The effect of contextual, personal and curricular factors on students' engagement[1]

Efecto de las variables contextuales, personales y curriculares en la implicación del estudiante

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Summary

Introduction: Students' engagement, defined as the behavioural and emotional actions developed by students towards academic tasks, is influenced among other factors by contextual factors (e.g. the school or the geographic context), personal variables (e.g. teachers' and students' gender or teachers' teaching experience) or curricular variables (e.g. subjects or educational level). The main aim of this study was the analysis of the effect of the already mentioned three groups of variables on students' engagement. Methodology: 7,114 students reported their perceptions about 410 teachers from 56 schools located in three different Spanish autonomous communities. The influence of the following variables on students' behavioural and emotional engagement has been analysed: teachers' teaching behaviour, school, autonomous community, teachers' and

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students' gender, teachers' teaching experience, subject and educational level. A multivariate analysis of variance and the analysis of effect sizes have been run to determine the influence of the predictor variables on criterion variables. Results: Teachers' gender and the autonomous community did not seem to have any influence on students' engagement (neither behavioural nor emotional one). On the other hand, the school variable demonstrated the highest effect size for students' engagement, biasing the effect of subjects on students' behavioural and emotional engagement. Regarding the influence of subjects, the lowest effect size on students' engagement has been found in exact and applied sciences and the highest effect has been obtained in vocational education and training subjects. Discussion: Current findings revealed the need to consider the analysis of students' behavioural and emotional engagement separately. In addition, this study has shown interesting differences between instrumental and vocational education and training subjects.

Key words: Teacher's teaching behaviour; students' behavioural engagement; students' emotional engagement; instrumental subjects; vocational education and training.

Resumen

Introducción: La implicación del estudiante entendida como las acciones conductuales y emocionales emprendidas por los discentes ante las tareas académicas, se encuentra expuesta al influjo de variables contextuales (centro docente, entorno geográfico), variables personales (género del docente y del estudiante, años de experiencia del docente y comportamiento docente) o variables curriculares (tal sería el caso de las asignaturas o la etapa educativa). Así, el objetivo principal de este estudio ha sido analizar el efecto de estos tres grupos de variables sobre la implicación del estudiante. Metodología: 7114 estudiantes emitieron sus percepciones sobre 410 docentes pertenecientes a 56 centros educativos de tres comunidades autónomas españolas. Se ha analizado la influencia de las siguientes variables sobre la implicación conductual y emocional del estudiante: comportamiento docente, centro docente, comunidad autónoma, género del docente y delos estudiantes, años de experiencia docente, asignaturas y etapa educativa. A tal efecto, se ha realizado un análisis multivariado de la varianza y un análisis del tamaño de los efectos para conocer la influencia de las variables predictoras sobre las variables criterio. Resultados: El género del docente y la comunidad autónoma no parecen tener influencia ni en la implicación conductual ni en la implicación emocional del estudiante. Asimismo, el centro educativo ha mostrado un importante efecto sobre la implicación de los estudiantes, sesgando la influencia que presentan las asignaturas. Respecto a la influencia de las asignaturas, el efecto menor sobre la implicación del estudiante se ha encontrado en las asignaturas de ciencias exactas mientras que el efecto mayor ha sido obtenido en las asignaturas específicas de formación profesional. Discusión: Las evidencias encontradas muestran la necesidad de

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considerar separadamente el análisis de la implicación conductual y emocional de los estudiantes, además de las diferencias entre las asignaturas instrumentales y las materias específicas de formación profesional.

Palabras clave: comportamiento docente, implicación conductual del estudiante, implicación emocional del estudiante, asignaturas instrumentales, Formación Profesional.

Introduction

Several factors determine student outcomes and their motivation and implication toward academic tasks. Existing research has tried to develop an image of all these factors by using different procedures to obtain the relational information. In some approaches, teachers are asked to explain what they do inside their classrooms or how they understand the teaching of their subjects; in other approaches, the focus of the questions is situated on students, trying to determine their opinions and perceptions about their teachers (De Jong & Westerhof, 2001; Le Baron, Kelcey & Ruzek, 2016). In few cases, information is obtained by observation procedures, which may be developed by experts or other colleagues (Irnidayanti, Maulana, Helms-Lorenz & Fadhilah, 2019; Pianta & Hamre, 2009; Maulana & Helms – Lorenz, 2016; Van der Lans, Van de Grift, Van Veen & Fokkens – Bruinsma, 2016). Each of these methods shows advantages and disadvantages in terms of their economical cost, reliability or time needed (Burdsal & Bardo, 1986; Furrer & Skinner, 2003; Maulana & Helms - Lorenz, 2016; Maulana, Helms - Lorenz & Van de Grift, 2015b; Stroet, Opdenakker & Minnaert, 2013; Van der Lans, Van de Grift & Van Veen, 2015).

Several studies have shown that classroom factors play a more important role than school factors when trying to understand students' engagement and outcomes (Kyriakides, Creemers & Antoniou, 2009). Research has demonstrated that teachers' behaviour is one of these important classroom factors which has a powerful effect on students' academic engagement (Coe, Aloisi, Higgins & Major, 2014; Fernández-García, Maulana; Inda-Caro, Helms – Lorenz y García Pérez, 2019; Inda-Caro, Maulana, Fernández-García, Peña-Calvo, Rodríguez-Menéndez y Helms – Lorenz, 2019; Klem & Connell, 2009; Kyriakides et al., 2009;

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Maulana, Opdenakker, Stroet & Bosker, 2012; Opdenakker, Maulana & Den Brok, 2012). Moreover, students' perceptions of their teachers' behaviour can predict their self – report academic engagement, suggesting that the better the teaching behaviour perceived by students, the higher the level of academic engagement tends to be (Maulana, Helms - Lorenz & Van de Grift, 2015a).

The aim of this paper is to investigate the relationship between teachers' teaching behaviour and students' engagement by taking into account the role of contextual factors (school and autonomous community), teachers' and students' personal factors (gender or teacher teaching experience) and also curricular factors (subject taught and educational level) in the Spanish context. As long as research on this particular topic in Spain has been hardly done, therefore, the present study will contribute to provide insights from the Spanish context.

Theoretical framework

Teachers inside classrooms

The concept of teacher behaviour is quite broad (Burdsal & Bardo, 1986; Guskey & Passaro, 1994; Muijs, Campbell, Kyriakides & Robinson, 2005). Furthermore, teachers develop in their daily routines many tasks, which have to do with organizational facts, the use of time, the attention to all kind of students or the control of discipline. The theoretical framework developed by Van de Grift (2007) has established the existence of six effective teaching domains which make easier the organization and study of all these tasks and their influence on student outcomes such as academic engagement. Not all of the teaching domains imply the same complexity, so the model also offers indications about their level of difficulty and subsequently some conclusions about which tasks should be easily reached by all teachers and which, on the contrary, require higher levels of experience (Van de Grift, 2007, 2014).

Safe learning climate requires the mutual respect not only between students and teachers but also among students, to encourage students' self – confidence and to facilitate good relationships in the classroom. Existing research suggests that learning is enhanced through personal

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interactions with their peers and also with their teachers (Cerda, Pérez, Elipe, Casas & Del Rey, 2019; Barr, 2016).

Efficient classroom management presumes that the teacher is able to organize the learning time with skills such us avoiding the waste of time, punctuality in the beginning and ending of the lesson, providing well-structured classes and not making students wait for their teachers' attention. Other important aspects are presenting information in an orderly manner and managing lesson and topic transitions accurately (Maulana et al., 2015a, 2017; Van de Grift, 2007).

Clarity of instruction includes a well-defined structure of the lesson, clarifying lesson objectives in order to let students know what they are expected to do during the lesson (Maulana et al., 2015b; Van de Grift, 2014), taking into account previous knowledge, giving clear examples, supervising the acquisition of objectives, the equilibrium of activities (dividing individual and group work clearly and in a balanced way) and offering immediate feedback to keep students on task, among others (Maulana et al., 2015a, 2015b; Van de Grift, Helms – Lorenz & Maulana, 2014).

Activating teaching entails connecting students' prior knowledge and the use of advance organizers (Van de Grift et al., 2014) so that contents make sense to students and let them be aware of the relevance of the lessons (Maulana et al., 2015b; Van de Grift, 2007).

Teaching learning strategies cover the use of scaffolds or other metacognitive strategies, which help students bridge the gap between the new concepts and the already known ones and to perform higher level procedures. They usually imply breaking problems down into more simple tasks that students have a real chance of solving (Van de Grift, 2007, 2014).

Differentiation requires adapting teaching to student individual differences,thinking about the factors which determine these individual differences, addressing students' levels, learning preferences and learning profiles (Lluch & Portillo, 2018; Maulana et al., 2015a). Several indicators reflect differentiated teaching strategies: devoting extra time and additional instructions, pre – teaching and re – teaching and implementing various effective teaching methods (Maulana et al., 2015b, 2017).

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Contextual and teacher factors influencing teachers' behaviours: the effect of subjects, gender and teaching experience

Research has been developed to analyse the differences observed among different subject teachers. Opdenakker, Maulana & Den Brok (2012) reported that science and mathematics teachers are often perceived as less favourable compared to other subject teachers. In another study, Maulana et al. (2012) based their research in an interesting idea, assuming among other factors, that the more knowledgeable the teachers are, the more engaged students tend to be, finding interesting differences in these features which may affect teachers ability to be knowledgeable and the subjects taught: differences were observed among maths teachers and English as foreign language ones, revealing that math teachers allocated more time in the introduction of the class and in some countries (The Netherlands) less time on closing the lesson. Telli (2006) also analysed students' perceptions of teachers' interpersonal behaviour across four categories of subjects in secondary education (science; social sciences; language and literature; arts and sports) finding interesting differences in some of the studied dimensions (control and affiliation) particularly in the case of male students and their maths teachers.

Opdenakker and Van Damme (2007) established that teachers' gender was also an important predictor of teacher classroom management so that male teachers tended to maintain order better than their female colleagues and had a better classroom organization. They also indicated that proximity was perceived lower in female teacher classes than in male teachers ones, meaning that female teachers seemed to be stricter, less cooperative and less friendly than male teachers (Opdenakker et al., 2012). All these differences concerning classroom management and relationship with teachers may also affect students' academic engagement. Teodorovic (2011) found in a study developed in a primary school in Serbia that teachers' gender proved to be a moderate predictor of student achievement in Serbian language, so having a male teacher was negatively associated with student achievement. Maulana et al. (2017) in their study with 264 pre – service teachers from 64 secondary schools from the Netherlands found that differences in learning climate and clarity of instruction could be explained by teacher gender, revealing that female teachers displayed better quality learning climate and clarity of instruction than male pre – service teachers. The study of Fernández-

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García et al. (2019) also concluded that Spanish female teachers obtained better ratings in all domains of teaching effectiveness in lower secondary education, higher secondary education and vocational education and training.

On the other hand, female students tended to rate their teachers more favourable than do their male peers (Opdenakker et al., 2012). Moreover, Lietaert, Roorda, Laevers, Verschueren and De Fraine (2015) concluded that girls showed higher behavioural engagement than boys not only based on their own reports but also on teachers and independent observers ones. Besides, girls also showed in this study a more positive perception of teacher support.

Although some studies have shown that teaching experience can be associated with a statistically significant positive effect on student achievement, with higher levels of student engagement or with a better wellbeing experienced by teachers (Antoniou, Kyriakides & Creemers, 2011; Kini & Podolsky, 2016; Reeve, Hyungshin, Carrell, Jeon & Barch, 2004) conclusions are not determinant in this sense. For instance, Opdenakker et al. (2012) determined that teacher influence and proximity decreased over time, and Conway and Clark (2003) found in their qualitative study with intern teachers that class management tasks (e.g. discipline or adopting a custodial approach to teaching) were not as important as it could be initially thought given their condition of novice teachers. On the other hand, several studies (De Jager, Coetzee, Maulana, Helms-Lorenz & Van de Grift, 2017; Fernández-García et al., 2019) have revealed that teachers with less experience were not the ones perceived by their students as less effective.

Teachers' teaching behaviour and students' academic engagement

Studies have revealed that teachers and their behaviours during their classes have a powerful effect on students' academic engagement (Bertills, Granlund & Augustine, 2019; Davidson, Gest & Welsh, 2010; Inda-Caro et al., 2019). Students' engagement is multidimensional and comprises several dimensions. It is frequently conceptualized as the extent to which students are behaviourally and psychologically engaged in academic tasks (Appleton, Christenson, Kim & Reschly, 2006; Van de Grift, 2007; Wang & Holcombe, 2010). Behavioural engagement is

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focused on students' actions and practices that are directed toward school and learning (e.g. if the student tries to work hard in class, shows a positive conduct or effort, participates in class discussions, follows the rules or pays attention) whereas students' emotional engagement assesses students' affective reactions and sense of identification with school, e.g. how students feel in the classroom, if they enjoy learning new things, get involved when they are working on something or show interest (Fredricks, Blumenfeld & Paris, 2004; Jimerson, Campos, & Greif, 2003; Wang & Holcombe, 2010). These two dimensions have a positive effect on students' achievement and grades.

The study developed by Maulana et al. (2017) revealed that the already mentioned teaching behaviour domains explained differences in students' academic engagement being classroom management and clarity of instruction the most significant predictors of pupils' engagement. In their research Inda-Caro et al. (2019) concluded that emotional engagement seemed to be more strongly related to student perceptions of teaching behaviour than behavioural engagement and that activating teaching was the most outstanding domain.Other studies (Ganottice & King, 2014) also concluded that engagement could be influenced by students' relationship with significant others like parents, teachers or peers. Indeed, all these social agents may provide certain kind of support which can act as a facilitator of school engagement and achievement outcomes.

Methodology

Participants

In this Spanish study, participants were 7,114 students of 410 teachers attending 56 educational institutions. 39 of them were public whereas 17 were private. Data were collected, on 2017,among three Spanish autonomous communities: 134 students were from Galicia (41 public schools and 93 private ones); 1,183 from Andalusia (1,084 attended public schools and 99 private ones) and 5,797 from the Principality of Asturias (3,577 from public and 2,220 from private schools). Regarding the numberof teachers, 8 of them were from Galicia, 69 from Andalusia and 333 from the Principality of Asturias.

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According to the educational level students were studying, the distribution was 72% from lower secondary education, 5% from upper secondary education and 13% from vocational education and training (VET).

A balance regarding gender can be observed, showing that 50% students were males and 48% were females. 2% of the students did not report their gender.

The average class size was 18 students, with a mean age of 18 years old. The mean age showed variations depending on the educational level: in lower secondary education the mean age was 16.55 years, in upper secondary education it was 19.19 years and, finally, in vocational educational and training it was 25.34.

The assessed subjects were: languages (native and foreign), exact and applied sciences (which included mathematics, physics, chemistry, natural sciences), social sciences, physical education, artistic education and VET subjects.

Teachers sample was formed by 410 participants. The major percentage of teachers (70%) gave their classes in lower secondary education; 14% of teachers in upper secondary education and 16% in VET. The sample was formed by a majority of female teachers (244, 60%) whereas 166 (40%) were male teachers. The mean age of teachers was 47.90 years old. The majority of teachers were responsible for subjects which have to do with languages, sciences and social sciences. These data are in line with general subject disciplines that constitute the core subjects of the Spanish curriculum.

Teachers' teaching experience mean was 18.91 years. The majority of the teachers (145; 35%) could be found in the category between 10 and 19 years of teaching experience, followed by teachers with between 20 and 29 years (130; 31%), teachers between 3 and 9 years (61; 15%), those with 30 or more years of teaching experience (60; 15%) and beginners with 3 or less years of experience (13; 3%). One teacher did not indicate his/her teaching experience. To sum up, this Spanish sample was formed by teachers with medium teaching experience. All the teachers had an official teaching certificate, as long as it is compulsory for all candidates of the secondary education teaching profession in Spain.

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Measures

Teaching behaviour

To tap student perceptions of teachers' teaching behaviour, we used the My Teacher Questionnaire (MTQ)based on the teaching behaviour model of Van de Grift (2007) and Van de Grift et al. (2014). The questionnaire was translated and back-translated for use in the Spanish context following the guidelines provided by Hambleton, Merenda, and Spielberger (2004). The MTQ consists of 41 items divided into six domains: learning climate, efficient classroom management, clarity of instruction, activating teaching, differentiation and teaching learning strategies. The responses range from 1 (never) to 4 (often). The alpha coefficient for the whole scale was .93. By domains, the alpha values were: learning climate α = .66, efficient classroom management α=.76, clarity of instruction α= .70, activating teaching α= .80, differentiation α= .60 and teaching learning strategies α= .71.

Students' engagement

To measure student engagement, the 10-items engagement scale of Skinner, Kindermann and Furrer (2009) was used. The scale consists of two dimensions of engagement: behavioural engagement (BEHE, 5 items) and emotional engagement (EMEN, 5 items). All responses were provided on a 4-point Likert scale, ranging from 1 (completely false) to 4 (completely true). The alpha coefficient for the whole scale was .88. The alpha coefficient for behavioural engagement was = .93 and .92 for emotional engagement.

Procedure

The research group contacted the educational authorities in order to get their authorization to do this research. The project obtained the approval of the Department of Education of the Principality of Asturias who authorizes which projects (Type C. New research and innovation projects of the University of Oviedo) involving cooperation with schools can be carried out (Educastur, 2017). Depending on the autonomous communities, the process followed to collect data differed: in Asturias, 137 schools were initially contacted although only 41 finally accepted to

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participate; in Andalusia and Galicia, due to the impossibility to contact local educational authorities, we were obliged to use a convenience sampling procedure.

Once the Principal of each school agreed with the participation in the study, the families were informed about the project and its objectives during the meetings developed in the schools at the beginning of the academic year. Only when these authorizations were obtained, the students filled out the questionnaire which took about 30 minutes to complete. Any families who did not allow their children participation, reported their decision to the Principal of the school so that their sons and daughters were not asked to answer the questionnaires.

Collection of data was done in a normal class time. There was no remuneration or course credit for participation and anonymity was guaranteed.. The questionnaires were administrated on a paper format. The research team went to all the schools in order to supervise the process and each of the researchers was assigned a class group to apply the instrument.

Data analysis

A multivariate analysis of variance was used to analyse the influence of certain variables (school, autonomous community, teachers' and students' gender, teacher's teaching experience, subject, educational level and teachers' teaching behaviour) on students' behavioural and emotional engagement. A separate estimation for behavioural and emotional engagement was done using IBM SPSS (version 22). Additionally, differences in criterion variables have been analysed focusing on the 'subject' variable. Due to the fact that the sample did not have neither national nor regional representativeness, analysis distinguishing between regions have not been carried out.

Results

Teaching support and student engagement

In order to test if data had the same distribution, the normality of the sample was initially tested and skewness and kurtosis values were calculated. All dimensions obtained values under 1 in absolute value, so the normality criterion was met. Likewise, to state the homogeneity of variances, the Levene's test was checked, finding values higher than .05 in behavioural and emotional engagement. Besides, in those predictor variables which did not show equality of variance, non-parametric tests were run.

Firstly, a model with all predictor variables (school, autonomous community, teachers' behaviour, students' gender, teachers' gender, teacher teaching experience, subject and educational level) was considered. Additionally, the interaction of all the possible predictor variables were included in the model, obtaining that these variables could explain the 8% of behavioural engagement and the 14% of emotional engagement. The individual influence of the predictor variables, was for behavioural engagement: teachers' behaviour ($F = 399.05$, $p < .001$, $\eta^2 = .06$),likewise, for emotional engagement the influence of teacher behaviour was ($F = 860.00$, $p < .001$, $\eta^2 = .11$). This fact means the teachers' skills had medium effect on students' behavioural engagement and medium-high effect on students' emotional engagement.

Secondly, we focused on teachers' teaching behaviour, consequently, a simpler model was analysed focusing on the interaction of this one with the other predictor variables (Table I). The percentage of explained variance was similar to the one obtained in the previous model: 8% of variability was explained in students' behavioural engagement, and 14% in students' emotional engagement. However, few predictor variables were necessary, because the single effects of each of them were not considered. Regarding behavioural engagement the following interactions showed a significant influence: teachers' teaching behaviour with students' gender and teachers' teaching behaviour with school.

Referring to students' emotional engagement, a significant relationship was found in the interaction of teachers' teaching behaviour with school, students' gender, teachers' teaching experience, subject and educational level.

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Due to the fact that no homogeneity of variance was found in the criterion variables for the school predictor variable, the Kruskal-Wallis' test was run. This fact implies that neither behavioural nor emotional engagement followed the same distribution in each of the schools. The results were in students' behavioural engagement ($\chi^2 = 196.74$, $p < .001$) and in students' emotional engagement ($\chi^2 = 233.06$, $p < .001$). However, it seemed interesting to test the model without the school variable. As a result, the model got the same values. In addition, the relationship between teachers' teaching behaviour and subject taught when the effect of the school was not considered was significant in students' behavioural engagement ($F = 5.34$, $p < .001$, $\eta^2 = .004$), and also increased in students' emotional engagement ($F = 7.21$, $p < .001$, $\eta^2 = .01$); meanwhile, as Table I shows this effect disappears when the school is taken into consideration.

TABLE I. Interaction between teachers' behaviour and school, autonomous community, teachers' gender, students' gender, teacher teaching experience, subject and educational level on students' behavioural and emotional engagement

	Students' Behavioural Engagement		**Students' Emotional Engagement**	
	F	η^2	F	η^2
Teacher's Teaching behaviour* School	2.23***	.02	2.27***	.02
Teacher's Teaching behaviour* Autonomous Community	0.28	.00	0.67	.00
Teacher's Teaching behaviour* Teachers' gender	1.47	.00	1.22	.00
Teacher's Teaching behaviour* Students' gender	26.14***	.004	27.19***	.004
Teacher's Teaching behaviour*Teacher's teaching experience	1.99	.001	2.55*	.001
Teacher's Teaching behaviour* Subjects	1.67	.001	2.65*	.002
Teacher's Teaching behaviour* Educational level	1.99	.001	8.24***	.002

* p< .05. **p < .01. *** p< .001.

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Students' behavioural and emotional engagement across subjects and students' gender

We also aimed to further analyse the interaction between students' gender and subjects. To reach this goal, Pearson correlations (Table II) and an analysis of variance with post-hoc comparisons were carried out in order to identify differences among subjects. As long as equality of variances was not obtained, in other words, the variability of students' engagement was different between subjects ,the Dunnett test was also considered to analyse the post hoc differences (Table III). Pearson correlations showed important differences between students' behavioural/emotional engagement and gender. Focusing on girls, the highest correlations with behavioural engagement and teachers teaching behaviour were obtained for artistic education (r = .37; p< .01) and physical education (r = .30; p< .01) whereas in the case of boys, the highest correlations could be observed with social sciences (r = .27; p< .01), languages (r = .26; p< .01) and VET subjects (r = .26; p< .01).

In the case of emotional engagement, girls' highest correlations with teachers teaching behaviour were obtained for artistic education (r =.53; p< .01) and for exact and applied sciences (r = .38; p< .01). On the other hand, for boys, the highest correlations with emotional engagement and teachers teaching behaviour, were found for social sciences (r = .41; p < .01) and languages (r = .36; p < .01). All correlations were positive, so when students perceived accurate teachers' teaching behaviours their behavioural and emotional engagement increased, whereas when students perceived weak teachers' teaching behaviours their behavioural and emotional engagement decreased.

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TABLE II. Pearson correlations between teaching behaviour and students' engagement considering gender and subjects

	Teachers' Teaching behaviour* Students' Behavioural Engagement		**Teachers' Teaching behaviour* Students' Emotional Engagement**	
	Girls *n* = 3,411	Boys *n* = 3,571	Girls *n* = 3,411	Boys *n* = 3,571
Languages (LE)	.28**	.26**	.34**	.36**
Exact and Applied Sciences (ES)	.25**	.24**	.38**	.31**
Social Sciences (SS)	.17**	.27**	.36**	.41**
Physical Education (PE)	.30**	.12	.33**	.30**
Artistic Education (AE)	.37**	.14	.53**	.08
Others (VET)	.22**	.26**	.29**	.30**

* p < .05. **p < .01. *** p < .001.

Differences among subjects in students' behavioural and emotional engagement were obtained not only in girls but also in boys (Table III). Although the effect of subjects on students' engagement was low, however, the comparison among subjects showed interesting findings.

Regarding behavioural engagement, the differences focused on girls. In female students the differences were concentrated between subjects, specially among VET subjects with language; VET subjects with exact and applied sciences and VET subjects with social sciences, showing a difference *(d)* range between -0.14 and 0.14; $p < .05$. Female students rated significantly higher in artistic education than in exact or applied sciences ($d = 0.16$; $p < .05$), obtaining this last subject the lowest relationship with engagement.

Focusing on emotional engagement, the findings were also different according to gender. While in the case of girls the differences were found between exact and applied sciences and VET subjects (d range between -0.12 to 0.12; $p < .05$) in boys, more differences could be observed. The values were higher in VET subjects than in language, exact and applied sciences and social sciences, depicting a d range between -0.21 to 0.14; $p < .05$ (Table III).

Languages, exact and applied sciences were the subjects where students' (boys and girls) emotional engagement showed lower values. On

the other hand, artistic and physical education were the subjects where students' emotional engagement was higher (Table III). The situation with students' behavioural engagement was slightly different between boys and girls: in the case of boys, languages and exact and applied sciences were the subjects where the lowest values were found whereas girls showed these values in exact and applied sciences and social sciences. The highest values were obtained in artistic and physical education if we focus on boys and VET and artistic education in the case of girls.

TABLE III. Analysis of differences in students' behavioural and emotional engagement considering students' gender and subjects.

	Students' Behavioural Engagement				**Students' Emotional Engagement**			
	Girls *n* = 3,411		Boys *n* = 3,571		Girls *n* = 3,411		Boys *n* = 3,571	
	Mean	*SD*	Mean	*SD*	Mean	*SD*	Mean	*SD*
Languages (LE)	3.14	0.55	3.02	0.56	3.16	0.60	3.03	0.63
Exact and Applied Sciences (ES)	3.09	0.53	3.02	0.57	3.14	0.60	3.02	0.64
Social Sciences (SS)	3.13	0.53	3.06	0.58	3.18	0.61	3.10	0.63
Physical Education (PE)	3.17	0.57	3.15	0.57	3.26	0.59	3.17	0.70
Artistic education (AE)	3.26	0.47	3.18	0.52	3.23	0.58	3.10	0.61
Others (VET)	3.23	0.49	3.09	0.56	3.25	0.57	3.24	0.56
F	4.56***		3.32**		3.30**		10.52***	
η^2	0.01		0.01		0.01		0.02	
Dunnett's Post Hoc Test	LE-VET = -0.10*				ES-VET = -0.12*		LE-VET = -0.21*	
	ES-VET = -0.14*				VET- ES = 0.12*		ES-VET = -0.21*	
	SS-VET = -0.11*						SS-VET = -0.14*	
	AE-ES = 0.16 *						VET-LE = 0.21*	
	VET-LE = 0.10*						VET-ES = 0.21*	
	VET-ES = 0.14*						VET-SS =0.14*	
	VET-SS = 0.11*							

* p< .05. **p < .01. *** p< .001.

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Discussion and Conclusions

The developed analysis allow us to conclude in line with other studies (Wang & Holcombe, 2010) that engagement is a multidimensional construct so when the aim is the improvement of students' engagement we cannot avoid considering certain external factors that may be influencing students, their perceptions and behaviours. Ganottice and King (2014) reinforce this same idea when they state that school success and engagement are heavily influenced by the social context, not being possible to understand it as only a product of individual features. The study of Martin, Yu and Hau (2014) also focuses on the role of sociocultural dimensions in the shaping of motivations and engagement.

It is also important to pay attention to separate analysis regarding different kinds of engagement (Fredricks, Blumenfeld, Friedel & Paris, 2003). In accordance with our results, the most important factors for behavioural engagement are school, students' gender, teachers' teaching behaviour and subjects.The same results are obtained when we focus on emotional engagement. However, the multivariate analysis of variance shows some differences: whereas students' gender has the same importance in both models (the study of Archambault, Janosz, Morizot and Pagani in 2009 also found the significant effect of students' gender), teachers' teaching behaviour and subjects are more determinant for emotional engagement than for behavioural one. The aforementioned relationship between teachers teaching behaviour - which considers the creation of a good learning climate - and emotional engagement aligns with the literature which has also found the same connection (Reyes, Brackett, Rivers, White & Salovey, 2012). Following the results of Archambault, et al. (2009), as long as students invest time and effort in academic tasks to the extent that they find these tasks valuable and interesting, we also conclude that efforts need to be done to sustain this students' interest in academic issues, as a previous stage to reach their behavioural and emotional engagement.

As a consequence of the results obtained in the multivariate analysis of variance, in which the educational institution reveals its importance for behavioural and emotional engagement, it would be recommendable to deepen in this level of analysis. Although both criterion variables get the same effect sizes, in the school factor, the effect on students' behavioural engagement must be highlighted as long as it may bias the effect of

subject on students' engagement. It should be considered that in other Spanish researches important differences have been obtained in students' results according to their social environment and school (Mato-Vázquez, Chao-Fernández & Ferreiro-Seoane, 2015; Rendon &Navarro, 2007). What is sure is that in our research the educational institution needs to be considered, not being important on the other hand, other factors such as the political - geographical location of the school (no significant results have been obtained according to the autonomous community).

Focusing on teachers' teaching behaviour it is worth mentioning that they are a good predictor of students' behavioural and emotional engagement. So, in line with other studies (Maulana & Helms – Lorenz, 2016; Wang & Holcombe, 2010), our results show that students' perceptions about their teachers' behaviour have a considerable influence in their engagement. When teachers develop better teaching skills, male students' behavioural and emotional engagement increases in areas such as language and social sciences. In the case of female students, improving teachers' teaching behaviour positively affects their emotional engagement in exact and applied sciences and artistic education and besides their behavioural engagement in artistic education and physical education. These results concerning emotional engagement are crucial if we take into account the importance given in recent educational and psychological literature to STEM studies (science, technology, engineering and mathematics) in Spanish contexts (Inda-Caro, Rodríguez-Menéndez & Peña-Calvo, 2016; Peña-Calvo, Inda-Caro, Rodríguez-Menéndez & Fernández-García, 2016; Rodríguez-Menéndez, Inda-Caro & Fernández-García, 2016). Moreover, these studies have reached the conclusion of the importance of female students' participation and engagement in this kind of subjects to avoid school dropout and to achieve good results.

Although subjects do not seem determinant in other studies analysing their influence on teachers' behaviours (Maulana et al., 2017), in the current paper differences have been found among different subjects in relation with students' emotional and behavioural engagement. Furthermore, our data show diverse profiles between instrumental subjects (languages, mathematics and social sciences) and VET ones. Although the lowest values of the criterion variables have been obtained in the instrumental subjects, the correlations also show that this kind of subjects do matter for students' behavioural and emotional engagement. This conclusion means that educational systems and authorities should

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pay attention to them. Some of these correlations (e.g. the correlation between exact and applied sciences and emotional engagement) seem to be especially relevant, due to the fact that female students' emotional engagement mean in these subjects is the lowest one.

Limitations

When interpreting findings, there are a number of potential limitations that need to be considered and which may help to guide future research. First, teachers and students have participated on voluntary basis, so schools were allowed to include only certain groups, which could bias the study.

It would be necessary to develop more studies in other Spanish regions because only analysedthree Spanish autonomous communities have been considered. These studies would be very important because Spain has a decentralized educational system what means that autonomous communities have obtained important competences from the Spanish Ministry of Education, Culture and Sports in order to organize the education in their territory according to the particularities of their specific contexts e.g. introduction of certain languages, the content of some subjects or the regulation of timetables.

In a next phase of the study, it would be desirable to analyse the influence of each domain on students' behavioural and emotional engagement, having direct information from teachers and not only from students. Besides, it would be important to consider the difference between good teaching and students' perceptions of good teaching, as long as students' perceptions of teaching quality and other academic models of good teaching are not necessarily identical (Burdsal & Bardo, 1986). Thus, the future use of multiple sources of information and diverse methodologies (interviews, observations, surveys) can provide a more robust and complete method to study the influence of certain factors in school engagement (Wang & Holcombe, 2010). Additionally, it is worthwhile validating our findings with teachers' and observers' perceptions about teaching behaviours.

Finally, another limitation is based in the cross – sectional nature of the study which does not allow teachers' and students' assessment in each of the variables during a period of time. . Our results are describing

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the relationship and possible influence of some predictor variables on criterion ones at one time point and in a specific sociological context. Future studies would be needed to confirm or refute the results found so far.

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