



Controlling style, relatedness and cohesion in university students: A six countries comparison

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Abstract

The objective of this study was to test a multilevel model about the relationship between teacher's controlling style, the relatedness and group cohesion in students. In addition, the invariance of the hypothesized model was tested across six countries. The sample was composed of 3178 university students of both sexes, aged between 17 and 63, from six countries of the Iberian Peninsula and South America (Spain, Portugal, Mexico, Colombia, Chile and Brazil). At the group level, results of the multilevel structural equation model showed that the teacher's controlling style negatively predicts the relatedness, but does not predict the students' group cohesion significantly. At the individual level, the controlling teaching style does not predict the relatedness, but the relatedness positively predicts group cohesion. Multiple group comparison indicated that the hypothesized model could be considered invariant across six participating countries. The results extend research of this issue, and can have positive effects on the teaching-learning process in the classrooms.

Keywords Controlling interpersonal style · Relatedness · Cohesion · Cross-cultural · Higher education

Introduction

According to Dhurup and Reddy (2013), cohesion is defined as the propensity of a group to stay together, to establish social links and to share ideals in the pursuit of objectives.

Traditionally, cohesion has been taken into account as one of the most relevant variables in the group studies (Carron and Brawley 2000). However, the attention received has been limited in the university context (Forrester and Tashchian 2006). Despite this, promoting class cohesion is beneficial for universities offering higher education (Thornton et al. 2020). Many teachers value class cohesion and consider it a key aspect of academic success (Senior 2001). Likewise, cohesion can play a preventive role against university dropout by providing students with social and academic support (Wickens et al. 2006). Relatedness concerns a sense of belonging and connection (Ryan and Deci 2020), and can be satisfied through the teacher's teaching style. If teachers foster this sense of belonging to the group, it leads to positive academic achievement (Xie et al. 2019). The acceptance and support perceived from significant others allow individuals to activate their resources to achieve positive psychological outcomes. Relatedness energize people to thrive (Dost-Gözkan 2020). Thus, further exploration of the relationship between social factors, relatedness and cohesion in an educational context is needed. In this sense, the present study analyzes the relationship between teacher's controlling style, relatedness and group cohesion in university students.

Cohesion is a sense of togetherness or community within a group (Corey and Corey 1997). Cohesion has important benefits for the student and, in fact, has been linked to

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engagement (Senior 2001), and class attendance of first-year college students studying a sport and exercise program (Thornton et al. 2020). According to Senior (2001), cohesion generates security within the class and promotes language development. In addition, cohesion has been linked to better classroom atmosphere (Swezey et al. 1994). Cohesive classes enjoy interaction (Forsyth 1999) and these groups promote mutual learning due to greater solidarity within the classes (Hinger 2006).

Self-determination theory (SDT) states that contextual conditions (i.e. teacher style) can support or thwart the sense of belonging and connection with significant others (Ryan and Deci 2020). Ryan et al. (2019) indicate that the healthy development of individuals requires the support of three needs. Teaching behaviors that support the basic psychological needs for autonomy (feelings of self-determination), competence (feeling efficient and safe for their actions), and relatedness (feeling connected and supported by others who are important) are those that have the most positive effects (Ayllón et al. 2019; León et al. 2017) and can determine a student's participation during classes, their way of relating to each other, and the way they perform learning tasks (Jang et al. 2016). Autonomy support is seen as promoting both autonomy and relatedness satisfactions (Ryan and Deci 2020). Streb et al. (2015) found that when children were in learning environments that supported relatedness and autonomy, they showed greater engagement and energy mobilization.

Therefore, teachers may exhibit autonomous or controlling behaviors (Ryan and Deci 2017). Teachers who have an interpersonal style of supporting student autonomy in the classroom try to understand, recognize and consider the students' point of view. They also provide opportunities and support students' curiosity and initiative in performing school tasks. They offer them choices and propose meaningful tasks related to their interests. In addition, they provide meaningful reasoning for any doubts or questions from their students (Núñez and León 2015). In contrast, teachers with an interpersonal control style are more oriented to pressuring students to think, feel, or behave in a particular way without considering the student's point of view (Ryan and Deci 2020). Controlling practices have been associated with increased frustration of basic psychological needs, leading to negative results for students (Amoura et al. 2015), generating demotivation (Aelterman et al. 2019; Behzadnia et al. 2018).

Autonomy support is a powerful tool to motivate students and help them achieve better results. There is consensus in the research about the importance of this motivational process to generate beneficial results in students (Ayllón et al. 2019; Haerens et al. 2018; Núñez et al. 2015; Tilga et al. 2019). However, many teachers still use controlling tools during their classes. There are a number of reasons why a teacher may use a more controlling style in their classes, including resistance to changing the attitude and motivation of the teachers

themselves (Roth et al. 2007); pressure and demand for work outcomes (Pelletier and Sharp 2009), fear of losing control of the class, lack of experience or lack of initial training in these areas (Lamote and Engels 2010; Su and Reeve 2011), the characteristics of the students themselves (Taylor et al. 2008). These aspects limit the teacher's role in situations that allow for actions to support student's autonomy.

In recent years, the phenomena that have to do with the relationships of the teacher's interpersonal style and the positive development within the learning process are taking special attention (Ayllón et al. 2019; Yoon et al. 2018). The learning environment, the methodology used in the teaching process, and the way it is evaluated can determine student participation and learning (Jang et al. 2016). Moreover, student behaviour is influenced by motivational orientations. Thus, the learning is an active and dynamic process that is enhanced when students participate in autonomously motivated learning activities (Ryan and Deci 2000).

Social relationships supported in an educational environment can generate benefits not only at the personal level, but also at the group level. In this sense, if teachers facilitate group cohesion in their classes, they generate moral feelings of belonging to a group (Bollen and Hoyle 1990). Considering this line, a recent study has pointed out the importance of group cohesion perceived together with positive teaching strategies in generating positive academic results (Xie et al. 2019).

Thus, the feeling of relationship and of the permanence of the group united in order to achieve the objectives of the task should be valued by teachers in order to optimize positive results in students. Although studies are very scarce, SDT (Deci and Ryan 2000), proposes that social factors and relationships have a great importance in generating intrinsic motivation, through positive motivational climates (Cheon et al. 2018a; Cheon et al. 2018b), and group cohesion also presents positive results on self-determined motivation (Blanchard et al. 2009).

The Present Study

According to Lüdtke et al. (2009), multilevel analysis is recommended to test hypotheses in which the teacher's characteristics (e.g. teacher's controlling style) predict consequences on students (e.g. relatedness). In multilevel models the contextual variables are specific to each student (in our case: relatedness, and cohesion) and the climate variables are common to all students in the same class (in our case; teacher's controlling style). In the latter type of variables, the reference is the same for all students in the same class. Furthermore, contextual variables are not only indicators of the individual level, but, if aggregated, are indicators of a characteristic shared by the class.

The studies reviewed so far present a relationship between autonomy support style and improved learning, but few studies in higher education link social factors, such as teacher control style, and group cohesion (Xie et al. 2019). So far, there are no studies that analyze the influence of the teacher's controlling style on the basic psychological need for relatedness and on the student group cohesion from the SDT postulates. It is important to highlight that, until now, no research has been found that considers a transcultural sample to observe these variables studied.

In this sense, recently, Reeve et al. (2018) have noted the importance of research taking into account that there may be differences between different cultures in the interpretation that educational agents make of the same educational practice; for example, for Asian students, a teaching strategy that belongs to the controlling style such as imposing a task without taking into account the student's opinion for its execution can be interpreted as a sign of care and therefore in a positive way, while for Western culture could be interpreted as a negative sign when relating to threat or dominance (Chao 1994; Kotlak 2006). To avoid generalizations of the models to the different cultural contexts, more and more researchers specialized in cross-cultural studies, insist on the advisability of establishing distinctions in socio-cultural research (Zhen et al. 2017).

So, considering the need to incorporate transcultural analysis to test the influence of culture on psychological variables, avoiding the generalization of theoretical models, this study follows a sample of undergraduate students of Iberian and Ibero-American nationalities (Spain, Portugal, Chile, Mexico, Colombia and Brazil), whose base language is Spanish and Portuguese. Therefore, the objective of this study was to test a multilevel model about the relationship between teacher's controlling style, relatedness and group cohesion in undergraduate students of Iberian and Ibero-American nationalities. We hypothesized, based on previous research, that the controlling style will have a negative influence on the basic psychological need for relatedness and this, in turn, on the group cohesion perception.

Method

Sample

The sample was composed of a total of 3178 (982 female; 2196 male) aged between 17 and 63 years ($M = 21.35$, $SD = 3.72$) undergraduate students of Physical Activity and Sport Sciences. The participants belonged to six different countries: Spain ($N = 602$), Portugal ($N = 473$), Mexico ($N = 1177$),

Colombia ($N = 145$), Chile ($N = 373$), and Brazil ($N = 409$) from six different universities.

Measure

Teachers' Controlling Style Controlling style was measured using the scale developed by Huéscar et al. (2017). It is composed of 12 items (e.g., "It gives very few guidelines and no alternatives on how to perform the tasks it presents") that measure the perception of the teacher's controlling style (e.g., "It is inflexible"). The scale begins with an introductory heading such as: "My teacher ...". The items are valued on a Likert scale from 1 (totally disagree) to 7 (totally agree). Cronbach's alpha value was .83.

Relatedness Feelings of connectedness was measured using the Basic Psychological Need in Exercise Scale Spanish version (Moreno-Murcia et al. 2011) and Portuguese version (Moutão et al. 2012). Items assessing relatedness (e.g., "I feel connected with the people when I engage in the activities") were responded using a 6-point scale from 1 (totally disagree) to 7 (totally agree). Cronbach's alpha value was .81.

Group Cohesion (GC) To measure how students perceive their bounding with the social environment, they responded to the Perceived Cohesion Scale (Chin et al. 1999). It is composed of 6 items (e.g. "I feel that I belong to this group"). Agreement with each statement was rated on a 7-point scale from 1 (totally disagree) to 7 (totally agree). Cronbach's alpha value was .73.

Procedure

First, the different universities participating in the study were contacted by means of a letter explaining the objectives of the research and how it was to be carried out, accompanied by a model of informed consent and the instruments. Once contacted, the corresponding consents and permits for the completion of the questionnaires by the students were passed on.

The questionnaires were sent through Google Docs Questionnaires in a large part of the cases or in paper format for the participants with a more direct contact. It took approximately 10 min to complete it. All the participants were informed of the objective of the study and of their rights as participants in it, as well as of the voluntariness, absolute confidentiality of the answers and handling of the data. There were no correct or incorrect answers, asking them to answer with the maximum sincerity and honesty. This study was conducted in accordance with the ethical guidelines of the Declaration of Helsinki and was approved by the ethics committee of each university.

Data Analyses

First, we estimated mean and standard deviation for all variables. Next, we estimated skewness as an indicator of normality (values less than 2 are adequate), and intraclass correlation as an indicator of dependency (values close to one are indicator of reliability). Finally, we computed correlation at the individual and at the group level.

We performed a multilevel structural equation model to analyze relationships between studied variables. We used a multilevel model because the teachers controlling style is a group variable. That is, we are not interested in each student perception of their teacher controlling style, but on the proper teacher style. In our case, all students rate their teacher. A model would be considered to have a good fit when RMSEA, and SRMR values were lower than .08 (Hu and Bentler 1999), and when CFI value was higher than .90 (Marsh et al. 2004). With regard to the estimation method, we used Maximum Likelihood with the Satorra-Bentler correction. This estimation method correct X^2 and standard errors due to a lack of normality.

To test if students from different countries interpret scales similarly, we performed a multiple group comparison (Vandenberg and Lance 2000). Specifically, we tested three models: configural, metric and scalar (Muthén and Muthén 2019). In the configural model factor loadings, intercepts, and residual variances are free to vary across countries, while factor means are fixed at zero. In the metric model, factor loadings are constrained equal across groups, while intercepts and residual variances are free to vary across groups, and factor means fixed at zero in all groups. Finally, in the scalar model, factor loadings and intercepts are held equal across groups, while residual variances are free across groups, and factor means is constrained at zero in one group and free in the other group. For model comparisons, we relied on CFI and RMSEA modifications.

Results

Preliminary Analyses

Mean, standard deviation, and skewness are displayed in Table 1. In addition, with regard to ICC, teachers controlling style showed the higher value. As shown in Table 2, teacher’s controlling style ranged from $M = 2.45$ $SD = .82$ (Spain) to $M = 3.25$, $SD = .86$ (Colombia); relatedness ranged from $M = 4.06$ $SD = .75$ (Brasil) to $M = 4.31$ $SD = .67$ (Chile), and cohesion ranged from $M = 5.26$ $SD = 1.59$ (Brasil) to $M = 5.82$ $SD = 1.17$ (Colombia) across countries.

Multilevel Structural Equation Model

The χ^2 test and fit indexes for the multilevel structural equation model were $\chi^2(3177, 236) = 1980.58$ ($p < .001$), RMSEA = .05, SRMR_{within} = .04, SRMR_{between} = .16, and CFI = .93. As depicted in Figure 1, at the group level, teachers’ controlling style negatively predicted relatedness ($\beta = -.54$; SE = .18; $p = .003$), and relatedness did not predict cohesion significantly different from zero ($\beta = .59$; SE = .32; $p = .06$). At the individual level, teachers’ controlling style did not predict relatedness significantly different from zero ($\beta = .10$; SE = .05; $p = .07$), and relatedness predicted cohesion ($\beta = .57$; SE = .03; $p < .001$).

Countries Measurement Invariance

As can be seen in Table 3, the model with free factor loadings, intercepts, and residual variances and factor means are fixed at zero (configural), provide an adequate fit, while the model with factor loadings constrained to be equal across countries, showed a similar fit than the configural model. Finally, the more constrained model (scalar), RMSEA did not change, while CFI just decreased by .01, a threshold usually used to consider measurement invariance (Cheung and Rensvold 2002).

Discussion

Cohesion has important benefits in the educational context, however, there are not many studies that have addressed the impact of social factors on group cohesion. This study aimed to test a multilevel model regarding how the controlling teaching style predicts the basic psychological need for relatedness presented by the students and this, in turn, the group cohesion.

We must take into account that, in multilevel models, when we measure the controlling teaching style, the reference must be the classroom, not the student taken individually. Results of the controlling teaching style, at the individual level, are important for estimating agreement among students within the class and forming aggregates at the group level, but these results do not represent the controlling teaching style in the

Table 1 Mean, standard deviations, skew, ICC, and correlations

	<i>M</i>	<i>SD</i>	Skew	ICC	1	2	3
1. Controlling style	2.78	.94	.15	.09		-.32	-.13
2. Relatedness	4.22	.72	-1.41	.05	.09		.41
3. Cohesion	5.50	1.39	-1.10	.03	.05	.52	

Lower diagonal triangle: Group level correlations. Upper diagonal triangle: Individual level correlations

Table 2 Mean and standard deviation for each variable across countries

Country	n	Controlling style		Relatedness		Cohesion	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Spain	601	2.45	.82	4.28	.62	5.63	1.23
Brasil	409	2.82	.89	4.06	.75	5.26	1.59
Mexico	1177	2.88	1.05	4.17	.84	5.44	1.48
Chile	373	2.73	.93	4.31	.67	5.70	1.24
Portugal	473	2.79	.69	4.29	.54	5.45	1.28
Colombia	145	3.25	.86	4.30	.52	5.82	1.17

classroom. Therefore, the controlling teaching style effects must be based on the values obtained at the group level (Morin et al. 2014).

So, the results supported partially the hypothesis proposed. Findings indicate that, at the individual level, the controlling style did not predict the relatedness significantly different from zero, and the relatedness predicted cohesion. This result indicates individual differences from an average perception of the teacher's controlling style. At the group level, the control style predicted the relatedness negatively, which, in turn, did not predict cohesion significantly different from zero. This result is in line with the SDT postulates. The teachers' controlling style is associated with frustration of basic psychological needs (Amoura et al. 2015). In the same line, Liu et al. (2017) showed, with a multilevel analysis, that the increase in perceptions of control of teaching was related to the increase in frustration of needs throughout the school year. Therefore, teachers that using controlling words such as "should" and "have to", monopolize learning materials, do not support student initiative, do not offer choices, and do not consider the student's point of view, will negatively influence students' feelings of connectedness.

On the other hand, relatedness predicts group cohesion with a high and positive value, although it is not a significant relationship due to the variability of scores. Therefore, we can claim that relatedness leads to group cohesion. Those students who sense of belonging and connection have been satisfied, will also have a sense of togetherness or community within a group.

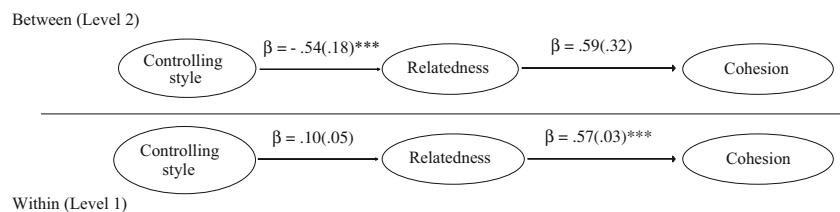
Although the scientific literature has so far found results confirming that autonomy support has positive consequences

Table 3 Multiple group comparison

Model	χ^2 Value	DF	RMSEA	CFI
Configural	2674.38	696	.07	.92
Metric	2779.32	766	.07	.92
Scalar	3267.00	836	.07	.91

on the student related to positive social relationships such as prosocial behavior (Cheon et al. 2018b; Cheon et al. 2018a, b), we did not find studies which the relationships between the controlling style and the social consequent of group cohesion and relatedness were tested on a university student sample.

Considering the SDT, different studies analyze the relationship between the coach's interpersonal style and the athletes' motivation, showing that the authority figure that presents and favors a positive and autonomous environment allows the group to maintain the bonds and relationships and remain cohesive (Smith et al. 2016; Hodge and Gucciardi 2015). Some studies indicate that cohesion may be positively related to the student's academic success (Caprara et al. 2000). Other studies prove the important interdependencies between teacher autonomy support, which favors satisfaction, motivation, and prosocial behavior, as well as the important interdependencies between teacher control style, and frustration, and antisocial behavior (Jang et al. 2020). Also, the perception of student autonomy is related to intrinsic motivation, as well as increased participation and improved learning performance (Yoon et al. 2018; León et al. 2017), all having autonomy, competence and relatedness as key factors. Ryan and Powelson (1991) had already shown that the basic psychological needs for autonomy and relatedness are highlighted and strongly influenced by the quality of interpersonal conditions favored in the family and learning environments. Therefore, it is important that teachers use tools and methodologies to promote positive relationships among higher education students, and thus, greater participation of them in their own learning. It is necessary that teachers do not use language of control, recognize the individualities and feelings of students, as well as it is necessary to encourage the feeling of relationship among others, plan and prepare classes in advance to provide challenges and positive feedback to students (Jang et al. 2010). In short, relatedness and the sense of belonging is facilitated through the conveyance of respect and care.

Fig. 1 Multilevel structural equation model

Results of the multiple group comparison indicate that the hypothesized model could be considered invariant across groups. Therefore, there are no differences between the six participating countries, and it is assumed that the hypothesized relationships between the studied variables are similar. This result confirms the universal importance of the basic psychological needs satisfaction, even considering differential nuances between different cultures and contexts (Ryan and Deci 2020).

Limitations and Future Directions

This study also has limitations. The number of men participating was much higher than the number of women. However, this may be a common feature in the Physical Activity and Sport Sciences Faculties of the countries studied. The sample used (i.e. Physical Activity and Sport Sciences students) could influence the results obtained. Many of these students are athletes and may have a different concept of cohesion and feelings of connectedness among students (for example, they have had the experience of practicing and/or competing in team sports) than other university students. In this sense, future work should incorporate samples of students from different Faculties. Self-reported instruments were used to measure the variables studied in a cross-sectional design. In future studies, it may be interesting to test these relationships in a longitudinal design. In this case, we only analyzed the basic psychological need for relatedness as a mediator. Future studies may also consider the competence and autonomy variables. Furthermore, the autonomy support style as a determinant of basic psychological needs and cohesion could be incorporated. We emphasize that there was no difference in the model between students from universities in different countries; however, it highlights the need for more studies that consider methodological differences and curricular training in higher education. The countries have different characteristics for training in higher education. We can also suggest that in future studies other variables can be used to evaluate the teacher's perception as well, on the variables that influence their classes, such as the perception of success during the class.

Conclusions

The results extend research of this issue and also present novelties. One of the main contributions of this research involves bringing together the basic tenets of self-determination with the study of a specific process such as group cohesion. We found evidence for a motivational sequence as postulated in SDT. In an innovative way, cohesion has been established as a consequence of basic psychological need as opposed to previous studies that planted cohesion as a determinant

(Blanchard et al. 2009; Pacewicz et al. 2020). In addition, this research utilized a large university student sample from six different countries. In conclusion, this study extends the knowledge that the teacher's controlling style influences negatively the students' relatedness and the group cohesion, which can have effects on the teaching-learning process in the classrooms.

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Data Availability The datasets generated during and/or analysed during the current study are available from the corresponding author on reasonable request.

Compliance with Ethical Standards

Conflict of Interest The authors declare no conflicts of interest.

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