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MOTIVATION AND SOCIAL PROCESSES

In the Eye of the Beholder: Motivational Effects of Gender Differences in Perceptions of Teachers

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This study investigated whether girls' and boys' perceptions of their teacher may explain gender-related difference in academic motivation. One hundred and twenty-nine ninth-grade Israeli students (67 males and 62 females) completed a questionnaire designed to assess their motivation to learn, their affect while studying in school, and their perception of their teachers' behaviors. The results indicate that girls tend to perceive their teacher as more supportive than do boys and that this perception mediates gender-related differences in motivation and emotional experience. This finding suggests a mechanism to explain gender-related differences in motivation and highlights the importance of investigating those characteristics that can affect student perception of the teacher as supportive. Beyond the known contribution of the need for a supportive environment, knowledge of such characteristics can help promote adaptive motivation.

Keywords autonomous motivation, gender differences, need support, perceiver effect

RESEARCH FINDINGS SUGGEST that boys tend to be more controlled/performance-oriented with respect to learning than do girls and that girls tend to be more autonomous/mastery-oriented than boys (De Blide, Vansteenkiste, & Lens, 2011; Vallerand, Fortier, & Guay, 1997). Yet, studies have found it difficult to explore the nature and the reasons for these differences (Vallerand et al., 1997).

From the perspective of theories that see the teacher as a central figure in constructing the educational context and thus influencing students' motivation (e.g., self-determination theory: Deci & Ryan, 2000; goal orientation theory: Ames, 1992; Maehr, 1989; Nicholls, 1989), a possible explanation for this gender-related difference might be found in the differential behavior of teachers toward boys and girls; that is, a possible reason that boys have more controlled and less autonomous motivation than girls may be due to boys receiving less support from their teachers. However, studies conducted in classrooms challenge this explanation. Several studies that assess

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teachers' behavior in the classroom show that boys receive more time to talk and more praise, feedback, and remediation than do girls and that boys are generally more supported than girls (Sadker, Sadker, & Klein, 1991; Spade, 2004). Despite this enhanced support, studies find that boys remain less autonomously motivated, thus, ruling out the explanation that the behavior of the teacher is responsible for gender differences in student motivation.

Alternatively, the present study proposes that the answer may lie in gender-related differences in the *perception* of the behaviors of others and specifically in students' perception of the behavior of the teacher. In other words, we are suggesting that while gender-related differences in motivation do not arise from differences in the behavior of the teacher toward boys and girls, they may stem from gender-related differences in students' perception and interpretation of such behavior.

We base our investigation on two propositions that have wide support: First, perceptions of teachers' behaviors and practices have a significant impact on how students feel about and engage in learning (De Blide et al., 2011; Eccles, Wigfield, Harold, & Blumenfeld, 1993; Mouratidis, Vansteenkiste, Lens, & Sideridis, 2008). Second, girls have a tendency to perceive others in a more positive way than do boys (Srivastava, Guglielmo, & Beer, 2010; Winquist, Mohr, & Kenny, 1998). Taken together, these two propositions suggest a mechanism by which gender-related positive perception may explain gender-related differences in motivation. Specifically, we ask whether gender-related differences in students' perception of the teacher mediate the relations between gender and motivation. If this is the case, we will have taken a step toward understanding gender differences in motivation.

The self-determination theory, or SDT, (Deci & Ryan, 1985, 2000, 2011; Ryan & Deci, 2000) was chosen as the theoretical framework for this study, as it is concerned with the effect of the educational environment on motivation. Several studies guided by this theory have assessed the way the perceiver (the student, the employee, the patient) perceived the target (the teacher, the manager, the doctor), and yet, most have neglected the possibility that attributes of the perceiver may affect the perception and interpretation of the target's behavior. In the present instance, therefore, we wish to ask whether the perceiver's gender might help explain the reasons for gender-related differences in motivation. This will also allow us to explore some theoretical questions regarding the role of personal differences in types of student motivation.

Gender Differences in Motivation and Emotion in School

Some studies show no differences in motivation between male and female students in Western countries (Greene, DeBacker, Ravindran, & Krows, 1999; Klapp Lekholm, & Cliffordson, 2009; Marsh & Yeung, 1998; Meece & Jones, 1996; Middleton & Midgley 1997). However, several researchers agree that boys tend to have more-controlled/more-ego-oriented motivation to learn than girls who tend to be autonomous/mastery oriented (De Blide et al., 2011; Midgley, Kaplan, & Middleton, 2001; Vallerand et al., 1997). Other research shows that girls report more overall interest in school subjects and activities than do boys (Epstein, 1981; Gentry, Gable, & Rizza, 2002; Lightbody, Siann, Stocks, & Walsh, 1996; Okun, Braver, & Weir, 1990; Verkuyten & Thijs, 2001). Anderman and Young (1994), for example, reported that girls were more learning-focused and less ability-focused in science than were boys. Other studies have shown that girls have a more positive attitude toward reading, demonstrate a more positive reading self-concept, and engage more often in reading activities outside of school (Gambell & Hunter, 1999; McGeown,

Goodwin, Henderson, & Wright, 2012; Meece, Glienke, & Burg, 2006; Mullis, Martin, Gonzalez, & Kennedy, 2003). Studies on motivation in college students have revealed that females who enter college often have elevated levels of motivation (Clifton, Perry, Roberts, & Peter, 2008; Sheard, 2009) and spend significantly more time studying, completing work, discussing schoolwork outside of the classroom, attending class, and engaging in extracurricular activities (Harris & Harper, 2008; Jenkins, 2009; Mau & Lynn, 2001).

Some studies within the SDT also suggest differences in motivation relating to gender. For example, Vallerand et al. (1997) find that girls display a more self-determined, motivational profile than boys. Other studies using the SDT perspective have suggested that although female students felt less competent than their male counterparts, they also felt more autonomous (Deci & Ryan, 2000; Katz, Assor, Kanat-Maymon, & Bereby-Meyer, 2006; Levesque, Zuehlke, Stanek, & Ryan, 2004) and that women display a more self-determined motivational profile than men in a range of life activities (Katz et al., 2006). These motivational differences are correlated with gender differences in dropout rates (Royer, Moisan, Saint-Laurent, & Giasson, 1993). Altogether, it appears that gender differences in motivation are invoked primarily to explain why males and females differ in their educational and occupational pursuits (Meece et al., 2006).

Although research has suggested that boys and girls may differ in some motivational constructs, studies have found it difficult to explore the nature of these differences. Indeed, the reasons for the differences in motivation have been understudied (Vallerand et al., 1997). The current study takes an innovative step in this exploration in that we suggest that gender-related differences in the perception of teachers' behavior may be the reason for gender-related differences in motivation.

What Affects Our Perception of Others?

The question of what affects our perception of others is frequently asked within the social sciences. The Social Relations Model (SRM; Kenny, 1994; Kenny & La Voie, 1984; Srivastava et al., 2010) is one of the central approaches used to interpret interpersonal perception. According to this approach, there are three components of social perception: the target, the perceiver, and the relationship. Many studies on social perception, as well as studies of SDT, which have investigated environmental support, have concentrated almost exclusively on the target being perceived (teacher, doctor, workplace manager; see Deci et al., 2001; Gunnell, Mack, Wilson, & Adachi, 2011; Johnson & Finney, 2010). However, a growing number of recent studies using the SRM, but not the SDT, have considered the "perceiver effect," in which the tendency to see other people in a particular way depends on the perceiver's characteristics (Srivastava et al., 2010). These studies suggest that the characteristics of the perceiver are at least as important as the behavior of the target in the process of perception of others (Kenny, 1994). This claim has opened a line of research into various individual characteristics that might explain differences in the perceptions of others; for example, Tong and Walther (2011) suggest that differences in self-efficacy can affect perceptions of others. They showed how people with high self-efficacy perceive others as having higher self-efficacy. Mikulincer and Horesh (1999) and Moreira et al. (2003) assessed how type of attachment affects the way people perceive others. Various studies have considered gender to be an attribute that can affect the perception of others, and gender-related differences in perceiving others have been studied extensively (Srivastava et al., 2010).

Gender Differences in Perceptions of Others

Studies conducted in nations with multicultural populations suggest that women assign more positive trait ratings to others (Srivastava et al., 2010) and report more positive feelings toward others than males (Bettencourt, Dill, Greathouse, Charlton, & Mulholland, 1997; Carli, LaFleur, & Loeber, 1995). This is called the "female positivity effect" (Winquist et al., 1998). Various studies have shown that individuals who perceive others positively report themselves higher in agreeableness and in life satisfaction and lower in depression and antisocial attitudes. Individuals who perceived others more positively also tended to be more liked by others and described their experiences in the group more positively. These results indicate that our positive perceptions of others are correlated with our general emotions, well-being, goals, values, attitudes, and group experiences (Wood, Harms, & Vazire, 2010).

The question why men and women might perceive others differently (Winquist et al., 1998) raises similar questions about the many other differences between the sexes; for example, why do men and women differ in their visual perception ability (Sabatinelli, Flaish, Bradley, Fitzsimmons, & Lang, 2004) and why do they differ in their emotional development (Brody, 1985) and their ability to empathize (Rueckert & Naybar, 2008). Three answers are usually given to these questions: Biological/genetic reasons, environmental/socialization reasons, and counterarguments that there are many gender-related stereotypes or beliefs and few true differences (Moè, 2012). Accordingly, it has been suggested that these differences can be attributed to more basic neurological qualities. Suggestions include comprehension and brain processing of social signals (Barkley & Gabriel, 2007), differences in sensitivity to non-verbal cues (Farris, Treat, Viken, & McFall, 2008), and differences in recognition of facial emotions (Montagne, Kessels, Frigerio, de Haan, & Perrett, 2005). Other explanations focus on "social roles" (e.g., Eagly, 1987; Winquist et al., 1998). According to this explanation, females tend to be more "other-oriented and nurturing," whereas males tend to be more dominant and forceful by virtue of the social roles they occupy. Therefore, women are encouraged to be nice to others (that is, communal), whereas men are encouraged to compete (Winquist et al., 1998).

Within the school context, research findings suggest that boys are more likely than girls to perceive their teachers as less supportive. For example, female students rated their teachers more positively and favorably (Tennant et al., 2015; Vallerand et al., 1997) and perceived their school administration to be more supportive of autonomy than male students did (Srivastava et al., 2010). Objectively, however, this less positive perception of the teacher is incompatible with the majority of observational studies conducted in the classroom, which find that boys generally receive more attention from teachers. True, some studies have suggested that teachers are less supportive of boys' needs because they express more criticism of boys (Brophy & Good, 1974) and tend to be more controlling and punitive with boys (Boggiano & Katz, 1991). Yet, several studies conducted in classrooms show that if either gender receives more support from teachers it is likely to be boys. Boys are given more time to talk in classrooms and receive more praise, feedback, and remediation than girls (Sadker et al., 1991); boys usually engage in more challenging interaction with teachers and dominate classroom activities (Delamont, 1990; Eccles & Blumenfeld, 1985; Fennema & Peterson, 1985; Jones & Dindia, 2004; Sadker & Sadker, 1994; Sadker & Sadker, 1986; Sadker et al., 1991; Spade, 2004).

Whether due to culture or biology, gender-related differences in the perception of teachers' behavior may well influence the rest of one's experience at school. It might explain the well-known, but under-studied, gender difference in motivation and emotion at school. This study investigates that question under the theoretical assumptions of self-determination theory (Deci & Ryan, 1985, 2000).

The Self-Determination-Theory Perspective on Motivation

Self-determination theory (Deci & Ryan, 1985, 2000, 2011; Ryan & Deci, 2000), concerns the development and functioning of personality within social contexts. The theory specifies a continuum of motivational orientations for activities, ranging from extrinsic/controlled regulation (engagement through coercion, to avoid punishment, or to achieve a reward) to intrinsic/autonomous motivation (engagement through pleasure, interest, enjoyment, or acceptance of the intrinsic value of the activity). According to SDT, there are three basic human psychological needs—autonomy, relatedness, and competence. When satisfied, these enhance autonomous motivation and promote internalization of initially extrinsic behaviors (Ryan & Deci, 2000). Satisfaction of these three needs depends on the support of the environment (Katz, Kaplan, & Buzukashvili, 2011; Katz, Kaplan, & Gueta, 2010; Reeve & Jang, 2006; Vansteenkiste, Simmons, Braet, Bachman, & Deci, 2007). Unlike earlier need-based theories that viewed motivation as being determined by an individual's personality or developmental processes, SDT considers motivation as mostly dependent on context and emphasizes the role of the environment in motivational change (Ryan & Deci, 2000). Over the years, some voices within the SDT have called for a deeper look into individual (that is, not just contextual) influences on motivation, as they may be relevant for understanding the role of environmental support in motivational processes (Vallerand, 2000). Yet many of the studies within this theory have argued that despite the possible effects of individual differences, research should focus on investigating the environmental support that is central to need satisfaction and adaptive motivation (Deci & Ryan, 2000).

The few studies within this theory that have investigated the effect of individual differences on motivation mostly assessed the interaction between personal and environmental characteristics to explain the benefits of a high level of supportive behavior (Mouratidis, Vansteenkiste, Sideridis, & Lens, 2011; Ryan & Grolnick, 1986). Ryan and Grolnick (1986) recognized the differential impact of environmental and individual differences on student motivation and highlighted the importance of assessing the effects of the environment on self-related variables. However, they did not examine which factors might produce the variance in how individual students view their classroom environment. Mouratidis et al. (2011) found that, although perceived support from the teacher fully explained students' interest, enjoyment, and vitality, students with high, relatively autonomous motivation benefitted to a significantly greater degree from a need-supportive teacher. Katz et al. (2010) found that, although perceived teacher support of psychological needs is important for all students, students who express higher levels of need (those who say they need more support from their teachers) perceive their teachers to be less supportive.

When investigating environmental support and its effects on motivation, some studies use observations and experimental manipulation (e.g., Aelterman et al., 2014; Reeve, 2009; Reeve & Jang, 2006). However, many studies under this theory focus on how the perceiver (the student, the employee, or the patient) perceives the target (the teacher, the manager, or the doctor). In these

studies, the perceiver is typically asked how much support they perceive having received from the target. This is mostly used as an indicator of the actual behavior of the target or as a predictor of the perceiver's motivation. The possibility that attributes of the perceiver might affect perception and interpretation of the target's behavior has only been given little attention (Katz et al., 2010). In the current study, we assess this possibility.

The Current Study

In the current study, we assess whether a gender-related tendency to perceive teachers' behavior differently is affecting gender-related differences in motivation. Specifically, we ask whether gender-related differences in the perception of homeroom teachers as supporting their psychological needs, mediate the motivations and emotions of ninth graders. In the questionnaire we distributed, we instructed the students to relate to their homeroom teacher.

The homeroom teacher is a key person who plays many roles, from instructor to a counselor to a friend (Liu, 1997). A homeroom teacher is assigned to a class of 30 to 40 students, usually for 3 to 4 years. Multiyear relationships between teachers and students presumably foster emotional bonds and mutual trust (Liu, 1997). Accordingly, previous studies have assessed the effect of the homeroom teacher on students' motivation, emotion, and competence in school (e.g., d'Ailly, 2003; Katz & Cohen, 2014).

We constructed the four following hypotheses (H1–H4):

H1: Boys will report lower autonomous motivation toward learning in school than will girls.
H2: Boys will perceive their teacher as providing less support of their psychological needs than will girls.
H3: Boys will report greater negative emotions and fewer positive emotions in school than will girls.
H4: The relationship between gender and positive motivational outcomes will be mediated by the differences in the perception of the teacher as supportive. Therefore, the model that will best fit the data is one in which boys and girls perceive their teacher as differentially supportive, and perceived positive support will correlate with adopting an autonomous type of motivation and positive emotions.

METHOD

Participants

One hundred and twenty-nine ninth-grade students (67 males and 62 females, mean age 14.5) from two junior high schools located in a secular middle-class community in Israel participated in the study. No differences were found in any of the variables between students within the two schools. The students were instructed to relate to their homeroom teachers when answering the questionnaires. All teachers were females. In Israel middle schools, homeroom teachers are central. They teach one major subject in their homeroom classes. They are responsible for helping deal with issues such as students' well-being. Homeroom teachers are required to check up on their students at least once a day, and they maintain contact with parents.

Participants responded during school time to surveys that asked about their emotions and motivation for learning and their perceptions of their homeroom teacher's behavior as supportive of their psychological needs.

As the homeroom teachers in this study do not teach the same subjects, we first analyzed gender differences for each class separately to avoid the possibility of the taught subject affecting boys' and girls' reports differently. The results suggest that gender differences were stable regardless of the subject taught. In all classes, girls reported higher autonomous motivation to learn and more positive perceptions of teacher support than did boys.

Procedure

Permission to administer this survey was granted by the Israeli Ministry of Education, the school administration, and parents of the students. Surveys were administered during school time in the students' classrooms and no teachers were present at the time. Research assistants explained that the purpose of the survey was to understand more about students' attitudes toward learning. Students were assured that their responses would be confidential and were asked not to write their names on the survey. Students practiced responding on a sample item and were encouraged to ask questions about any item that they found unclear.

Measures

Surveys were administered in Hebrew, which was the students' mother tongue.

Students' Motivation for Studying

Students' motivation for studying was assessed by an 11-item adaptation of Ryan and Connell's (1989) scale of perceived locus of causality in academic activity. Following the format developed by Ryan and Connell (1989) (see Katz et al., 2010; Katz, Assor, & Kanat Maymon, 2008; Katz, Buzukashvili, & Feingold, 2012), participants used a five-point Likert scale (1–5) to rate the extent to which they agreed or disagreed with various motivations for studying. Six reasons reflected autonomous motivation—for example, "I study at school because it is interesting" (intrinsic motivation); "I study at school because it is important to me" (identified motivation). Five reasons reflected controlled motivation—for example, "I study in school because otherwise I will have problems with my parents" (external motivation); "I study in school so that my parents will not be ashamed of me" (introjected motivation).

We created an indicator of autonomous motivation by averaging the scores on the six items pertaining to intrinsic and identified motivation (coefficient alpha = .85 and an indicator of controlled motivation by averaging the scores on the five items that pertained to external and introjected motivations (coefficient alpha = .81). The correlation between the two scales was negative but not significant ($r = -.13$, *ns*). In keeping with the finding of a negative or no correlation between the controlled-motivation and autonomous-motivation indicators and the procedure used by other researchers (e.g., Black & Deci, 2000; Sheldon, Ryan, Deci, & Kasser, 2004; Vansteenkiste, Simons, Lens, Soenens, & Matos, 2005), we created a global index of relative autonomous motivation by subtracting the controlled-motivation scale from the autonomous-motivation scale.

The Student's Affect While Studying in School

The student's affect while studying in school was measured by the version of the positive negative affectivity scale for children (PANAS-C), which was developed by Laurent et al. (1999) and translated by Katz et al. (2008). This measure is composed of two scales: positive affect (PA) and negative affect (NA). Using a five-point Likert scale, participants were asked to indicate how often they experienced each of 10 PA adjectives (coefficient alpha = .90), and 10 NA adjectives. (coefficient alpha = .82). Summary scores were then computed for the PA and NA scales.

Students' Perception of Their Teachers' Behaviors as Supporting Their Psychological Needs

Students' perception of their teachers' behaviors as supporting their psychological needs was measured on a scale developed by Katz et al. (2010). A five-point Likert scale (1–5) was used to rate the extent to which students perceived their homeroom teacher as supportive of their needs. The items assessing perceived teacher support of autonomy included items such as showing understanding for students' perspectives, providing a relevant rationale for a task, offering choice, and allowing criticism (e.g., "The teacher provides me with a choice of tasks"; "The teacher tells me how the subject matter will be of value to me"). The items assessing perceived teacher support of student competence tapped into teachers' behaviors such as setting optimally challenging tasks, helping students to plan their work, and providing informative and noncomparative feedback (e.g., "The teacher matches the difficulty level of the task to each of us"; "The teacher makes sure that I understand the task"). The items assessing perceived teacher support of relatedness tapped into teachers' behaviors such as encouraging peer acceptance and empathy in the classroom and minimizing social comparisons and competition among students (e.g., "The teacher gives me the feeling that she/he respects me even if I do not succeed"; "The teacher takes a personal interest in me"). Previous studies (e.g., Katz et al., 2010) have shown that all of the above items are loaded on a single factor because students treat support for psychological needs globally and do not distinguish among teacher support for different needs (Patrick, Anderman, Ryan, Edelin, & Midgley, 2001; Urdan, Kneisel, & Mason, 1999). The level at which students perceive their teachers as need supportive was calculated by averaging the students' answers. Higher scores indicated that students had a more positive perception of teachers as being need supportive. The measure of students' perception of their teachers' behaviors was found to be reliable (12 items, coefficient alpha = .85).

RESULTS

In order to test the research hypotheses, we first analyzed the correlation between the research components. Next, four one-way ANOVAs were calculated in order to examine the differences between the two groups (male and female). To assess the fourth hypothesis we analyzed the data using structural equation modeling (SEM), through AMOS 21, in order to propose a model that describes the relations among gender, perception of teachers as supportive, and students' type of motivation and emotion (Arbuckle, 2006). In order to test whether the model is equivalent for both groups, we also performed a multigroup analysis. Table 1 presents the descriptive statistics of the variables in the study and the correlations among the variables.

TABLE 1
Descriptive Statistics and the Correlations Among the Variables

Variable	M	SD	1	2	3	4
1. Relative Autonomous motivation	2.02	1.13	–	.45**	−.19*	.55**
2. Positive affect	3.74	0.92	–	–	−.38**	.51**
3. Negative affect	1.60	0.62	–	–	–	−.32**
4. Perceived teachers' needs support	3.20	0.71	–	–	–	–

Note. $^*p < 0.5$; $^{**}p < .01$.

As expected, relative autonomous motivation was positively correlated with positive emotions and with perceived support from teachers for students' needs and negatively correlated with negative emotions.

In order to test the first hypothesis, that boys would report lower autonomous motivation toward learning than girls would, we performed a one-way ANOVA using gender as an independent variable and relative autonomous motivation as a dependent variable. The analysis showed a significant main effect for gender (F (1,124) = 13.10, $p < .001$). It is apparent that boys ($M = 1.69$, $SD = 1.12$) have less autonomous motivation than do girls ($M = 2.39$, $SD = 1.04$).

We performed a one-way ANOVA to test the second hypothesis that boys perceive their teachers as providing less support than do girls. We used gender as an independent variable and perceived teacher support as a dependent variable. The analysis showed a significant main effect for gender (F (1,126) = 9.86, $p < .01$). It is apparent that boys ($M = 3.02$, $SD = .73$) perceive their teachers as less supportive of their needs than girls ($M = 3.39$, $SD = .65$).

We performed two one-way ANOVAs to test the third hypothesis that boys will report greater negative emotions and fewer positive emotions in school than will girls. The first was performed with gender as an independent variable and positive emotions as a dependent variable. The analysis indicated a significant main effect for gender (F (1,121) = 18.95, $p < .001$). Boys ($M = 3.41$, $SD = .98$) report lower positive emotions in school than girls ($M = 4.08$, $SD = .71$). The second ANOVA was performed with gender as an independent variable and negative emotions as a dependent variable. The analysis indicated a significant main effect for gender (F (1,125) = 10.63, $p < .001$). Boys ($M = 1.76$, $SD = .66$) reported higher negative emotions in school than girls ($M = 1.41$, $SD = .54$).

Hypothesis 4 was assessed in two steps. First, we conducted a multigroup analysis. Then, we assessed the fit of the entire model with gender as a predicting variable. The multigroup analysis served to assess whether the instrument model operated in similar ways across groups; whether the factorial structure was equivalent across groups; and whether the paths in the specified casual structure are invariant across groups (Byrne, 2010).

The first step in the multigroup analysis was to establish a baseline model. The creation of the baseline model involved testing all the relationships in the hypothesized model using the
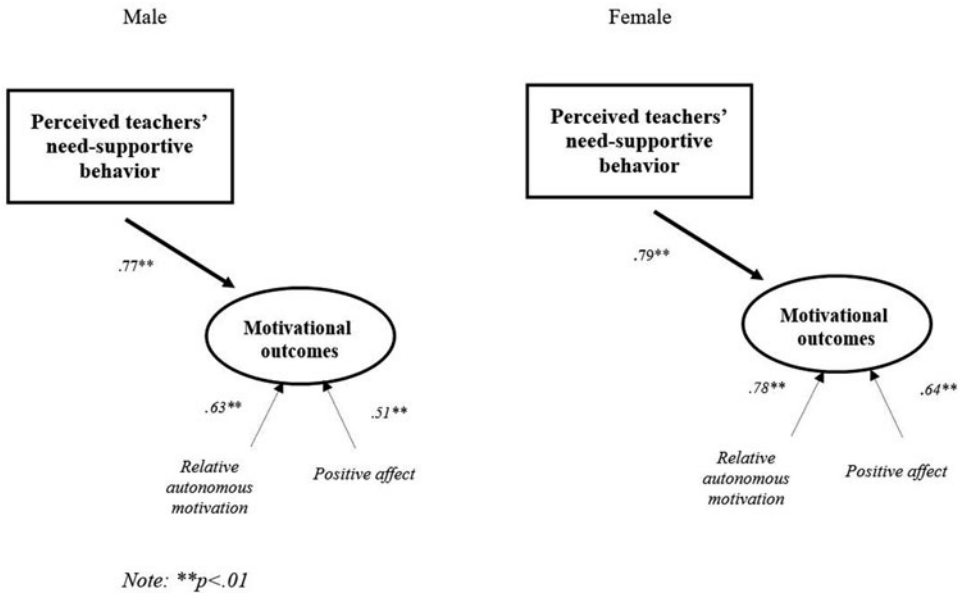
FIGURE 1 Multigroup analysis.

entire pooled sample of males and females. This baseline model was evaluated on goodness-of-fit indices in order to determine whether the model is a good representation of the hypothesized model (Hu & Bentler, 1999). The fit of the configured model to the data was acceptable ($\chi^2 =$ .98, $df = 1$, $p = 34$; CFI = 1.00; RMSEA = .00). This indicates that the configured model (see Figure 1) is indeed invariant and that the patterns of fixed and nonfixed parameters in the research model are identical for the male and female groups.

To test for metric invariance (model B), the factor pattern coefficients were constrained to be equal. These constraints increased the χ^2 value from .98 to 2.108, gaining three degrees of freedom. Then we conducted a χ^2 difference test. Given that the χ^2 difference of 1.128 with three degrees of freedom was not statistically significant at $p = .05$, metric invariance was supported (see Table 2). The results suggest that model B is more acceptable and that the metric invariance across the male and female samples is supported.

Hence, after finding that the model does apply across groups and does display measurement invariance, we added the "gender" component to the model. Figure 2 presents the hypothesized

TABLE 2
Fits Indices Invariance Tests

Variable	χ^2	df	χ^2/df	p	CFI	RMSEA
Configured invariance (Model A)	.890	1	.890	.345	1.00	0.00
Model B	2.108	3	.703	.550	1.00	0.00
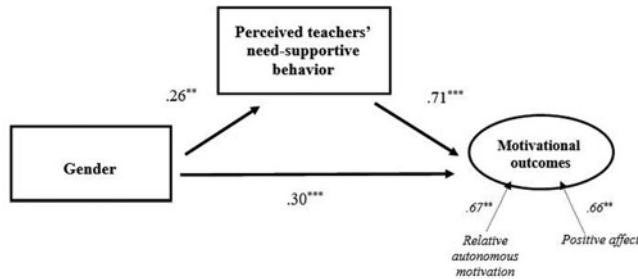
Note: ** $p<.01$; *** $p<.001$

FIGURE 2 Path analysis: Perceived teachers' support mediating between gender and motivational outcomes.

model and its fit. The model included "gender" as an exogenous variable, "perceived teachers' need-supportive behavior" as a mediating variable, and "motivational outcomes" (a latent variable composed of measures of relative autonomous motivation and positive emotion) as an outcome variable.

The model shows that the fit to data *is* acceptable ($\chi^2 = .58$, $df = 1$, $p = ns$; NFI $= 1.00$; IFI $= 1.00$; RMSEA $= .00$). Gender was positively associated with positive motivational outcomes ($\beta = .30$, t (128) $= 3.33$, $p < .001$). Gender was positively associated with the perception of the teacher as supportive ($\beta = .26$, t (128) $= 3.09$, $p < .001$), which, in turn, was positively associated with positive motivational outcomes ($\beta = .71$, t (128) $= 6.77$, $p < .001$). The results support the hypothesis that gender correlates with students' perceptions of teachers as supportive, which correlates with their motivation and emotions toward learning. Thus, "perceived teachers' need-supportive behavior" is a partial mediating variable.

Whereas the analysis confirms the hypothesis, the findings do not rule out the possibility that other models might fit the data equally well or even better. To examine this possibility, we assessed a model in which gender-related difference in motivation is the predictor of gender-related difference in students' perception of the teacher and a mediator between gender and perceptions of the teacher. Thus, we assessed a model in which students' gender is associated with the type of motivation they adopt, which is associated with their effects, which is, in turn, associated with perception of the teacher. The model fit was poor ($\chi^2 = 32.39$, $df = 3$, $p = .00$; NFI $= .71$; IFI $= .73$; RMSEA $= .27$), This suggests that it is students' gender that affects perceptions of their teachers, which affects their motivation and emotions in school, and not vice versa.

DISCUSSION

Previous studies under the SDT found gender-related differences in motivation, but the reasons for these differences are under-studied. In the current study, we investigated a mechanism to explain these gender-related differences in motivation.

Basing our hypotheses on the SDT and the SRM, we investigated whether the gender-related differences in motivation suggested by many studies within the SDT stem from the female tendency to perceive the other (the teacher) more positively, as suggested by the SRM. The results of this study supported the hypothesis that boys adopt lower autonomous and higher controlled motivations than do girls, and that boys perceive their teacher as less supportive of their needs than do girls. Moreover, the results of this study suggest that differences between boys' and girls' perceptions of their teachers' behavior partly mediates gender differences in motivation. Therefore, these gender-related differences in motivation are affected by gender-related differences in the perception and interpretation of teachers' behavior.

Based on the assumptions regarding the reciprocal effects of teacher behavior and student engagement (Skinner & Belmont, 1993), many studies examined teacher behaviors that create a classroom environment, which supports and promotes adaptive motivation (Ames, 1992; Eccles & Midgley, 1989; Eccles et al., 1993; Reeve & Jang, 2006; Skinner & Belmont, 1993; Vallerand et al., 1997). Accordingly, teachers have been encouraged to behave in ways that promote adaptive motivation (Ames, 1992; Assor, Kaplan, Kanat-Maymon, & Roth, 2005; Assor, Kaplan, & Roth, 2002; Reeve & Jang, 2006). The present study reaffirms the above studies and the SDT, suggesting that perceived teachers' behavior is a central factor in students' motivation. Moreover, this is equally true for boys and girls. Multigroup analyses conducted in this study revealed no differences in the model fit for boys and girls, suggesting that perceptions of the teacher as supportive have a central effect on motivation for both genders. However, the finding that girls are more likely than boys to perceive their teacher as supportive and that this perception affects their motivation highlights the need to focus not only on the teacher but also on the student. In other words, if gender affects perception of teachers as supportive, it is not enough to encourage teachers to construct a supportive environment. It is also necessary to enhance teachers' awareness of differences in the extent to which their male and female students perceive this behavior as supportive.

The gender-related differences found in the present study need further investigation; for example, future studies can investigate more deeply the "female positivity effect" and whether this effect is related to other known gender-related differences in the classroom. Moreover, as gender is a very broad group variable, we recommend that future studies assess characteristics other than gender that might bias students' perceptions of their teachers. Perceiver effects in SRM studies have been correlated with gender but also with various other characteristics such as attachment style (Srivastava et al., 2010) and personality traits (Wood et al., 2010). It will be important to identify those characteristics of students that might affect their perception of the teacher.

The study did not assess the reasons for the gender-related difference in the perception of the teacher, nor did it attempt to explore the "female positivity effect" in general. Rather, we relied on previous studies that demonstrated and raised various explanations for this phenomenon (Barkley & Gabriel, 2007; Farris et al., 2008; Winquist et al., 1998;). However, the findings of this study should be considered with care, as the possibility that teachers do behave differently toward boys and girls and, therefore, that students reported actual and not perceived differences in teachers' behaviors still exists.

We suggest deepening the investigation of the social context at school insofar as context might generate gender differences in perception of the teacher and student motivation (Vallerand et al.,

1997). In order to assess the perceiver effect more carefully and to put aside the possibility that different genders actually experience differential treatments, we recommend experimental or observational research paradigms. This would enable mutual investigation of the teachers' behavior and students' motivation and, thus, ensure that the differences in students' perception do not result from real differences in teacher behavior or any other external factor. Moreover, it is interesting to ask whether this effect appears differently with respect to male and female teachers. This would involve asking whether male and female students perceive their male and female teachers differently.

Using longitudinal analyses, future studies should also attempt to trace the process by means of examining which students develop positive or negative perceptions of their teachers. Various studies have shown that perceiver effects are initially seeded from preexisting stable individual differences and further consolidated over time as group-specific stereotypes (e.g., Benjamin & Wonderlich, 1994; Gara et al., 1993). Therefore, there is a need to investigate how these perceptions develop and become stable in the classroom and whether teacher-student interaction influences changes in students' perceptions. Although previous studies show how much homeroom teachers' behavior shapes students' adjustment and motivation (e.g., d'Ailly, 2003; Katz & Cohen, 2014), assessing students' general motivation to learn as an outcome of the homeroom teacher's behavior might be problematic. Accordingly, future studies should use a domain or class-specific measure of motivation in order to assess the direct relation between the behavior of the teacher and the motivational outcomes of students in this teacher's specific class.

CONCLUSIONS

In conclusion, the study reiterates that perception of the teacher as supportive has a positive influence on student motivation. It confirms that perceived support by both boys and girls is equally effective; the study finds, however, that girls are more likely than boys to perceive their teacher as supportive. It follows that gender-related differences in students' perception of the teacher may explain the gender-related differences in motivation that have been reported previously.

The impact that a need-supportive teacher has on the type of motivation that students adopt is well established. However, in order to deepen our understanding of this phenomenon and in order to paint a more complete picture of the well-known relations between teacher behaviors and student motivation, researchers should also consider differences that might affect variations in students' perception of their teacher. The assessment of the individual differences that affect perception of the teacher, and teachers' awareness of these differences, can facilitate adaptive motivation beyond the known contribution of a need-supportive environment.

Although this study was conducted under the theoretical assumptions of the SDT, its results may contribute to researchers and practitioners using other theories that focus on the construction of supportive educational environments. Since previous studies have mostly overlooked the possibility that student characteristics might affect perception of their teachers and thus their motivation, the additional perspective suggested here may serve to enhance theory and practice on motivation in the classroom.

AUTHOR NOTE

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