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## Learning and Individual Differences

journal homepage: www.elsevier.com/locate/lindif



## Profiles of adolescents' peer and teacher relatedness: Differences in well-being and academic achievement across latent groups



### Jaime León <sup>a,\*</sup>, Jeffrey Liew <sup>b</sup>

<sup>a</sup> University of Las Palmas de Gran Canaria, Department of Education, Spain

<sup>b</sup> Texas A&M University, Department of Educational Psychology, United States

#### ARTICLE INFO

Article history: Received 13 May 2016 Received in revised form 15 December 2016 Accepted 5 January 2017 Available online xxxx

Keywords: Relatedness Relationships Adolescents High school Well-being Academic achievement

#### 1. Introduction

Adolescents in middle or high school are at a transitional stage of their lives as they prepare for emerging adulthood including college or work life (Wentzel, 2009; Wentzel & Ramani, 2016). Academic institutions are places where adolescents spend significant amounts of time learning with and from peers and teachers (Ellerbrock & Kiefer, 2013). Students who develop supportive school-based relationships are more likely to succeed academically than those who develop short-term or superficial relationships with peers and teachers (Goodenow, 1993). As adolescents transition from elementary to middle school, they need to establish new social bonds with both peers and nonparental adults (Anderman, 2003). But many adolescents find the middle-school learning environment to be a socially challenging developmental niche. Students who feel disconnected from their peers and teachers often become disengaged at school, and are prone to poor psychological functioning and low academic achievement or school drop-out (Zee, Koomen, & Van der Veen, 2013).

Despite a large body of research on school-based social relationships and peer or teacher influences on students' motivation and achievement during early and middle adolescence (Wentzel & Muenks, 2016; Wubbels, Brekelmans, Mainhard, Den Brok, & van Tartwijk, 2016), prior studies rarely focused on the role of students' relatedness with peers and teachers (simultaneously or jointly) in students' learning

E-mail address: jaime.leon@ulpgc.es (J. León).

#### ABSTRACT

In this study, we identied distinct clusters based on adolescents' relatedness with peers and teachers, and examined how students with different patterns or configurations of school-based relatedness qualities fare in their psychological and academic adjustment. A total of 1964 middle school students (M age = 15 years) participated in the study. We used latent profile analysis to identify meaningful patterns of peer and teacher relatedness and found that low feelings of relatedness with or responsiveness from the teacher do not necessarily result in poor school outcomes (low grades or low well-being) if students have at least moderate feelings of relatedness with their classmates. Results provide a better understanding of profiles of students who may be at risk for poor school adjustment, low grades, or school drop-out while offering a window into potential factors that protect or promote students' well-being and achievement.

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and school adjustment (King, 2015). From a Self-Determination perspective, relatedness is the feeling of connection and trust or security from knowing another person is there to back you up if needed (Furrer & Skinner, 2003). Moreover, because students' relatedness depends on the people within the school environment (Ryan & Deci, 2001), relatedness is not a stable individual difference variable but changes as the school environment and the people within it change (La Guardia, Ryan, Couchman, & Deci, 2000). As a result, there may not always be a direct correspondence between students' peer relationships or teacher-student relationships and their school-based outcomes. Rather, different patterns of relatedness with peers and teachers might lead to non-linear relationships between relatedness and school-based outcomes (e.g. Furrer & Skinner, 2003; Kindermann, 2016). For example, some students may feel disconnected from their teacher but feel very close to their peers. Alternatively, some students may feel disconnected from their peers but feel very close to the teacher. Thus, it is important to examine students' relatedness to peers and to teachers simultaneously or jointly and to understand the different profiles or patterns of relatedness amongst students. The present study addresses this gap in the literature by examining students' relatedness with both their peers and teachers and how such patterns or clusters of school-based relatedness predict academic adjustment and psychological health.

#### 1.1. Social relationships in school

Given the many developmental and contextual changes experienced by adolescents as they increasingly seek independence or autonomy

<sup>\*</sup> Corresponding author at: Department of Education, University of Las Palmas de Gran Canaria, C/. Santa Juana de Arco, 1. 35004 Las Palmas, Spain.

from their parents, school-related relationships such as peer or teacherstudent relationships become highly influential in adolescents' psychosocial and academic adjustment (Rigby, 2000; Van Ryzin, Gravely, & Roseth, 2009). For instance, in a sample of 13932 preadolescents, Östberg (2003) found that students who were most liked by peers (assessed with sociometry) were rated by their teachers as more happy than students who were less liked by peers (i.e., had lower punctuations on the sociometry). Similarly Holder and Coleman (2008), found that adolescents' feelings of popularity with peers was associated with higher levels of happiness.

Classrooms with students are social environments, and student learning and achievement often happen within and through social practices (Hamre & Pianta, 2010; Wentzel & Watkins, 2002). Indeed, learning and achievement are socially mediated processes, and studies show that students with positive peer relationships at school tend to display greater school engagement and higher academic achievement (Chen, Hughes, Liew, & Kwok, 2010; Wentzel, 2009). While positive peer relationships impact students' engagement and achievement at school, teacher-student relationships also have short- and long-term impacts on students' academic and adjustment outcomes. The link between teacher-student relationships and academic achievement has been confirmed by a meta-analysis conducted by Roorda, Koomen, Spilt, and Oort (2011) with 17 secondary school samples showing a correlation of 0.20 between teacher-students relationships and academic grades. Furthermore, students' reports of their quality of relationship with teachers predicted students' psychological well-being, including self-esteem and depression (Liu, Li, Chen, & Qu, 2015).

#### 1.2. School-based relatedness

Although prior studies consistently show that adolescents' social relationships with peers or teachers are influential in achievement and school functioning (e.g., Roorda et al., 2011; Wentzel, 2009), majority of prior studies on social relationships in school has focused on social support with limited attention on relatedness (King, 2015). However, the construct of social support differs from relatedness (Furrer & Skinner, 2003). Social support in school refers to positive relationships that students have with people who offer them aid or assistance in school (Wang & Eccles, 2012). Relatedness, within the Self-Determination Theory framework (Deci & Ryan, 1985; Ryan & Deci, 2000a), is understood as a basic need to establish and maintain positive, meaningful, and enduring relationships (Baumeister & Leary, 1995). Thus, students could feel they have social support from teachers or peers who are there to provide instrumental or instructional assistance, but at the same time, could lack a feeling of relatedness with teachers or peers. For students from different socioeonomic, cultural, or linguistic backgrounds than those of the teachers or peers, such a scenario might be particularly likely to happen (e.g., Chiu, Pong, Mori, & Chow, 2012).

The construct of relatedness, or the feeling that one is close and connected to significant others, has roots in the attachment literature (Ainsworth, Blehar, Walters, & Wall, 1978), and it is posited that positive adjustment will flourish in contexts where students feel that they care and are cared for by key school figures such as teachers or peers (Ryan & Deci, 2000b). The construct of relatedness is similar to, but not the same, as the construct of connectedness. Relatedness is conceptualized as one of the basic human needs for well-being (Ryan & Deci, 2000b), while connectedness is often not considered a basic human need but as an important feeling that motivates students to engage in school activities through a sense of school belonging as a valued member of the school community. Researchers have studied relatedness in school settings, measuring students' feeling of trusting and caring relationships at school and the feeling of being accepted, included, and valued by significant individuals at school (e.g., Eccles, 1993; Furrer & Skinner, 2003; Goodenow, 1993; Guay, Marsh, Senécal, & Dowson, 2008; Ryan & Grolnick, 1986). However, some researchers define relatedness differently. For example, Davidson, Gest, and Welsh (2010) used the term relatedness as a proxy of students' social efficacy to make friends (e.g., social competence), a sociometry to assess students' likeability and teachers' report of students' trust/avoidance of the teacher. This subtle difference in defining and measuring the construct of relatedness as social competence at school rather than as feeling of closeness and connection with significant others at school could potentially lead to differences in research findings.

Students' peer and teacher relatedness are linked to their psychological well-being and psychosocial adjustment. Studies have shown that students who feel that their teacher take a genuine interest in them experience greater well-being (e.g., García-Moya, Brooks, Morgan, & Moreno, 2015). Studies have also found that students who feel that they have teachers who care for them and are willing to back them up display lower levels of depressive symptoms and anxiety when undergoing stressful events (e.g., Pössel, Rudasill, Sawyer, Spence, & Bjerg, 2013; Rueger, Malecki, & Demaray, 2010). In regard to peer relatedness, Guhn, Schonert-Reichl, Gadermann, Hymel, and Hertzman (2012) found that preadolescents' feelings of being backed-up by their peers was related to life satisfaction, self-esteem, and inversely to depression and victimization.

Students' relatedness with teachers has been linked to students' academic achievement. In a longitudinal study with adolescents living in the Philippines, King (2015) found that relatedness with peers at the start of the academic year predicted academic achievement, with this effect mediated by student engagement and disaffection. Importantly, King (2015)'s study examined students' relatedness with peers, teachers, and parents separately and found that relatedness with peers and with parents predicted students' achievement while relatedness with peers and with teachers predicted students' positive affect. Thus, when examining the role of relatedness in the school on student outcomes, it is important to distinguish between relatedness with peers and with teachers because they may have differential associations with student outcomes.

#### 1.3. Person-centered vs variable-centered approach

In research on students' relatedness, the vast majority of studies used a variable-centered approach to examine effects of relatedness on well-being or academic achievement. However, one limitation with this approach is that relatedness is treated as a stable individual difference variable without taking into account that differences could exist in students' relatedness with peers and with teachers (Ryan & Deci, 2001). Further, such an approach cannot detect non-linear relationships between students' relatedness with peers or teachers and student outcomes. As a case in point, Furrer and Skinner (2003) studied children from 3rd to 6th grades using cluster analysis and discovered that children with low relatedness with their teachers and high relatedness with peers, as well as those with high relatedness with peers but low relatedness with teachers, exhibited worse academic adjustment than those with high relatedness with both peers and teachers. Thus, it is important to consider not only the degree or level of connection and support that students feel they have at school, but with whom.

To study different profiles or configurations of relatedness, studies that use non-based model approaches, such as cluster analysis, have been used which draw from standard deviations above or below the mean to classify individuals into an arbitrarily number of clusters (Marsh, Lüdtke, Trautwein, & Morin, 2009). To circumvent this problem of arriving at an arbitrary number of clusters, researchers have used latent profile analysis based on the probability that individuals belong to a latent subgroup and statistical criteria is used to determine how many latent subgroups underlie the data (Lanza & Rhoades, 2013). To our knowledge, no studies have used person-centered, non-based model approaches to study children's or adolescents' feelings of connection and trust with school figures: peers and teachers. at school. Of note, Davidson et al. (2010) conducted a study on 5th, 6th and 7th grade students', created clusters based on three variables: peer social preference

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