Research Report)*. Montreal: Fonds de recherche Société et Culture.

Bang, H. J., Suárez-Orozco, C., & O'Connor, E. (2011). Immigrant students' homework: Ecological perspective on facilitators and impediments to task completion. *American Journal of Education, 118*(1), 25–55.

Bass, B. I., Cigularov, K. P., Chen, P. Y., Henry, K. L., Tomazic, R. G., & Li, Y. (2016). The effects of student violence against school employees on employee burnout and work engagement: The roles of perceived school un safety and transformational leadership. *International Journal of Stress Management, 23,* 318–336.

Baudelot, C., & Establet, R. (2011). *Quoi de neuf chez les filles?* Paris: Nathan.

Berliner, D. C. (2008). Letter to the President. *Journal of Teacher Education, 59*(3), 252–256.

Bernet, E., Karsenti, T., & Roy, N. (2014). Mesure de l'engagement scolaire. Engagement scolaire en milieu défavorisés: Traduction et validation exploratoire d'une échelle de mesure. *Educational Journal of the University of Patras UNESCO Chair, 1*(1), 20–33.

Berti, C., Molinari, L., & Speltini, G. (2010). Classroom justice and psychological engagement: Students' and teachers' representations. *Social Psychology of Education, 13,* 541–556.

Bishop, J. H., Bishop, M. & Bishop, M. M. (2003). *Peer harassment: A weapon in the struggle for popularity and normative hegemony in American secondary schools* (CAHRS Working Paper #03-19). Ithaca, NY: Cornell University, School of Industrial and Labor Relations, Center for Advanced Human Resource Studies. Retrieved from http://digitalcommons.ilr.cornell.edu/cahrswp/38.

Blaya. C. (2010). *Décrochages scolaires. L'école en difficulté*. Bruxelles: De Boeck.

Bouffard, T., Vezeau, C., & Simard, G. (2006). Motivations pour apprendre à l'école primaire: Différences entre garçons et filles et selon les matières. *Enfance, 58*(4), 395–409.

Bourdieu, P., & Passeron, J. C. (1964). *Les héritiers, les étudiants et leurs études*. Paris: Les Editions de Minuit.

Bourdieu, P., Passeron, J.-C., & Shattock, M. (1970). *La reproduction: Eléments pour une théorie du système d'enseignement*. Paris: Editions de Minuit.

Chouinard, R., Karsenti, T., & Roy, N. (2007). Relations among competence beliefs, utility value, achievement goals, and effort in mathematics. *British Journal of Educational Psychology, 77*(3), 501–517.

Christenson, S. L., Reschly, A. L., & Wylie, C. (2012). *Handbook of research on student engagement*. New York: Springer Science & Business Media.

Conchas, G. (2001). Structuring failure and success: Understanding the variability in Latino school engagement. *Harvard Educational Review, 71*(3), 475–505.

Connell, J. P., & Wellborn, J. G. (1991). Competence, autonomy, and relatedness: A motivational analysis of self-system processes. In M. R. Gunnar & L. A. Sroufe (Eds.), *Self processes and development* (pp. 43–77). Hillsdale: Lawrence Erlbaum Associates.

Cornell, D., Shukla, K., & Konold, T. (2016). Authoritative school climate and student academic engagement, grades, and aspirations in middle and high schools. *AERA Open, 2,* 1–18.

Di Fabio, A., & Bartolini, C. (2009). The impact of organizational justice on job satisfaction and affective commitment in an Italian hospital. *Psychologie du Travail et des Organisations, 15,* 420–434.

Doucet, O., Simard, G., & Tremblay, M. (2008). L'effet médiateur du soutien et de la confiance dans la relation entre le leadership et l'engagement. *Relations industrielles/Industrial Relations, 63*(4), 625–647.

Estell, D. B., & Perdue, N. H. (2013). Social support and behavioral and affective school engagement: The effects of peers, parents, and teachers. *Psychology in the Schools, 50*(4), 325–339.

Fall, A.-M., & Roberts, G. (2012). High school dropouts: Interactions between social context, self-perceptions, school engagement, and student dropout. *Journal of Adolescence, 35*(4), 787–798.

Fernández-Zabala, A., Goñi, E., Camino, I., & Zulaika, L. M. (2016). Family and school context in school engagement. *European Journal of Education and Psychology, 9*(2), 47–55.

Finn, J. D., & Rock, D. A. (1997). Academic success among students at risk for school failure. *Journal of Applied Psychology, 82*(2), 221–234.

Finn, J. D., & Zimmer, K. S. (2012). Student engagement: What is it? Why does it matter? In L. S. Christenson, L. A. Reschly, & C. Wylie (Eds.), *Handbook of research on student engagement* (pp. 97–131). Boston, MA: Springer.

Flannery, D. J., Vazsonyi, A. T., Liau, A. K., Guo, S., Powell, K. E., Atha, H., et al. (2003). Initial behavior outcomes for the PeaceBuilders universal school-based violence prevention program. *Developmental Psychology, 39,* 292–308.

Fortin, L., Royer, É., Potvin, P., Marcotte, D., & Yergeau, É. (2004). La prédiction du risque de décrochage scolaire au secondaire: Facteurs personnels, familiaux et scolaires. *Canadian Journal of Behavioural Science/Revue canadienne des sciences du comportement, 36*(3), 219–231.

Fredricks, J. A., Blumenfeld, P., Friedel, J., & Paris, A. (2005). School engagement. In K. A. Moore & L. H. Lippman (Eds.), *What do children need to flourish? Conceptualizing and measuring indicators of positive development* (pp. 305–321). Boston, MA: Springer.

Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement: Potential of the concept, state of the evidence. *Review of Educational Research, 74*(1), 59–109.

Furrer, C., & Skinner, E. (2003). Sense of relatedness as a factor in children's academic engagement and performance. *Journal of Educational Psychology, 95*(1), 148–162.

Gage, N. A., Larson, A., Sugai, G., & Chafouleas, S. M. (2016). Student perceptions of school climate as predictors of office discipline referrals. *American Educational Research Journal, 53*(3), 492–515.

Goulet, M., Cantin, S., Archambault, I., & Vitaro, F. (2015). L'influence des amis sur l'engagement scolaire au secondaire: La popularité des élèves comme variable modératrice? *Canadian Journal of Behavioural Science/Revue canadienne des sciences du comportement, 47*(2), 141–152.

Hakanen, J. J., & Roodt, G. (2010). Using the job demands-resources model to predict engagement: Analysing a conceptual model. In A. B. Bakker & M. P. Leiter (Eds.), *Work engagement: A handbook of essential theory and research* (pp. 85–101). Hove: Psychology Press.

Hirschfield, P. J., & Gasper, J. (2011). The relationship between school engagement and delinquency in late childhood and early adolescence. *Journal of Youth and Adolescence, 40*(1), 3–22.

Hogekamp, Z., Blomster, J. K., Bursalioglu, A., Calin, M. C., Çetinçelik, M., Haastrup, L., et al. (2016). Examining the importance of the teachers' emotional support for students' social inclusion using the one-with-many design. *Frontiers in Psychology, 7,* 1014.

Hospel, V., Galand, B., & Janosz, M. (2016). Multidimensionality of behavioural engagement: Empirical support and implications. *International Journal of Educational Research, 77,* 37–49.

Janosz, M. (2000). L'abandon scolaire chez les adolescents: Perspective nord-américaine. *VEI enjeux, 122,* 105–127.

Janosz, M., Archambault, I., Morizot, J., & Pagani, L. S. (2008). School engagement trajectories and their differential predictive relations to dropout. *Journal of Social Issues, 64*(1), 21–40.

Janosz, M., & Bouthillier, C. (2007). *Rapport de validation du Questionnaire sur l'Environnement Socioéducatif des écoles secondaires (QES-secondaire)*. Montreal: Groupe de recherche sur les environnements scolaires (GRES), University of Montreal.

Janosz, M., Georges, P., & Parent, S. (1998). L'environnement socioéducatif à l'école secondaire: Un modèle théorique pour guider l'évaluation du milieu. *Revue canadienne de psycho-éducation, 27*(2), 285–306.

Kaplan Toren, N., & Seginer, R. (2015). Classroom climate, parental educational involvement, and student school functioning in early adolescence: A longitudinal study. *Social Psychology of Education, 18,* 811–827.

Krapp, A. (2005). Basic needs and the development of interest and intrinsic motivational orientations. *Learning and Instruction, 15*(5), 381–395.

Lam, S., Wong, B. P., Yang, H., & Liu, Y. (2012). Understanding student engagement with a contextual model. In S. L. Christenson, A. L. Reschly, & C. Wylie (Eds.), *Handbook of research on student engagement* (pp. 403–419). Boston: Springer.

Lan, W., & Lanthier, R. (2003). Changes in students' academic performance and perceptions of school and self before dropping out of schools. *Journal of Education for Students Placed at Risk, 8*(3), 309–332.

Lawson, M. A., & Masyn, K. E. (2015). Analyzing profiles, predictors, and consequences of student engagement dispositions. *Journal of School Psychology, 53,* 63–86.

Lee, E., Reynolds, K. J., Subasic, E., Bromhead, D., Lin, H., Marinov, V., et al. (2017). Development of a dual school climate and school identification measure-student (SCASIM-St). *Contemporary Educational Psychology, 49,* 91–106.

Li, Y., Lerner, J. V., & Lerner, R. M. (2010). Personal and ecological assets and academic competence in early adolescence: The mediating role of school engagement. *Journal of Youth and Adolescence, 39*(7), 801–815.

Loukas, A., & Murphy, J. L. (2007). Middle school student perceptions of school climate: Examining protective functions on subsequent adjustment problems. *Journal of School Psychology, 45,* 293–309.

Loukas, A., Suzuki, R., & Horton, K. D. (2006). Examining school connectedness as a mediator of school climate effects. *Journal of Research on Adolescence, 16,* 491–502.

Marks, H. M. (2000). Student engagement in instructional activity: Patterns in the elementary, middle, and high school years. *American Educational Research Journal, 37*(1), 153–184.

Marsh, H. W., Lüdtke, O., Nagengast, B., Trautwein, U., Morin, A. J. S., Abduljabbar, A. S., et al. (2012). Classroom climate and contextual effects: Conceptual and methodological issues in the evaluation of group-level effects. *Educational Psychologist, 47*(2), 106–124.

Martin, A. J. (2005). Exploring the effects of a youth enrichment program on academic motivation and engagement. *Social Psychology of Education, 8,* 179–206.

McCombs, B. L., & Pope, J. E. (1994). *Motivating hard to reach students. Psychology in the classroom: A series on applied educational psychology*. Washington, DC: American Psychological Association.

Mehta, S., Cornell, D., Fan, X., & Gregory, A. (2013). Bullying climate and school engagement in ninth grade students. *Journal of School Health, 83,* 45–52.

Millet, M., & Thin, D. (2005). *Ruptures scolaires. L'école à l'épreuve de la question sociale*. Paris: Presses Universitaire de France.

Ministry of National Education (2015). Repères et références statistiques sur les enseignements, la formation et la recherche. Retrieved from http://cache.media.education.gouv.fr/file/2015/67/6/depp_rers_2015_454676.pdf.

Negoita, G. (2016). The adolescence: Scholastic success and failure. *European Review of Applied Sociology, 9,* 35–47.

Noguera, P. (2010). A new vision for school reform. The change we need in education policy. *Nation, 290*(23), 11–18.

Phan, H. P. (2010). Students' academic performance and various cognitive processes of learning: An integrative framework and empirical analysis. *Educational Psychology, 30*(3), 297–322.

Rathel, J., Drasgow, E., Brown, W., & Marshall, K. J. (2014). Increasing induction-level teachers' positive-to-negative communication ratio and use of behavior-specific praise through e-mailed performance feedback and its effect on students' task engagement. *Journal of Positive Behavior Interventions, 16*(4), 219–233.

Régner, I., Loose, F., & Dumas, F. (2009). Students' perceptions of parental and teacher academic involvement: Consequences on achievement goals. *European Journal of Psychology of Education, 24*(2), 263–277.

Reio, T. G., & Sanders-Reio, J. (2011). Thinking about workplace engagement: Does supervisor and coworker incivility really matter? *Advances in Developing Human Resources, 13,* 462–478.

Ryan, R. M., Stiller, J. D., & Lynch, J. H. (1994). Representations of relationships to teachers, parents, and friends as predictors of academic motivation and self-esteem. *The Journal of Early Adolescence, 14*(2), 226–249.

Salanova, M., Agut, S., & Peiró, J. M. (2005). Linking organizational resources and work engagement to employee performance and customer loyalty: The mediation of service climate. *Journal of Applied Psychology, 90*(6), 1217–1227.

Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources, and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior, 25*(3), 293–315.

Simard, G., Doucet, O., & Bernard, S. (2005). Pratiques en GRH et engagement des employés: Le rôle de la justice. *Relations industrielles/Industrial Relations, 60*(2), 296–319.

Strambler, M. J., & Weinstein, R. S. (2010). Psychological disengagement in elementary school among ethnic minority students. *Journal of Applied Developmental Psychology, 31*(2), 155–165.

Sugai, G., & Horner, R. (2006). A promising approach for expanding and sustaining school-wide positive behavior support. *School Psychology Review, 35,* 245–259.

Tucker, C. M., Zayco, R. A., Herman, K. C., Reinke, W. M., Trujillo, M., Carraway, K., et al. (2002). Teacher and child variables as predictors of academic engagement among low-income African American children. *Psychology in the Schools, 39*(4), 477–488.

Urdan, T., & Schoenfelder, E. (2006). Classroom effects on student motivation: Goal structures, social relationships, and competence beliefs. *Journal of School Psychology, 44*(5), 331–349.

Urdan, T., & Turner, J. C. (2005). Competence motivation in the classroom. In A. J. Elliot & C. S. Dweck (Eds.), *Handbook of competence and motivation* (pp. 297–317). New York: Guilford Press.

Veenstra, R., Lindenberg, S., Tinga, F., & Ormel, J. (2010). Truancy in late elementary and early secondary education: The influence of social bonds and self-control–the TRAILS study. *International Journal of Behavioral Development, 34*(4), 302–310.

Virtanen, T. E., Lerkkanen, M.-K., Poikkeus, A.-M., & Kuorelahti, M. (2014). Student behavioral engagement as a mediator between teacher, family, and peer support and school truancy. *Learning and Individual Differences, 36,* 201–206.

Wang, M. (2009). School climate support for behavioral and psychological adjustment: Testing the mediating effect of social competence. *School Psychology Quarterly, 24,* 240–251.

Wang, M.-T., & Degol, J. L. (2016). School climate: A review of the construct, measurement, and impact on student outcomes. *Educational Psychology Review, 28*(2), 315–352.

Wang, M.-T., & Eccles, J. S. (2012). Social support matters: Longitudinal effects of social support on three dimensions of school engagement from middle to high school. *Child Development, 83,* 877–895.

Wang, M.-T., & Eccles, J. S. (2013). School context, achievement motivation, and academic engagement: A longitudinal study of school engagement using a multidimensional perspective. *Learning and Instruction, 28,* 12–23.

Zimmer-Gembeck, M. J., Chipuer, H. M., Hanisch, M., Creed, P. A., & McGregor, L. (2006). Relationships at school and stage-environment fit as resources for adolescent engagement and achievement. *Journal of Adolescence, 29*(6), 911–933.

Nicolas Fatou completed his master's degree at the University of Bourgogne Franche-Comté (ESPE and "EDUC" Federation of Research). He is currently chief education adviser and his interests include educational support and school climate.

Violaine Kubiszewski PhD, is an associate professor at the University of Bourgogne Franche-Comté (EA3188, Laboratory of Psychology and "EDUC" Federation of Research). Her research interests include behavioral regulation in different settings, school climate, violence and bullying prevention.