



School adjustment in adolescence explained by social support, resilience and positive affect

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Abstract

In order to develop future academic-professional skills and later social and financial independence, an adequate adolescent school adjustment is essential. Therefore, it is necessary to identify the variables that contribute to its improvement in a stage characterised by its decrease. The aim of the present study is to analyse and compare two theoretical models to determine the prediction of teacher and peer support, resilience and positive affect to school adjustment, measured through emotional engagement, school integration problems and perceived academic performance. The design was cross-sectional and participants were 1397 adolescents in high school ($M = 13.88$, $SD = 1.27$). The results reveal that teacher and peer support, resilience and positive affect indirectly predict perceived academic performance through school integration problems and emotional engagement. The negative effect of emotional engagement and support from peers on school integration problems is particularly worth highlighting, along with the prediction of resilience on positive affect and that of support from teachers on emotional engagement. The theoretical and practical implications of these results are discussed.

Keywords Support in the school environment · Resilience · Positive affect · Emotional engagement · Integration problems · Perceived academic performance

School is one of the principal microsystems in which adolescent development takes place, which is why well-adjusted behaviour in the school environment is one of the main indicators of good psychosocial adjustment (León et al., 2021). Research has shown that good school adaptation not only enables the development of academic-professional skills and subjective social and financial independence (Symonds et al., 2022), but is also closely

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linked to the development of social-emotional competencies (Mella et al., 2021) and higher levels of life satisfaction (Tomás et al., 2020). Despite this, however, previous studies have observed that school adaptation decreases during adolescence (Kiuru et al., 2020; Serna & Martínez, 2019), and it is therefore important to identify the variables that may contribute to its improvement.

According to the Bioecological Model, development entails the way each individual understands his or her own changes, their ecological environment and the interaction between the two, along with their increasing ability to discover, maintain and/or alter their properties (Bronfenbrenner, 2005). This model suggests that the first subsystem, the microsystem, is the layer closest to the individual and, consequently, the one with which he or she has most contact. Therefore, one of the structures of this microsystem that most influences adolescents, both in terms of the environment and the relationships that occur within it, is the school and the support derived from the different members of the school environment. The Stage-Environment Fit Theory (Eccles et al., 1993; Midgley et al., 2002) argues that students adapt better to the school context when this environment suits their needs and provides support. However, this adaptation also depends on the individual characteristics of the student, such as the student's ability to cope with difficult situations, thus their resilience skills, and also the positive affect they feel at that moment.

Consistently, taking both models into account, scholars sustain that school adjustment is not an adaptation rooted in an individual's innate characteristics, but rather the result of contextual, such as social support, and psychological factors, as are resilience and positive affect (Buhs et al., 2018), that is indicative of a potentially malleable process (Chen & Chen, 2021).

School adjustment

School adjustment is a multi-causal construct that is manifested, according to most researchers, through performance indicators together with those linked to social relations and the emotional aspects associated with educational and school tasks (Moral de la Rubia et al., 2010). School adjustment is considered an outcome variable (Rodríguez-Fernández et al., 2016) that refers to an individual's adaptation to the demands and characteristics of the school system (Ladd & Burgess, 2001), as well as their self-perceived comfort in, commitment to and acceptance of educational contexts (Ishida, 2009). Consequently, given that school adjustment refers to several dimensions of school life, studies assessing this multidimensional variable should include factors representative of (1) *performance*, such as perceived academic achievement (Rodríguez-Fernández et al., 2018); (2) *social relations*, as is social integration and/or social integration problems (Moral de la Rubia et al., 2010; León et al., 2021); and (3) *emotional aspects*, as is considered emotional engagement of the school environment (Gutman & Schoon, 2018).

As mentioned above, one of the most common indicators of school adjustment is perceived academic performance. This variable serves as an indicator of academic achievement in accordance with the individual's own internal standards (Watson et al., 2021). It is a useful and valuable measure due to its power to predict school grades (Respondek et al., 2017) and professional adaptability (Datu & Buenconsejo, 2021). Furthermore, since adolescent students are continually joining new peer groups, are exposed to authority figures and have the opportunity to attain socially recognised personal achievements, the absence of school integration problems is viewed as a good indicator of school adjustment (Moral

de la Rubia et al., 2010; León et al., 2021). Specifically, school integration problems refer to the risk of maladjustment due to difficulties with teachers and students, such as teasing, rejection and boredom, as well as difficulties in following school rules (Moral de la Rubia et al., 2010). Finally, emotional engagement is considered an important indicator of school adaptation (Gutman & Schoon, 2018), since it is characterised by an individual's positive emotional reactions to their school and learning in general, as well as their development of a feeling of belonging within the school context (Fredricks et al., 2005; Wang & Degol, 2014).

Previous studies have shown that variables linked to school adjustment interact among themselves, with some being facilitated by others (Martins et al., 2022; Rodríguez-Fernández et al., 2018; Tomás et al., 2020). According to the Self-System Model of Motivational Development (Skinner et al., 2009), variables considered to be action variables, such as school engagement and school integration, foster outcome variables such as perceived academic performance. Indeed, previous studies have shown that school engagement and integration predict both real (González et al., 2021; Martins et al., 2022) and perceived academic performance among adolescent students (Rodríguez-Fernández et al., 2018). Moreover, students' engagement fosters their commitment to their schooling and helps prevent school problems (Korpershoek et al., 2020), since it is closely linked to the social context, as well as to adolescent students' need to feel integrated and accepted (Demirci, 2020).

Social support in the school environment and school adjustment

Social support, understood as the feeling of being cared for, loved and considered an important member of a network of reciprocal obligations (Cobb, 1976), is held to be a key contextual factor enabling students' academic adaptation (Chan et al., 2022; Tomás et al., 2020). Previous research has found that support from teachers and support from peers are related to each other (Author et al., 2021; Gutiérrez et al., 2017), since teachers' actions may facilitate or hinder the development of the skills required for the establishment of positive peer relations, and may therefore affect students' perceptions of the support received from both sources (Moore et al., 2018).

Moreover, studies have shown that both types of support are important predictors of emotional engagement (af Ursin et al., 2021), school integration problems (Denham, 2019; Schmerse & Zitzmann, 2021) and perceived academic performance (Fernández-Lasarte et al., 2019). However, the role of teachers in the prevention of school integration problems is not clear, although the role of peer support seems to be a key factor in preventing problems of this nature (Denham, 2019; Schmerse & Zitzmann, 2021). In addition, studies have shown that the sense of belonging fosters coping strategies that help mitigate school integration problems (Schmerse & Zitzmann, 2021).

Psychological variables and school adjustment

Resilience is understood as the ability to successfully adapt to and persevere in the face of significant challenges and stressors that threaten an individual's functioning and/or future development (Masten & Barnes, 2018). This variable is associated with school adjustment (Fullerton et al., 2021) in that it predicts emotional engagement (Yoon et al., 2022), which

is in turn associated with good school integration (Masten et al., 2022) and perceived academic performance (Escalante et al., 2020). Resilience is also closely linked to positive affect, with previous research observing that resilient individuals are more likely to use positive affect to find positive meaning in school events (Kong et al., 2018).

Positive affect refers to the presence of frequent positive emotions (Diener et al., 2018). According to the Engine Model of Subjective Wellbeing (Jayawickreme et al., 2012), aspects such as affect and emotions are considered process variables that have the ability to broaden individuals' momentary thought-action repertoires. More specifically, the Broaden-and-Build Theory of Positive Emotions (Fredrickson, 2001) states that experience of positive emotions broadens awareness and helps develop new skills and resources, which ultimately can lead to academic outcomes. Indeed, research evidence positive affect as a variable that fosters emotional engagement (King et al., 2015), prevents poor school functioning (Wu et al., 2021) and predicts academic performance (An et al., 2022).

Multivariate relationships between social support, psychological variables and school adjustment

Despite the interest fostered by Positive Education in factors that facilitate school adjustment (Kern & Wehmeyer, 2021), we still do not know how these variables relate to each other when analysed together.

However, the Self-System Model of Motivational Development (Skinner et al., 2008; Skinner et al., 2009), provides theoretical guidance on how the social context within the classroom can affect students' academic and motivational experiences. Specifically, it articulates the process whereby variables related to the self and beliefs about one's abilities are taken as psychological assets affected by the school environment (including teachers and peers), and which, in turn, influence relevant academic outcomes. In other words, this model supports the existence of different levels of action and relation between school variables, along with a staggered arrangement of the variables under study (contextual, psychological, academic action and academic outcome variables).

Therefore, taking this model into account, it makes sense to hypothesise that the psychological variables resilience and positive affect mediate the prediction of social support from the school environment on school engagement and school integration problems, at the same time that these two school variables mediate the association between psychological variables and perceived academic performance. Furthermore, the few studies available that analyse related variables of similar nature (contextual, psychological and academic) demonstrate the suitability of this relationship dynamic (Azpiazu et al., 2023; Fang et al., 2020).

The little research carried out to date in this field has found that support from teachers continues to predict school engagement when mediated by positive emotions (Sadoughi & Hejazi, 2021) and resilience (Rodríguez-Fernández et al., 2016). In contrast, the direct predictive effect of peer support has been found to be weak (Shao & Kang, 2022) or non-existent (Gutiérrez et al., 2017). However, to the authors' knowledge, there are hardly any previous studies that analyse the mediating role of resilience and positive affect in the prediction of social support on school integration problems. Therefore, the need to clarify the dynamics of these relationships by studying all these variables together is evident.

Moreover, relatively few studies have analysed the relationship between positive affect, resilience and school variables in a multivariate manner. In the available studies,

the associations observed between the different psychological variables and indicators of school adjustment suggest that resilience ceases to predict perceived academic performance when this relationship is mediated by school engagement (Rodríguez-Fernández et al., 2018), although the effect is maintained in the case of positive affect (An et al., 2022), albeit only weakly (Putwain et al., 2018). In any case, these relationships have to be confirmed when including integration problems, since there are no studies available that analyse these variables jointly.

Previous research has also shown that peer support (Schmerse & Zitzmann, 2021) ceases to have a direct effect on perceived academic performance when mediated by school engagement and psychological variables such as resilience (Escalante et al., 2020). The influence of support from teachers, however, is less clear. Some studies argue that teacher support predicts performance (Fraser et al., 2022), even when mediated by school engagement (Tao et al., 2022), although others report only weak to moderate associations (Tao et al., 2019), arguing that the effect of this type of support may disappear when support from peers or psychological variables are included in the analysis in a multivariate manner (Escalante et al., 2020). However, there is again a lack of evidence on how positive affect and integration problems would affect the multivariate analysis of the influence of social support on perceived academic performance.

In conclusion, the limited available literature suggests the mediating role of resilience and positive affect in the predictive capacity of social support on school adjustment, as well as the mediating nature of emotional engagement and school integration problems. However, as has been evident, it is necessary to continue delving into the different multivariate relationships, as there are still some knowledge gaps in the scientific literature, especially regarding the mediating role of emotional engagement and school integration problems.

The present study

Studies analysing school adjustment tend either to include a single indicator of this construct, generally measures of performance or engagement (González et al., 2021), or to consider a global measure (Tomás et al., 2020). Moreover, relatively few studies have sought to analyse the contextual and psychological variables associated with school adjustment in a multivariate manner and research has yet to ascertain the direct and indirect pathways established between variables and the weight of these pathways in the overall analysis. Clarifying this would be very useful, since studies have observed a decrease in school performance and engagement (Serna & Martínez, 2019) during adolescence, suggesting the need to determine which variables may contribute to its improvement. The aim of the present study was therefore to analyse the prediction of support in the school environment (from teachers and peers) and psychological variables (resilience and positive affect) on school adjustment, from the perspective of the Positive Education movement (Kern & Wehmeyer, 2021). To this end, we tested two theoretical models grounded in theory as well as in previous evidence grounded in previous evidence (Fig. 1). M_1 in Fig. 1 shows the prediction of teacher and peer support on psychological variables (resilience and positive affect), emotional engagement and school integration problems. M_2 shows the prediction of both sources of support on psychological variables and all indicators of school adjustment (emotional engagement, school integration problems and perceived academic performance).

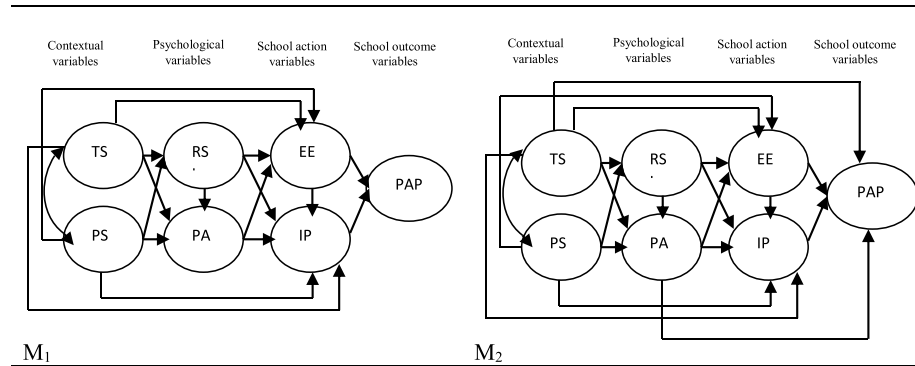


Fig. 1 Hypothesised theoretical models. TS teacher support, PS peer support, RSL resilience, PA positive affect, EE emotional engagement, IP integration problems, PAP perceived academic performance

Method

Participants

Participants were 1397 high school students from the Autonomous Community of the Basque Country aged between 12 and 16 years ($M = 13.88$; $SD = 1.27$), 670 (48%) boys and 727 (52%) girls. The sample was recruited incidentally in accordance with the availability of the schools.

Procedure

After making initial contact with the schools to explain the aims of the study, we contacted the management team of those schools that agreed to participate in order to request their authorisation and the informed consent of the participants' parents or legal guardians and to set a date for the data collection. Questionnaires were administered in each classroom by a member of the research team, in sessions lasting approximately 40 min. The students signed an informed consent form expressing their voluntary participation. The simple blind criterion was used and the anonymity of the responses was guaranteed. The study complies with the ethical criteria established by the University of the Basque Country (UPV/EHU).

Instruments

To measure peer support, we used a subscale of the *Cuestionario de Apoyo Social Percibido de Familia y Amigos—Perceived Social Support from Family and Friends Questionnaire* (González-Ramírez & Landero, 2014). The subscale has a Likert-type response scale with 5 options (1 = *never*, 5 = *always*) and assesses respondents' overall perception of *family support* (8 items) and *support from friends* (7 items). The questionnaire's goodness of fit indexes for the two correlated factor model were as follows: $\chi^2_{[df]} = 376.27_{[60]}$, TLI = .912, CFI = .932, IFI = .932, RMSEA_[CI] = .061_[.055–.067], SRMR = .047. For the purposes

of this study, only the *peer support* items were used. The reliability of the *support from friends* subscale was $a = .858$ and $H = .875$.

To measure support from teachers, we used a subscale of the *Perceptions of the School Environment Questionnaire* (HBSC; 2006, Spanish adaptation by Moreno et al., 2011). This instrument measures students' perception of the *school climate* (8 items) and *teacher support* (8 items) on a Likert-type scale ranging from 1 = *totally disagree* to 5 = *totally agree*. For the purposes of this study, only the *teacher support* items were used. The goodness of fit indexes for the two correlated factor model were satisfactory ($\chi^2_{[df]} = 508.02_{[102]}$, TLI = .926, CFI = .937, IFI = .937, RMSEA_[CI] = .053_[.049-.058], SRMR = .041) and the reliability values of the *teacher support* scale were $a = .846$ and $H = .859$.

Resilience was measured using the *Connor-Davidson Resilience Scale-10* (Campbell-Sills & Stein, 2007), translated into Spanish by Notario et al., (2014). The goodness of fit indexes and reliability values for this scale were satisfactory: $\chi^2_{[df]} = 80.33_{[14]}$, TLI = .939, CFI = .959, IFI = .959, RMSEA_[CI] = .052_[.039-.064], SRMR = .033, $a = .734$, $H = .750$.

Positive affect was measured using a subscale of the *Positive and Negative Affect-10* questionnaire (PNA-10; Bradburn, 1969), validated in Spanish by Yárnoz-Yaben et al., (2014). The scale has a 4-point Likert-type response scale (1 = *never or hardly ever*, 4 = *almost always*) and measures respondents' perceptions of *negative affect* (5 items) and *positive affect* (5 items). For the purposes of this study, only the *positive affect* items were used. The goodness of fit indexes for the two correlated factor model were satisfactory ($\chi^2_{[df]} = 185.47_{[34]}$, TLI = .935, CFI = .951, IFI = .951, RMSEA_[CI] = .056_[.049-.064], SRMR = .056) and the reliability values of the *positive affect* scale were adequate: $a = .797$ and $H = .848$.

Emotional engagement was measured using the *School Engagement Measure* (Fredericks et al., 2005; Ramos-Díaz et al., 2016). The scale uses a 5-point Likert-type response scale (1 = *never*, 5 = *always*) and measures respondents' *emotional engagement* (6 items), *behavioural engagement* (5 items) and *cognitive engagement* (8 items). The goodness of fit indexes for the three correlated factor model were satisfactory ($\chi^2_{[df]} = 631.28_{[114]}$, TLI = .902, CFI = .910, IFI = .910, RMSEA_[CI] = .057_[.053-.061], SRMR = .053). For the purposes of this study, only the *emotional engagement* items were used. The reliability values of the *emotional engagement* scale were adequate: $a = .816$ and $H = .84$.

We used the *Escala Breve de Ajuste Escolar—Brief School Adjustment Scale* (EBAE; Moral de la Rubia et al., 2010) to measure perceived academic performance and school integration problems. This questionnaire has a 6-point Likert-type response scale (1 = *completely disagree*, 6 = *completely agree*) and measures respondents' perceptions regarding their *academic expectations* (2 items), *academic performance* (3 items) and *school integration problems* (5 items). The scale was found to have adequate indexes for the three correlated factor model: $\chi^2_{[df]} = 38.29_{[17]}$, TLI = .986, CFI = .992, IFI = .992, RMSEA_[CI] = .030_[.017-.043], SRMR = .022. For the purposes of this study, only the *perceived academic performance* and *school integration problems* items were used. The reliability values for the *perceived academic performance* ($a = .745$ and H coefficient = .883) and *school integration problems* ($a = .809$ and $H = .823$) scales were satisfactory.

Statistical analyses

The Mardia coefficient indicated a non-normal sample distribution. The descriptive statistics and Pearson correlations were calculated using the SPSS-22 statistical program.

To test the measurement model and structural models, we used the structural equations modelling (SEM) method and the EQS 6.2 statistical package, which provides an LM estimator with the robust Satorra-Bentler correction. The residual covariance matrix was analysed alongside diverse other indexes to test the goodness of fit of the models represented in Fig. 1 (Hair et al., 2018). These indexes were the CFI, TLI and IFI comparative fit indexes ($>.90$ acceptable); the RMSEA and SRMR error measures ($<.08$) and the χ^2/df absolute fit index ($<.3$). To compare the models, we used the chi-squared statistic and the AIC and CAIC comparative indexes, in which smaller values indicate greater parsimony (West et al., 2014).

Results

Preliminary analyses

After analysing the descriptive statistics and significance levels of the correlations between the variables included in the study (Table 1), and prior to the use of structural equations to compare the proposed theoretical models, the measurement model was tested and found to have adequate fit indexes and significant factor loadings ($p < .01$) in all items: $\chi^2_{[df]} = 1802.5076_{[643]}$, $\chi^2/df = 2.80$, TLI = .919, CFI = .926, IFI = .926, SRMR = .046, $RMSEA_{[CI]} = .036_{[.034-.038]}$.

Global fit of the model

To compare the hypothesised models, the goodness of fit indexes were analysed for the constrained model (M_0) and the two models proposed in Fig. 1. The results shown in Table 2 indicate that the constrained model (M_0) was the one with the poorest fit to the data, whereas models M_1 and M_2 had better fit values. As evident in the comparative fit indexes and chi-squared statistics ($\Delta\chi^2 = 4.519$, $p = .104$), hardly any differences were observed between M_1 and M_2 . Consequently, we chose the most parsimonious option, namely, M_1 , as the model that best fit the data. The data indicate that teacher and peer support, alongside resilience and positive affect, indirectly influenced perceived academic performance through emotional engagement and school integration problems.

Finally, the LM test did not indicate the need for more parameters and the Walt test indicated that the pathways established between *teacher support-positive affect* ($\beta = .040$, $p > .05$), *teacher support-school integration problems* ($\beta = .008$, $p > .05$) and *positive affect-school integration problems* ($\beta = -.063$, $p > .05$) should be eliminated, since they were not significant. Support in the school environment was found to explain 5.7% of the variance observed in *resilience* and 26.9% of the variance observed in *positive affect*. For their part, 40% of *emotional engagement*, 18% of *school integration problems* and 37.2% of *perceived academic performance* was explained by their respective predictive variables. The regression coefficients of the M_1 model are shown in Fig. 2.

A limitation of the causal sequence proposed in this model is that all the variables of interest have been measured simultaneously, therefore, the inverse sequence is calculated to check the robustness of the theoretical model M_1 (Mérida-López et al., 2022): (1) *perceived academic performance* predicts impacts *emotional engagement* and *school integration problems*; (2) *emotional engagement* impacts on *school integration problems*, *resilience* and *positive affect*; (3) *school integration problems* on *resilience* and *positive affect*;

Table 1 Descriptive statistics and correlations

Variables	1	2	3	4	5	6	7
1. Peer support	—	—	—	—	—	—	—
2. Teacher support	.116 ^{***}	—	—	—	—	—	—
3. Resilience	.155 ^{***}	.180 ^{***}	—	—	—	—	—
4. Positive affect	.224 ^{***}	.117 ^{***}	.496 ^{***}	—	—	—	—
5. Emotional engagement	.190 ^{***}	.420 ^{***}	.338 ^{***}	.319 ^{***}	—	—	—
6. School integration problems	-.192 ^{***}	-.149 ^{***}	-.249 ^{***}	-.241 ^{***}	-.320 ^{***}	—	—
7. Perceived academic performance	.063 [*]	.300 ^{***}	.299 ^{***}	.185 ^{***}	.494 ^{***}	-.142 ^{***}	—
<i>M (SD)</i>	28.30 (4.48)	26.30 (5.87)	30.54 (4.33)	26.12 (4.72)	30.54 (4.33)	26.20 (5.63)	11.89 (3.13)

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

Table 2 Nested models comparison

	$\chi^2_{[df]}$	χ^2/df	TLI	CFI	IFI	SRMR	RMSEA _[90% CI]	AIC	CAIC
M ₀	2119.34 _[652]	3.25	.899	.906	.907	.071	.040 _[.038,.042]	815.34	-3254.97
M ₁	1824.67 _[647]	2.82	.918	.925	.925	.047	.036 _[.034,.048]	530.27	-3508.42
M ₂	1820.27 _[645]	2.82	.918	.925	.925	.047	.036 _[.034,.048]	530.67	-3496.34
$\Delta\chi^2_{M1-M2}$	4.519, $p = .104$								

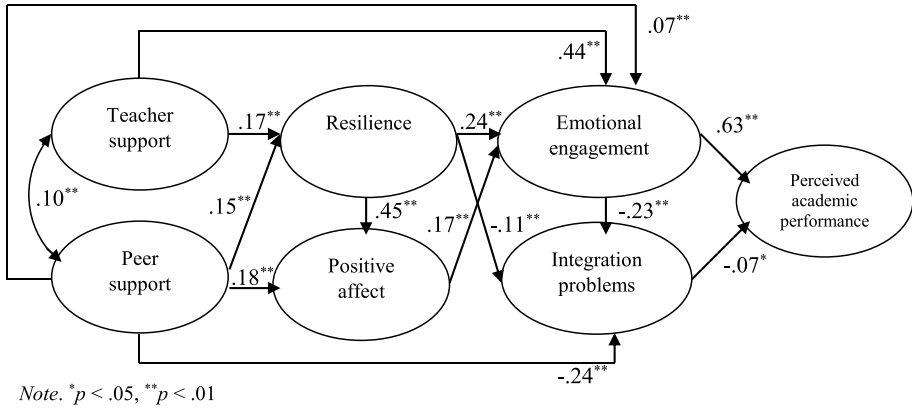


Fig. 2 Standardised solution. * $p < .05$, ** $p < .01$

and (4) *resilience* and *positive affect* on *teacher* and *peer support*. This inverse model shows good fit indices ($\chi^2_{[df]} = 376.27_{[60]}$, TLI = .894, CFI = .902, IFI = .902, RMSEA_[CI] = .041_[.039-.043], SRMR = .074), although worse than M₁ ($\Delta\chi^2 = 344.98$, $p < .001$), which indicates a potentially better statistical and theoretical robustness and plausibility of M₁.

Direct, indirect and overall effects

The results shown in Table 3 indicate that *teacher support* had a direct prediction on *resilience* ($\beta_d = .167$, $p < .01$) and *emotional engagement* ($\beta_d = .443$, $p < .01$), with this last effect being particularly noteworthy due to its moderate weight and greater coefficient than that observed for *peer support* ($\beta_d = .074$, $p < .01$), *resilience* ($\beta_d = .236$, $p < .01$) or *positive affect* ($\beta_d = .165$, $p < .01$). In contrast, *peer support* was found to have a positive predictive capacity on *positive affect* ($\beta_d = .176$, $p < .01$) and a negative one on *school integration problems* ($\beta_d = -.240$, $p < .01$).

The results also revealed a direct prediction of *emotional engagement* on *school integration problems* ($\beta_d = -.230$, $p < .01$), as well as a direct ($\beta_d = .627$, $p < .01$) and total effect ($\beta_t = .643$, $p < .01$) of *emotional engagement* on *perceived academic performance*, since these were the strongest associations of all those observed. Although *teacher support* was not found to have a direct prediction on *perceived academic performance*, its indirect influence ($\beta_i = .312$, $p < .01$) is worth noting, since it was greater than the direct prediction observed for *school integration problems* ($\beta_d = .071$, $p < .05$).

Table 3 Direct, indirect and total effects

Pathways	β_d	Z_d	β_i	Z_i	β_t	Z_t
Peer support → resilience	.154**	4.070	–	–	.154**	4.070
Teacher support → resilience	.167**	4.373	–	–	.167**	4.373
Peer support → positive affect	.176**	5.517	.069**	3.645	.245**	6.543
Teacher support → positive affect	.040	1.340	.075**	3.848	.115**	3.158
Resilience → positive affect	.449**	10.975	–	–	.449**	10.975
Peer support → emotional engagement	.074**	2.580	.077**	5.098	.151**	4.513
Teacher support → emotional engagement	.443**	11.439	.058**	4.012	.501**	12.157
Resilience → emotional engagement	.236**	6.163	–	4.124	.310**	9.434
Positive affect → emotional engagement	.165**	4.288	–	–	.165**	4.288
Peer support → integration problems	–.240**	–6.447	–.068**	–4.496	–.308**	–7.407
Teacher support → integration problems	.008	.243	–.042	–3.553	–.034	–1.022
Resilience → integration problems	–.117**	–2.683	–.100**	–4.283	–.216**	–5.720
Positive affect → integration problems	–.063	–1.608	–.038**	–3.350	–.101**	–2.585
Emotional engagement → integration problems	–.230**	–4.835	–	–	–.230**	–4.835
Peer support → academic performance	–	–	.073**	3.157	.073**	3.157
Teacher support → academic performance	–	–	.312**	8.224	.312**	8.224
Resilience → academic performance	–	–	.179**	7.967	.179**	7.967
Positive affect → academic performance	–	–	.096**	4.037	.096**	4.037
Emotional engagement → academic performance	.627**	14.629	.016*	2.035	.643**	15.033
Integration problems → academic performance	–.071*	–2.401	–	–	–.071*	–2.401

$p^* < .05$, $p^{**} < .01$

Similarly, the direct prediction of *resilience* on *positive affect* ($\beta_d = .449$, $p < .01$) is worth highlighting, along with its total effect on *emotional engagement* ($\beta_t = .310$, $p < .01$), mediated by *positive affect*. Despite the fact that *positive affect* was not found to have a direct prediction on *school integration problems*, its total prediction was significant ($\beta_t = -.101$, $p < .01$), since it was mediated by *emotional engagement*, although the weight was low—lower indeed than the direct effect of *emotional engagement* ($\beta_d = -.230$, $p < .01$).

Discussion

Within the framework of Positive Education (Kern & Wehmeyer, 2021), the aim of the present study was to analyse and compare two theoretical models grounded in previous research, in order to understand how support in the school environment (from teachers and peers) and psychological variables (resilience and positive affect) predict school adjustment. The results of this study indicated a possible double mediation, such that school environmental support (teacher and peer support) seems to predict emotional engagement and school integration problems through psychological variables (resilience and positive affect), while psychological variables seem to do so on academic performance through emotional engagement and school integration problems.

One of the potential novel contributions made by this study was the fact that it analysed the relationships of both contextual and psychological factors on school adjustment, from

the Self-System Model of Motivational Development (Skinner et al., 2008; Skinner et al., 2009). This model supports the existence of different levels of action and relation between school variables, along with a staggered arrangement of the variables under study (contextual, psychological, academic action and outcome variables). The results revealed that contextual and psychological variables cease to have a direct prediction on perceived academic performance as the result of the total mediation of academic action indicators (emotional engagement and school integration problems). However, it is important to note that this fact should be verified through longitudinal data and that the conclusions described below should be taken with caution until they have been verified longitudinally. Therefore, the possible reasons for the predictions found are considered hypothetical and are in no way intended to make categorical statements.

Specifically, the results of the present study revealed that school integration problems predicted performance, although the association was fairly weak. Previous research in this field suggests that the links between school integration and academic performance are stronger in primary school (Schmerse & Zitzmann, 2021), when academic assessment is not as demanding and students seek to develop their school identity in a social-academic context in which they spend a great deal of their time. However, as academic demands increase in secondary school, performance may be determined by other factors, such as emotional engagement (as found in this and previous studies) or the development of self-regulation and learning strategies (Yildirim et al., 2019). In other words, previous studies suggest that secondary school students may obtain good grades and see themselves as performing well academically, despite having chronic school integration problems and developing negative attitudes towards school.

Emotional engagement was also found to be vital to adjusted performance (Martins et al., 2022; Rodríguez-Fernández et al., 2018) and a significant predictor of school integration problems (Korpershoek et al., 2020), since being a variable closely linked to the social context and the integration needs of adolescent students (Demirci, 2020), engagement offers benefits such as social awareness and the ability to establish good relationships with others (Appleton et al., 2008). In any case, it should be noted that in this study only positive emotional engagement has been taken into account and that it would be interesting to study negative emotional engagement, disengagement, or to include also the cognitive and behavioural dimensions of school engagement, since academic results could vary according to the way in which adolescents perceive all these elements (Wang et al., 2015).

Likewise, another key factor (in addition to school engagement) that seems notably to benefit perceived academic performance is the support provided by teachers, since the indirect prediction of this support (Escalante et al., 2020) is moderate and stronger than that of school integration problems. Teacher support is also the most important predictor of emotional engagement (Rodríguez-Fernández et al., 2016; Sadoughi & Hejazi, 2021), which serves to highlight the vital role played by teachers in the development of academic competencies and the importance of generating positive bonds during the secondary school years.

Regarding support from peers, this study found its direct prediction in positive affect and direct and negative prediction of school integration problems (Schmerse & Zitzmann, 2021). Adolescence is a time characterised by adult autonomy and independence and the search for peer acceptance and involvement (Santrock, 2006), which could explain why friendships are the direct source of positive affection and the group responsible for preventing school integration problems (Schmerse & Zitzmann, 2021), as they meet adolescents' socioemotional needs for acceptance (Kilday & Ryan, 2022).

Consequently, in the present study, we observed differences between support figures, both in terms of prediction intensity, since each member of an individual's immediate

network provides support in accordance with their characteristics and status, and in terms of the type of support provided (Kilday & Ryan, 2022). It therefore seems that peers provide more emotional than instrumental support at school, whereas teachers provide instrumental and informational support through strategies and activities directly linked to academic outcomes and indicators (Malecki & Demaray, 2003).

The above notwithstanding, Kilday & Ryan, (2022) point out that, in the event of academic difficulties, such as a tricky problem or the need for conceptual clarification, peers constitute an abundant, immediate source of direct aid in school tasks. Similarly, the aid provided by teachers is also significant in the event of conflict or school adaptation problems. It therefore seems that both groups help compensate for academic and social-affective difficulties when the principal group that usually provides the necessary support offers only limited aid or when the difficulty in question is particularly serious (Moore et al., 2018). This would also explain the low correlation found between the two types of support (Author et al., 2021; Rodríguez-Fernández et al., 2016).

In this study, positive affect was not found to directly help prevent school integration problems (Schmerse & Zitzmann, 2021), although a direct prediction was observed on emotional engagement (King et al., 2015), with positive affect helping to prepare students to search for and adopt new goals that motivate them to persevere when faced with academic challenges (Wu et al., 2021). Previous studies have shown that whereas negative emotions negatively influence school difficulties, positive ones do not seem to have such a strong predictive effect (Chang et al., 2020), if they are not accompanied by positive cognitive assessments and socially accepted ways of behaving (Baker & Maupin, 2009). Therefore, the benefits of positive affect may be rendered null and void if they are not guided by self-regulation strategies that enable individuals to avoid school-related problems. Moreover, Pekrun, (2017) argues that not all positive emotions are directly linked to good school or performance indicators, since they may distract the individual's attention from their work, reduce their academic effort and diminish general performance, which would also explain the absence of a direct prediction of positive affect on perceived academic performance.

In contrast, resilience was found to make an important prediction to positive affect (Kong et al., 2018) and, albeit to a lesser extent, to school engagement (Yoon et al., 2022) and academic performance also (Fullerton et al., 2021), with resilient skills generating a state of positive affectivity that in turn facilitates greater emotional engagement in the classroom (Rodríguez-Fernández et al., 2018). Resilience also protects against school integration problems (Masten et al., 2022), although peer support seems to be the most important variable in the avoidance of this type of difficulty (Schmerse & Zitzmann, 2021).

The present study provides practical information that sheds light on the different pathways through which a variety of factors would foster adolescents' school adjustment. The results highlight the importance of teachers in promoting emotional engagement, which suggests the need to implement structured guidance programmes to encourage them to engage more actively with students and to carry out activities designed to foster resilience. It is also important to organise events designed to enhance communication between teachers and students, along with activities to help increase perceived academic performance. Given the protective role played by peer relations in school adaptation, families and teachers should be advised to try to help adolescents develop their social skills and conflict resolution capacities. In addition to ensuring that they are more likely to experience positive emotions, this would also help students feel more integrated in the school context.

Despite the evidence found, the present study has certain limitations. First, the design was cross-sectional, meaning that it is impossible to establish any causal relations between the variables analysed. Longitudinal studies are therefore required to further explore the

associations observed. In this regard, it is worth remembering that the expressions that denote causality used throughout the study should be understood in relation to the model under examination and not as real causality inherent in longitudinal studies. Second, only self-report instruments were used, a circumstance which may have introduced a certain degree of bias into the results. Future research may wish to include more objective measures of performance, such as academic grades. Third, it is important to include family support in the analysis of these relationships, since it would add greater depth to the study of social support and school adjustment. Also a deeper study about school engagement types (positive and negative) and dimensions would enrich and clarify the role that engagement plays in school adjustment and academic outcomes. Finally, although Ladd & Burgess, (2001) present a holistic perspective of school adjustment in school valuational terms, well-being, engagement, achievement and progress, research in general has tended to consider adaptation and school adjustment as synonymous (Eoh et al., 2022; Schotte et al., 2022; Tomás et al., 2020; Zhang et al., 2022) and it would be convenient that new lines of research delve into the conceptual delimitation of both variables.

In summary, this double mediation analysis provides, beyond the inherent limitations of cross-sectional studies (Mitchell & Maxwell, 2013; O’Laughlin et al., 2018), a first approach about the predictions between variables and the mechanisms through which they might operate. While it cannot establish a causal relationship nor offer information about the dynamic process, this study allows to hypothesise the selected model as the most theoretically and statistically plausible, identify potential mediators not previously considered, guide future research and provide insight into complex phenomena as it is school adjustment (Bollen & Pearl, 2013; Hayes, 2013; MacKinnon, 2008). The mediation effects observed are correlational in nature, indeed. Nevertheless, the theoretical rationale for the posited mediation process and the empirical evidence endorses these results as informative about the temporal process (Shrout, 2011), as well as a starting point for future exploration.

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Declarations

Competing interests The authors declare no competing interests.

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Current themes of research

Determinants and consequences of adolescent socio-personal and academic adjustment. Design and implementation of psychoeducational intervention programs, validation of psychometric instruments.

Most relevant publications in the field of Psychologu Education

Azpiazu, L., Fernández-Lasarte, O., Escalante, N., & Izar de la Fuente, I. (2023). Social support and school engagement in adolescence: moderated mediation models of life satisfaction and school climate. *Educational Psychology*, <https://doi.org/10.1080/01443410.2023.2298799>

Azpiazu, L. A., Rodríguez-Fernández, A., & Fernández-Zabala, A. (2022). Perceived academic performance explained by school climate, positive psychological variables and life satisfaction. *British Journal of Educational Psychology*. <https://doi.org/10.1111/bjep.12557>
Current themes of research

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Current themes of research

Emotional intelligence, stress coping strategies and self-concept and adolescent socio-personal and academic adjustment. Design and implementation of intervention psychoeducational programs. Development and validation of new psychometric instruments.

Most relevant publications in the field of Psychologu Education

Esnaola, I., Benito, M., Antonio-Agirre, I., Xpe, I., & Lorenzo, M. (2019). Longitudinal measurement invariance of the Satisfaction With Life Scale in adolescence. *Quality of Life Research*, *28*(6), 1-7 <https://doi.org/10.1007/s11136-019-02224-7>

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Current themes of research

Social support, school climate, psychological variables and school engagement. Development, implementation and assessment of training programs to improve the school adjustment of adolescents.

Most relevant publications in the field of Psychologu Education

Izar-de-la-Fuente, I., Rodríguez-Fernández, A., Escalante, N., & Fernández-Lasarte, O. (2023). Capacidad predictiva de fuentes y tipos de apoyo social sobre implicación escolar. *Educación XXI*, 26(1), 165-183 <https://doi.org/10.5944/educxx1.31876>

Rodríguez-Fernández, A., Izar-de-la-Fuente, I., Escalante, N., & Azpiazu, L. (2021). Perceived social support for a sustainable adolescence: A theoretical model of its sources and types. *Sustainability*, 13, 5657 <https://doi.org/10.3390/su13105657>

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Current themes of research

Analyses of contextual variables such as social support, psycho-instructional variables (emotional intelligence, self-concept and resilience) and school adjustment (academic performance and school engagement) in adolescence and youth.

Most relevant publications in the field of Psychologu Education

Izar-de-la-Fuente, I., Rodríguez-Fernández, A., Escalante, N., & Fernández-Lasarte, O. (2023). The predictive power of support's sources and types for engagement. *Educación XXI*, 26(1), 165-183 <https://doi.org/10.5944/educxx1.31876>

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