Student perceptions of interpersonal justice, engagement, agency and anger: a longitudinal study for reciprocal effects

Consuelo Mameli[1] · Valentina Grazia[2] · Stefano Passini[1] · Luisa Molinari[2]

Abstract

Based on the premise that classroom interactions unfold through a complex series of circular influences between teacher and students, the aim of this longitudinal study was to test a reciprocal effects model connecting students' perceptions of interpersonal justice, on the one hand, and student engagement, agency and anger, on the other. Self-report measures of interpersonal justice, student engagement, agency and anger were collected from 454 Year Nine students from Northern Italy in a 3-wave longitudinal research design. Structural equation modelling with latent variables indicated that interpersonal justice in wave 1 had a negative effect on both student agency and anger in wave 2, while interpersonal justice in wave 2 only negatively predicted student anger in wave 3. With respect to the reciprocal effects, student engagement in wave 2 was found to positively predict interpersonal justice in wave 3, while a negative effect close to statistical significance was observed from student agency in wave 2 to interpersonal justice in wave 3. These results are discussed in terms of their implications for teacher practice, as they emphasize that (a) the two main facets of student participation, namely engagement and agency, are differently interconnected with the learning environment, and (b) the perception of being treated fairly is important to the point that its deficiency triggers a persistent feeling of anger in students.

Keywords Justice · Student engagement · Student agency · Anger · Reciprocal effects

✉ Consuelo Mameli
    consuelo.mameli@unibo.it

1   Department of Educational Sciences, University of Bologna, Via Filippo Re 6, 40126 Bologna, Italy

2   Department of Humanities, Social Sciences and Cultural Industries, University of Parma, Parma, Italy

Introduction

Classroom interpersonal justice is defined as the students' perception to be "treated fairly, with dignity and respect, in interpersonal interactions" (Chory-Assad 2002, p. 61). In this frame, the quality of interactions between teachers and students has to do — more than with *what* is said — with *how* teachers communicate the procedures they use, explain their decisions, and earn their students' trust (Kazemi 2016). The experience to be treated in a fair and respectful manner is of crucial importance in adolescence, as it contributes to the perception of being a valued member of a group, promotes a sense of belongingness, and eventually fosters the development of beliefs in a just world (Berti et al. 2010). Interpersonal justice thus represents a key dimension of learning environments that some scholars have even considered to be a basic psychological need for learners (Molinari and Mameli 2018).

Research has shown that adolescents' perceptions of classroom justice are linked to a number of positive outcomes, such as learners' motivation (Chory-Assad 2002; Molinari et al. 2013), commitment and achievement (Donat et al. 2016; Tas 2016), or well-being (Kamble and Dalbert 2012; Mameli et al. 2018). However, most of these studies were conducted with cross-sectional designs, which miss the point of capturing the temporal ordering and reciprocal effects of these constructs.

The adoption of multiwave longitudinal studies would instead be more appropriate for capturing the classroom interactional dynamics that unfold through a complex series of reciprocal influences between teachers and students (Jang et al. 2012, 2016) and involve interdependent transactions between and among individuals and groups (Bronfenbrenner 1992). In school, students are not simply affected by the characteristics of the relational contexts in which their learning occurs, but they participate in their environment and actively contribute to the naturally occurring school interactions and practices (Lave and Wenger 1991).

In the light of these premises, the current study was based on a three-wave longitudinal design aimed at assessing reciprocal effects between interpersonal justice and other student-related variables, namely engagement, agency, and anger. Given that adolescents are particularly sensitive to school justice and especially to injustice (Resh and Sabbagh 2016), it is reasonable to assume that they react both behaviourally and emotionally when they feel that their need to be treated fairly is not respected. Here we first report cross-sectional research showing the effects of justice on the other constructs, and then advance claims about the reciprocal effects.

Effects of interpersonal justice on student engagement

Student engagement in learning activities (Fredricks et al. 2004; Skinner et al. 2009) is commonly described as a multidimensional construct composed of three dimensions (Groccia 2018; Voelkl 2012; Wang and Fredricks 2014) referring to emotions, cognitions and behaviours. Emotional engagement corresponds to the student sense of school belonging and enjoyment (Voelkl 2012); cognitive engagement refers to the processes and strategies that students use to establish linkages between concepts and previous experiences (Wang and Fredricks 2014); behavioural engagement comprises conducts and effort put into performing learning tasks (Fredricks et al. 2004).

The findings of a cross-sectional study on high school students (Berti et al. 2010) showed that perceiving interpersonal justice promotes students' engagement, likely because the more students perceive that they receive what they deserve in an atmosphere of mutual trust and

respect, the more they feel they are in control, by means of their commitment, of the results of their own educational activities. Also, on a sample of middle school students, Tas (2016) found that equity — defined as the teacher's equitable treatments in giving every student the same learning opportunities — predicted all three dimensions of engagement. Similar results were found in other cross-sectional investigations conducted on samples of secondary school students, confirming that teacher justice positively impacts emotional (Mameli et al. 2018) and behavioural engagement (Molinari and Mameli 2018).

Effects of interpersonal justice on student agency

In school, agency is defined as the students' "ability to exert influence in their learning context, to transform their own and others' learning experiences, and to expand learning" (Cook-Sather 2020, p. 186). In most studies, student agency has been operationalised with reference to actions such as "asking questions, expressing opinions, and communicating interests" (Reeve 2012, p. 165), which are generally positively valued by teachers as manifestations of learners' curiosity and proactive participation. However, student agency also manifests when learners produce resistant or challenging actions such as when they complain about particular teaching practices or when they disagree with teachers. In these cases, students take transformative stances in opposition to events they perceive to be frustrating or unfair (Rajala et al. 2016; Wischmann and Riepe 2019). Some studies have revealed that in most cases, teachers tend to contrast these behaviours, which they consider as provoking actions against their authority (Goodboy 2011). However, other scholars have pointed out that these forms of agency are instead constructive emancipatory practices (Winkler and Rybnikova 2019) able to support learners and teachers' collaboration in fostering good learning conditions.

The diverse ways in which agency manifests are presumably the reason why cross-sectional studies that investigated this dimension in connection with justice has produced controversial results. Tas (2016), for instance, found that teacher equity positively predicted learners' agency. Molinari and Mameli (2018) instead showed that teacher justice negatively affected learners' agency, as the more teachers were perceived to be unfair, the more students tended to behave agentically. This last result is consistent with those of previous studies (Bolkan and Goodboy 2016; Goodboy 2011; Horan et al. 2010), mainly conducted with qualitative methods on samples of university students, showing that students' perceptions of teacher injustice often trigger students' resistant actions aimed at improving learning conditions.

Effects of interpersonal justice on student anger

People typically feel angry when an undesired event or threat frustrates their goals, values or needs (Lazarus 1991). In school, students may experience feelings of anger "in response to injustice or perceived injustice" (Patulny and Olson 2019, p. 135), i.e., when their need to be treated in a fair and respectful manner is disregarded by teachers. The Control-Value theory (CVT) of achievement emotions (see Pekrun 2006; Pekrun and Linnenbrink-Garcia 2012; Pekrun and Perry 2014) provides useful insights in this direction, as it clarifies how individual and contextual factors combine with each other in eliciting students' discrete emotions. More in particular, according to the CVT (Pekrun 2006), anger is an emotion with negative valence and activating effect, arising when an activity or an outcome is negatively valued (as in conditions of perceived injustice) and appraised as controllable (as the agent responsible for the injustice is known).

Although theoretically recognized (Pekrun 2006), the connection between (in)justice and anger has rarely been empirically investigated. The few studies (e.g., Horan et al. 2010) in the field have provided some evidence that teacher injustice fosters the arousal of student anger and frustration (Chory-Assad and Paulsel 2004). In a study conducted on a population of primary school students, Assor et al. (2005) showed, for example, that directly controlling teacher behaviours — which are generally perceived to be unjust by pupils — tend to favour the insurgence of anger. Consistently, in a qualitative investigation in which university students were asked to provide written narratives of their school experience, Horan and colleagues (Horan et al. 2010) found that anger was the most cited emotional response to unjust experiences. Albeit interesting, these studies provided some insights on the emotional responses but missed the point to measure their impact in the school context (Horan et al. 2010).

Reciprocal effects of engagement, agency and anger on interpersonal justice

In classrooms, all the actors are involved in multiple and nested interactive processes that unfold in the moment-to-moment activities between teacher and students. In line with the system theory principles (Bronfenbrenner 1992), the particular ways in which these dynamics are intertwined can tell us many things about whether school experience promotes a favourable learning environment or, on the contrary, launches a vicious circle that makes it more hostile.

There are only a few studies that have addressed the issue of the reciprocal effects between student engagement, agency and anger, and contextual variables, and none of them, to our knowledge, have focused on interpersonal justice. However, an interesting cue in this direction comes from a longitudinal study conducted on a sample of 500 secondary school students (Jang et al. 2012), which showed a mutual effect between student engagement and autonomy need fulfilment on the part of the teacher. Similar effects have been found in a subsequent longitudinal study (Jang et al. 2016) indicating the predictive role of disengagement with respect to students' perceptions of teacher control and low autonomy support. The authors conclude that "changes in classroom engagement anticipate later and corresponding changes in autonomy need satisfaction", as learners' commitment efforts "provide students with enhanced opportunities for autonomy need-satisfying classroom experiences" (Jang et al. 2012, p. 1183). Drawing from this conclusion, we advance the hypothesis that student engagement may also influence other dimensions of the learning environment, such as interpersonal justice. The mutual mechanism at work might imply that if students are more prone to actively engage in classroom activities when they perceive they have been treated fairly by their teachers, on the reverse side the engaged student may perceive the interpersonal treatment received by teachers as being more favourable.

The literature on the effect of student agency on other contextual dimensions is again very scarce. Among the few empirical studies on this topic, it is worth mentioning the work by Matos et al. (2018), who found that undergraduates' agency had a positive influence in perceived supportive teaching. Nonetheless, to our knowledge, the specific effect of student agency on interpersonal justice is basically based more on speculation than on empirical investigations. A number of scholars, for example, have highlighted how important it is for teachers to consider student agency as an opportunity for improving their practices and make them fairer (for a review, see Winkler and Rybnikova 2019), but this claim was not supported by empirical data. Conversely, other authors (e.g., Assor et al. 2005; Chory-Assad and Paulsel 2004) have suggested that students' transformational or challenging actions can be interpreted

by teachers as attacks against their authority, and thus have negative consequences on justice perceptions (Mullola et al. 2014).

The mutual influences between interpersonal justice and anger may be conceived in the light of the basic CVT principles (Pekrun 2006; Pekrun et al. 2017), assuming the existence of reciprocal causal dynamics between students' appraisals and emotions, as well as between the latter and the learning environment. In the everyday classroom practices, this assumption implies two types of feedback loops. First, students' control and value appraisals over specific activities or outcomes elicit specific emotions which, in turn, influence students' subsequent evaluations (Pekrun 2006). For example, if students judge to be unfair a poor mark or a surprise test, they may experience a feeling of anger which in turn leads to higher sensitivity to teachers' unfairness (Berkowitz 1989; Boekaerts 1994; Chory-Assad 2002). Second, a learning environment judged as fair and pleasing, or unfair and displeasing, can foster the emergence of specific students' emotions which in turn affect the quality of the learning context (Pekrun 2006). For instance, we can speculate that teachers tend to attribute a negative valence to student anger, considered as a manifestation that can potentially lead to destructive and inappropriate actions (Boekaerts 1994). For this reason, teachers might try to suppress the expression of such emotion or, when this is not possible, to punish it, as shown by the findings concerning associations between manifestations of anger and low marks (Mullola et al. 2014; Zhou et al. 2010). In this scenario, it is plausible, albeit not empirically ascertained, that teachers' behaviours in response to students' anger would be perceived as acts of injustice.

The present study

As reported in the foregoing, prior research has provided many insights into the role played by interpersonal (in)justice in affecting student engagement, agency and anger. However, as far as we know, most of these studies have relied on qualitative (e.g., Bolkan and Goodboy 2016) or cross-sectional designs (e.g., Berti et al. 2010), which do not inform on the temporal and directional dimensions of such effects (Jang et al. 2012). Moreover, although some authors (e.g., Chory-Assad and Paulsel 2004; Pekrun 2006; Winkler and Rybnikova 2019) have speculated on the reverse effects of students' engagement, agency and anger on their perception of interpersonal justice, these effects have not been empirically investigated, either cross-sectionally or longitudinally. This represents a limitation, as scholars (e.g., Jang et al. 2016; Reeve et al. 2004) have long claimed that classrooms host a series of complex and naturally unfolding dynamics implying that the actors are involved in reciprocal influences.

In the light of these premises, the aim of the present work was to investigate, with a longitudinal research design comprising three waves (T1, T2 and T3), a reciprocal effects model linking students' perceptions of interpersonal justice, on the one hand, and student engagement, agency and anger, on the other. Specifically, we predicted the following (see Fig. 1). In line with the literature (Horan et al. 2010; Mameli et al. 2020a; Tas 2016), we assumed that students' perception of interpersonal justice would positively affect student engagement (Hypothesis 1) and negatively influence student agency (Hypothesis 2) and anger (Hypothesis 3), both from T1 to T2 and from T2 to T3. As far as the reverse paths were concerned, we could not make hypotheses based on previous studies. Nevertheless, on the basis of the reasoning provided in the introductive section, we expected that student engagement would positively impact on students' perception of interpersonal justice (Hypothesis 4), while student
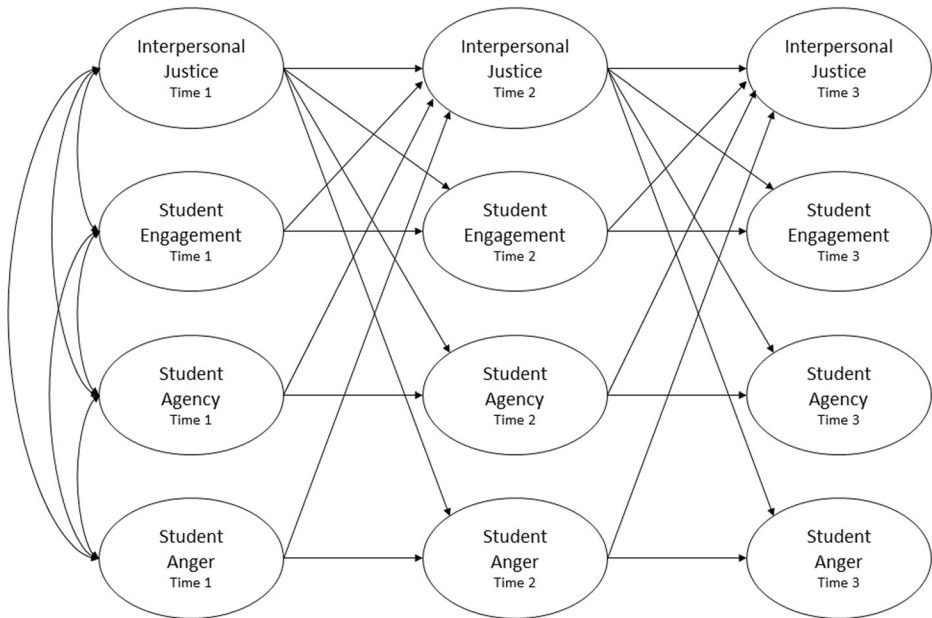
Fig. 1 Hypothesized reciprocal model. The model includes autoregressive effects (horizontal lines), direct effects (downwardly sloped lines) and reversed effects (upwardly sloped lines). Synchronous correlations among latent variables at T2 and T3 are expected, but not represented in the figure for clarity

agency and anger would negatively affect this variable (Hypotheses 5 and 6, respectively), both from T1 to T2 and from T2 to T3.

Method

Participants and procedures

This study was part of a larger longitudinal investigation (Grazia et al. 2020; Mameli et al. 2020a) focused on students' perceptions of their learning environment, participation in classroom activities and emotions. The study presented in this paper was conducted in the school year 2018/2019 on a convenience sample of 454 high school students ($M_{age =}$ 14.15[1], SD = .51; 57.0% males, 4.2% non-native Italians; 24 classes) situated in two city-based medium-sized and mixed-gender secondary schools located in Northern Italy. Students were all enrolled in Year Nine, corresponding to the first year of upper secondary school.

Participants, in their classrooms during school lab hours, completed the same online survey three times (October, February and May) in the school year, which, in Italy, normally starts in mid-September and ends by mid-June. In order to match the three compilations for each individual, on the first page of the questionnaire, students were asked to insert a code made up of the first three letters of their given name, day and month of birth. Since the researchers, and not the teachers, collected the questionnaires, this procedure ensured students' responses to be

---

[1] The students' average age was calculated on the averages of the same variable in the three data collections.

anonymous. Students were asked to complete the questionnaire with respect to their experience with a specific subject and related teacher (i.e., literacy, math or L2[2]). Even if the investigation of differences among subjects lies beyond the scope of this study, the assessment of situation-specific variables was crucial to grasp students' perceptions of actual, and not general, learning environments (Pöysä et al. 2018). More specifically, students were randomly assigned one of the three subjects: literacy ($n = 155$; 56.8% males) was assigned to all the students born between January and April, math ($n = 134$; 56.7% males) to those born between May and August, L2 ($n = 165$; 57.6% males) to those born between September and December. This procedure (previously used in other studies; see Mameli et al. 2020a) guaranteed that students in the three waves completed the questionnaire with reference to the same teacher and subject. At T1, 554 students completed the questionnaire, at T2 they were 564 and at T3, they were 547. The different number of participants in the first, second and third wave depended on who was present at school on the day the questionnaire was administered. Four hundred and fifty-four (454) students completed the questionnaire at all three time points and were thus included in the data set for the analysis.

Prior to the first data collection, the students' parents were asked to fill in an informed consent with twelve families either abstaining or refusing. For each class, and for each data collection, the filling out of the questionnaire was preceded by a short description of the research and its general aims. In all three moments of the data collection, all the students were asked to voluntarily take part in the study, with only one student refusing, and they were assured about the confidentiality and anonymity of the data processing. The research was conducted in agreement with the ethical norms laid down by the Italian National Psychological Association and the formal approval of the local Ethical Committee was obtained.

Measures

For each measured dimension, the questionnaire was preceded by a brief illustration in which participants were asked to refer, when answering questions, to classes in a specific subject (see the section above). Participants answered each survey item on a scale ranging from 1 (I strongly disagree) to 7 (I strongly agree), except for the items assessing cognitive engagement which were valued on a frequency scale ranging from 1 (Never) to 7 (Always).

Interpersonal justice

The Italian form (Berti et al. 2016) of the Teacher Justice Scale (Dalbert and Stoeber 2006) was used to assess the extent to which students perceived that the treatment they received from the teacher was fair. This 6-item scale (sample item "I feel my teacher generally treats me fairly") showed a good reliability across all the three waves of data collection (as of .78, .81, and .86 across T1, T2 and T3).

Student engagement

A short version of the Student Engagement Questionnaire (Lam et al. 2014) in its Italian validated version (Mameli and Passini 2017) was used to assess affective, behavioural and cognitive engagement. In particular, for each of the three subscales, we selected the four

---

[2] The choice of these three subjects depended on the fact that, in Italy, they are taught in high schools of any type.

highest-loading items (with respect to the factor analysis reported in the above-cited validation article) in order to build a shorter 12-item questionnaire. Sample items are: "I think what we are learning in *subject*[3] is interesting" for affective engagement; "In *subject* class, I work as hard as I can", for behavioural engagement; "When I study *subject*, I try to understand the material better by relating it to things I already know", for cognitive engagement. Overall, the three scales showed a good reliability across the three waves of data collection: for affective engagement, *a*s of .89, .92, and .91 across T1, T2 and T3, respectively; for behavioural engagement, *a*s of .76, .78, and .78 across T1, T2 and T3, respectively; for cognitive engagement, *a*s of .86, .87, and .89 across T1, T2 and T3, respectively. As the short version of this instrument had never been used before, it was tested with a confirmatory factor analysis (CFA). The expected three-dimension model reported good fit to the data for each time of data collection (T1: RMSEA = .04, CFI = .98, SRMR = .04; T2: RMSEA = .06, CFI = .97, SRMR = .05; T3: RMSEA = .04, CFI = .99, SRMR = .03).

Student agency

To measure student agency, we used the 10-item Agentic Engagement scale that Mameli and Passini (2019) developed and validated in Italy. This scale covers a large variety of proactive student contributions, such as those concerning transactional moments in which the students take up a resistant agentic position by questioning or challenging the teacher. Sample items are "I let my teacher know what I need and want" and "I make sure that my teacher understands if there is something I dislike". This scale showed good reliability across all the three waves of data collection (*a*s of .82, .86, and .85 across T1, T2 and T3).

Anger

A back-translated Italian version of the anger subscale belonging to the Achievement Emotion Questionnaire (AEQ; Pekrun et al. 2011) was used to measure student anger. The original questionnaire comprises three sections: class-related, learning-related and test-related emotions. For the purposes of this study, we only selected the three anger-items referring to the class-related emotions (sample item "I get irritated by my *subject* class"). This scale showed acceptable reliability across all the three waves of data collection (*a*s of .72, 71, and .64 across T1, T2 and T3).

Data analysis

To test our hypotheses, we employed structural equation modelling (SEM) with cross-lagged design, using the Mplus 8 software (Muthén and Muthén 2009). At all three times (T1, T2, T3), interpersonal justice, student agency, and anger were entered into the models as latent variables measured by their corresponding items (observed indicators). Student engagement was measured as a latent variable defined by the means of the three subscales scores (i.e., affective, behavioural and cognitive). Gender was included as a covariate and entered as an observed variable. We started by testing the measurement model, and then a series of structural models, using the robust maximum likelihood estimator (MLR). To deal with missing data, we

---

[3] For the three version of the questionnaire, the term "subject" was replaced by the specific subject (literacy, math or L2) assigned to the participant.

employed the full information likelihood method (FIML). For the overall evaluation of the model fit, we relied on the chi-square test and the following indices: the comparative fit index (CFI), the Tucker-Lewis index (TLI), the standardized root-mean-square residual (SRMR), and the root-mean-square error of approximation (RMSEA). In line with the recommendation of Hu and Bentler (1999), goodness-of-fit criteria were used in order to quantify acceptable (CFI and TLI > 0.90, SRMR < 0.10, RMSEA < 0.08) and excellent fit (CFI and TLI > 0.95, SRMR < 0.08, RMSEA < 0.06).

Rather than testing only the hypothesized reciprocal model, we tested a series of structural models to better understand the cross-lagged effects, as seen in Hakanen et al. (2008). First, we tested a *stability model*, including only autoregressive effects of the variables on themselves over time (T1 on T2, T2 on T3, T1 on T3), to control for baseline levels for each variable. Second, we tested a *direct model*, including both the autoregressive effects and the hypothesized effects from interpersonal justice to engagement, agency and anger (Hypotheses 1, 2, 3). Third, we tested a *reversed model*, including the autoregressive effects and the hypothesized effects from engagement, agency and anger to interpersonal justice (Hypotheses 4, 5 and 6). Lastly, we tested a *reciprocal model,* combining all the effects. Given the paucity of previous studies and to avoid the a priori decision to test only a reciprocal model, we conducted a series of chi-square comparisons to single out which of these models best fitted our data.

Lastly, for all autoregressive and cross-lagged effects, we also tested and compared a series of models with Santorra-Bentler chi-square difference tests in which, one at a time, each path was constrained to be equal across time intervals (i.e., the path from T1 to T2 was fixed equal to the path from T2 to T3). This allowed us to test whether the associations we found were stationary over the course of the school year: a nonsignificant chi-square difference indicates a stationary effect, as the model fit does not deteriorate by constraining the paths to be equal.

Results

Test of the measurement model

Prior to testing our hypotheses, we checked the intra-class correlation coefficients (ICC), reported in Table 1. The Type COMPLEX and clustering commands on the Mplus software were used to account for students' nested distribution in classes and obtain corrected standard errors estimates. By using a confirmatory factor analysis, we tested whether the measurement model provided a good fit for the data. The measurement model included six indicators of interpersonal justice, ten indicators of student agency, three indicators of anger, and three indicators of student engagement across the three time points (22 indicators × 3 waves = 66 total indicators). The error terms of each observed indicator were allowed to correlate with themselves from T1 to T2, T2 to T3, and T1 to T3, to reflect the longitudinal nature of the data. Moreover, correlations between error terms were included[4]. These correlations were all between error terms of items loading on the same dimension and were all theoretically plausible given the very similar meaning and formulation of the associated items. The model reported acceptable fit to the data: MLRχ^2 (1944) = 3104.38, $p < .001$, *RMSEA* = .036, 90% CI

---

[4] As some scholars (see Beckstead 2002) have pointed out, the inclusion of correlated error terms in the CFA models does not undermine factorial validity, if they are theoretically plausible. Rather, it provides a factorial representation of the observed data structure that is more appropriate and realistic in terms of real data.

[.034, .039], *CFI* = .91, *TLI* = .90, *SRMR* = .076. Each item loaded significantly (all $p < .001$) on the factor it was designed to represent, with factor loadings ranging from .38 to .86.

Comparison of structural models

Given the good fit of the measurement model to our data, we moved on to the structural models. In all the models, we allowed synchronous correlations among the latent variables at each time. Gender was included as a covariate to control for its effect, since previous literature has found this variable to be relevant (e.g., Matos et al. 2018).

In Table 2, we report model fit and chi square comparisons for all tested structural models (*stability, direct, reversed, reciprocal*). As can be seen, all models fit the data reasonably well according to our fit indices criteria. The *direct model* improved model fit as compared to the *stability model,* as did the *reversed model*. The *reciprocal model* showed a significant improvement in the model fit as compared to both the *direct* and *reversed* models. Overall, the reciprocal model, including twelve autoregressive effects, six direct effects and six reciprocal effects, was the one that best fitted our data.

Effects in the reciprocal structural model and their stationarity across waves

Gender was never significant in our model. Intercorrelations among the latent variables for each wave and descriptive statistics for each measured dimension are shown in Table 3.

With regard to direct effects, as can be seen in Fig. 2, interpersonal justice at T1 showed negative cross-lagged effects on both student agency and anger at T2, as we hypothesized (Hypotheses 2 and 3). However, interpersonal justice at T2 showed a negative cross-lagged effect only on anger at T3. In fact, when we tested for stationarity of the direct effects, we found that only the effect of interpersonal justice on anger was stationary [$\Delta\chi^2(1) = 0.03$, *ns*], while the effect on student agency was not stationary [$\Delta\chi^2(1) = 18.70$, $p < .001$] and declined from significant in the first half of the school year to nonsignificant in the second half of the school year. Contrary to our hypotheses (Hypothesis 1), the effect of interpersonal justice on engagement from T1 to T2 and from T2 to T3 was stationary [$\Delta\chi^2(1) = 0.01$, *ns*], and nonsignificant at both times.

As for reciprocal effects, as expected (Hypothesis 4), student engagement had a positive cross-lagged effect on interpersonal justice which was stationary over time [$\Delta\chi^2(1) = 0.27$, *ns*], even though from T1 to T2, it was only approaching significance ($p = .08$).

Partially in line with our expectations (Hypothesis 5), student agency had a stationary [$\Delta\chi^2(1) = 0.50$, *ns*] negative cross-lagged effect on interpersonal justice, which was nonsignificant at both times, but approaching significance ($p = .07$) from T2 to T3. As for our last

Table 1 Intraclass correlation coefficients (%) for all observed variables

Variable	T1	T2	T3
Interpersonal justice	8.6	3.6	5.9
Affective engagement	2.5	0.9	0.0
Behavioural engagement	8.4	3.1	0.7
Cognitive engagement	5.6	8.1	8.2
Student agency	2.2	3.3	0.4
Anger	7.5	7.1	1.2

Table 2 Model fit indices for the structural models tested

Model tested (model compared with)	χ^2	df	p	CFI	TLI	RMSEA	SRMR	ΔS-Bχ^2	Δdf	p
Stability	3286.91	2031	.000	.90	.90	.04	.08	-	-	-
Direct (vs stability)	3247.75	2019	.000	.91	.90	.04	.08	41.95	12	.000
Reversed (vs stability)	3254.91	2023	.000	.91	.90	.04	.08	34.51	8	.000
Reciprocal (vs direct)	3224.73	2011	.000	.91	.90	.04	.07	23.27	8	.003
(vs reversed)								30.90	12	.002

Note. S-B χ^2, Satorra-Bentler chi-square test

remaining hypothesis (Hypothesis 6), and contrary to what anticipated, the effect of anger on interpersonal justice was nonsignificant at both times $[\Delta\chi^2(1) = 1.60, ns]$.

Discussion

The general aim of this study was to test the reciprocal associations between perceived interpersonal justice and other student-related variables, namely engagement, agency and anger. Although only partially confirming the hypotheses, our findings provide meaningful insights that are discussed in the following sections.

The paths from interpersonal justice to student engagement, agency and anger

Contrary to our expectations, we found a stationary and nonsignificant effect of perceived interpersonal justice on student engagement between waves. Albeit unpredicted, this finding is noteworthy, as differently from those of previous cross-sectional studies in the field (Berti et al. 2010; Molinari and Mameli 2018; Tas 2016), it suggests that, when investigated over time, the effect of justice on student engagement loses strength. This result should be considered with caution, as it basically represents a breakthrough with respect to the previous literature, and

Table 3 Synchronous correlations among latent variables for each wave and descriptive statistics for each variable

Measures	Time 1				Time 2				Time 3			
	1	2	3	4	1	2	3	4	1	2	3	4
1. Interpersonal justice	–				–				–			
2. Student engagement	.46***	–			.51***	–			.54***	–		
3. Student agency	.23***	.47***	–		.36***	.53***	–		.30***	.48***	–	
4. Anger	-.55***	-.62***	-.11	–	-.49***	-.49***	.02	–	-.48***	-.43***	-.12	–
Mean	5.50	4.84	3.57	1.10	5.32	4.72	3.54	2.16	4.93	4.52	3.45	2.37
SD	1.16	1.09	1.14	1.20	1.29	1.20	1.26	1.28	1.47	1.11	1.22	1.31

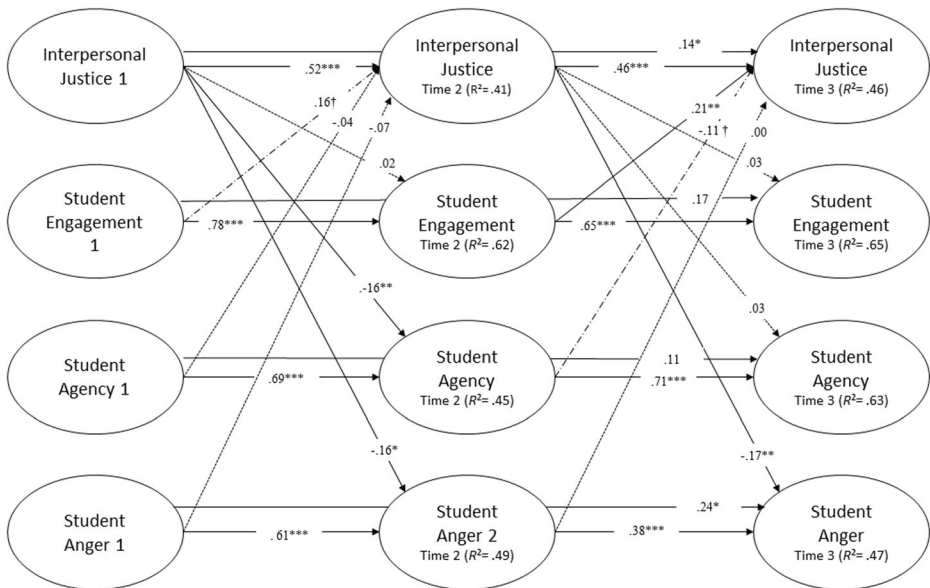*Note.* *** $p < .001$. ** $p < .01$. * $p < .05$

Fig. 2 Standardized parameter estimates for the reciprocal model. Solid lines represent significant paths, $p < .05$; dashed lines represent nonsignificant paths; dashed and dotted lines represent paths approaching significance, $p < .10$. Synchronous correlations among latent variables are reported in Table 3 for clarity

further studies are needed to corroborate it and assess whether it was influenced by factors related to the specific context in which the research was conducted.

In line with our hypothesis, a negative effect of interpersonal justice on student agency between T1 and T2 was observed. This result is innovative as no study, to our knowledge, longitudinally supported the temporal association between these variables. It tells us that when students perceive the treatment received by teachers as being unfair, they do not passively accept the situation as it is but, on the contrary, actively intervene to transform, presumably trying to improve, a learning environment deemed to be unsatisfactory (Bolkan and Goodboy 2016). Nevertheless, such an effect was not significant between T2 and T3. What happened in the classroom dynamics to make this association weaker in the second half of the school year? As our data do not allow us to provide a clear answer to this question, we can only advance some tentative explanations. We know from previous studies that student agency — conceived by many as one of the main indicators of an effective school — may actually provoke controversial reactions from teachers, who tend to perceive these students' contributions as undesirable challenges to their authority (Assor et al. 2005; Chory-Assad and Paulsel 2004; Goodboy 2011). We can thus speculate that, after some months of school, students may have realized that their agentic behaviours solicit an adverse reaction from their teachers, and thus, even before unjust treatment, they may opt for a more compliant line of behaviour in order to avoid the possible negative consequences of an adverse teacher reaction that could eventually affect their final marks.

In line with our hypothesis, student anger was found to be influenced, with a stationary effect, by interpersonal justice, both from T1 to T2 and from T2 to T3. The association between justice and anger has been mostly overlooked or taken for granted in educational contexts. Nevertheless, a few previous studies, mainly qualitative (e.g., Horan et al. 2010), have already highlighted that students do not remain emotionally impassive before a teacher's

behaviour that is perceived to be unfair. Taking a step forward, our study empirically supports that this negative activation persists over time, thus stressing the importance that the perception of being treated fairly has for the affective wellbeing of adolescents in educational contexts (Resh and Sabbagh 2016). Teachers should carefully consider this connection, as the literature has consistently shown the negative implications of anger on school achievement and motivation (Assor et al. 2005; Pekrun et al. 2017; Zhou et al. 2010). Taken together, our findings on the temporal associations of injustice on agency and anger show that, in the first part of the school year, students react to the perception of injustice by acting both emotionally (with anger) and behaviourally (with agency), while in the second part of the year, the emotional discontent with the injustice remains, but the agentic reaction does not. Although our data do not provide a clear explanation for this finding, it may suggest that students have learnt how to avoid the negative consequences related to the agentic expression of their frustration, while they keep feeling anger, with all the negative implications that such an individual internal state entails. These supposed negative consequences become even clearer when we consider the reciprocal paths discussed below.

The reciprocal paths from student engagement, agency and anger to interpersonal justice

In line with our hypothesis, a reverse and significant effect of student engagement on perceived interpersonal justice was found between T2 and T3. In the first part of the year, the same effect was close to reaching statistical significance ($p = .08$), so that the two effects were found to be stationary. These findings offer a significant advance in the literature, as the impact of student engagement on perceived interpersonal justice had never been tested, nor speculated on, before. Combined with the results described in the previous section — that is, the absence of an effect from justice to engagement — this finding is particularly innovative, as it challenges scholars to reconsider the nature of the relationship between the variables examined. Although some caution should be taken when generalizing the present results, which derive from a single longitudinal study carried out on a limited sample, we can argue that the more students feel they are engaged in classroom activities, the more they will tend to positively evaluate the interpersonal treatment they receive by teachers, and not vice versa. One interpretation for this is that it is likely that deeply engaged students have a generally favourable attitude towards school. Moreover, and compatibly with other study comments (Jang et al. 2012, 2016; Matos et al. 2018), it is plausible that student engagement acts as an opportunity for learners to be treated fairly. In other words, the more students feel engaged in their classroom activities, the more teachers may recognize and legitimize their role and contributions, thus treating them as co-responsible actors for their educational success. The fact that this effect has been found to be stronger from T2 to T3 can be due to the consolidation of the relational patterns between teacher and students, which are undoubtedly weaker at the beginning of the first year of secondary school.

In contrast with our expectations, we did not find any significant effect both from student agency and anger to interpersonal justice, neither from T1 to T2 nor from T2 to T3. As far as anger is concerned, this finding stands in conflict with the results of the few studies (e.g., Zhou et al. 2010) suggesting that this emotion, taken alone, leads to the perception of negative outcomes in terms of unjust consequences on the part of the teacher. With caution due to the modest reliability of the Anger measure for the third wave of data collection, our study suggests that it is the experience of an unfair treatment that arouses anger, and not the other way around, thus emphasizing the importance of the quality of the relationship with the teacher.

With respect to agency, our results leave room for broader considerations. Indeed, if for student anger the strength of the effects on justice was clearly minimal, the negative effect of agency from T2 to T3 was very close to the threshold for statistical significance ($p = .07$). This datum warrants interpretation, given that in a hypothetical optimal school, students' agentic behaviours should act as an opportunity to foster a desired change in the learning environment (Winkler and Rybnikova 2019) which, in turn, is positively acknowledged by students. Therefore, learners' transformative actions toward a teacher perceived to be unfair can be thought to produce a positive change. On the contrary, our data do not only indicate that this does not happen, but they suggest that such actions turn out in the feeling of a slightly more unfair treatment at the end of the year.

Taken as a whole, these results raise concerns as to whether teachers, at least in Italian schools, are liable to accept student agency in their classes. Faced with a scientific and political debate that has increasingly emphasised the importance of students' active contributions and that aspires to achieve an educational paradigm in which both teachers and students are co-responsible for school practices and academic success (Mameli et al. 2020b ; Rajala et al. 2016), our results instead highlight that our adolescent participants feel their transformative demands are ineffectual, if not even counterproductive.

Limits

This work has some limits that need to be kept in mind when interpreting the results. First, our data were only collected on an Italian Year Nine school population and are thus limited with respect to the school settings where the research was conducted. Further investigations, preferably involving larger samples in other socio-cultural contexts, are needed to corroborate and generalize our results. Second, the use of students' self-report data implies that our findings are based on subjective perceptions rather than actual everyday classroom practices and dynamics. The adoption of observational methodologies or multi-informant procedures would be useful in the future to test the reliability of our findings. Third, our results are obviously limited to the variables we selected. For instance, we chose to investigate the emotion of anger — which implies the student appraisal of a certain degree of control over the learning environment — while other discrete emotions (e.g., hopelessness or boredom) might also be considered (Pekrun 2006). Future studies, considering other indicators — related, for instance, to additional environmental characteristics or other students' achievement emotions — could better clarify the associations we found. Fourth, our analyses were based on a variable-oriented approach, which allows the investigation of general trends and associations between variables assumed to be similar for all students (Bergman and Wångby 2014), while failing to identify differences between groups of adolescents possibly characterized by unique patterns of personal characteristics (e.g., the individual disposition to expose themselves in class; Korem 2019). To address this limit, further studies on larger samples could combine a longitudinal design with person-oriented approaches to data analysis.

Lastly, although longitudinal studies can overcome several constraints of cross-sectional investigations (Jang et al. 2012; Pekrun et al. 2017), they are not without limits. More specifically, in the present study, nonsignificant cross-lagged paths may have been affected by substantial autoregressive effects reducing the variance to be explained. Thus, further studies are needed to confirm the associations we found and did not find, as well as the temporal direction of these relations.

Conclusion

Notwithstanding the limitations described in the foregoing, the results discussed in this paper are promising. On the methodological level, the adoption of a longitudinal design allowed us to study the temporal associations, casting light on the possible direction of influence among the investigated variables. Moreover, by comparing competing models, we could test — rather than make an a-priori assumption — that the reciprocal model was the most appropriate to describe the associations among our variables.

In terms of theoretical and practical advances, this study offers several insights on how the investigated contextual and student-related variables combine with each other in a series of reciprocal influences. Specifically, our data depict the image of a school where the two main facets of student involvement, namely engagement and agency, are diversely interconnected with the learning environment. The former, probably seen by teachers as the commitment enacted by a good student, has a positive impact on the treatment learners perceive they receive from their teachers. As for the latter, which has to do with the more authentic and challenging aspects of student participation, a different dynamic emerged. Our data in fact appear to reveal that, during the very first year of upper secondary school, students seem to progressively learn to internally manage their annoyed feelings by refraining from agentically expressing their discontent. Indeed, and at least in terms of personal perceptions, their transformative actions risk remaining unheard or clashing with negative, albeit weak, reactions from the teachers. Considering that one of the main school missions is to teach young people the importance of active participation in society, these results should inform teacher practice in the direction of greater recognition (and promotion) of the students' transformative claims.

Declarations

References

Assor, A., Kaplan, H., Kanat-Maymon, Y., & Roth, G. (2005). Directly controlling teacher behaviors as predictors of poor motivation and engagement in girls and boys: The role of anger and anxiety. *Learning and Instruction, 15*(5), 397–413. https://doi.org/10.1016/j.learninstruc.2005.07.008.

Beckstead, J. W. (2002). Confirmatory factor analysis of the Maslach Burnout Inventory among Florida nurses. *International Journal of Nursing Studies, 39*(8), 785–792. https://doi.org/10.1016/S0020-7489(02)00012-3.

Bergman, L. R., & Wångby, M. (2014). The person-oriented approach: A short theoretical and practical guide. *Eesti Haridusteaduste Ajakiri. Estonian Journal of Education, 2*(1), 29–49. https://doi.org/10.12697/eha.2014.2.1.02b.

Berkowitz, L. (1989). Frustration-aggression hypothesis: Examination and reformulation. *Psychological Bulletin, 106*(1), 59–73.

Berti, C., Molinari, L., & Speltini, G. (2010). Classroom justice and psychological engagement: Students' and teachers' representations. *Social Psychology of Education, 13*(4), 541–556. https://doi.org/10.1007/s11218-010-9128-9.

Berti, C., Mameli, C., Speltini, G., & Molinari, L. (2016). Teacher justice and parent support as predictors of learning motivation and visions of a just world. *Issues in Educational Research, 26*(4), 543–560. https://www.iier.org.au/iier26/berti.html.

Boekaerts, M. (1994). Anger in relation to school learning. *Learning and Instruction, 3*(4), 269–280. https://doi.org/10.1016/0959-4752(93)90019-V.

Bolkan, S., & Goodboy, A. K. (2016). Rhetorical dissent as an adaptive response to classroom problems: A test of protection motivation theory. *Communication Education, 65*(1), 24–43. https://doi.org/10.1080/03634523.2015.1039557.

Bronfenbrenner, U. (1992). *Ecological systems theory*. Jessica Kingsley Publishers.

Chory-Assad, R. M. (2002). Classroom justice: Perceptions of fairness as a predictor of student motivation, learning, and aggression. *Communication Quarterly, 50*(1), 58–77. https://doi.org/10.1080/01463370209385646.

Chory-Assad, R. M., & Paulsel, M. L. (2004). Classroom justice: Student aggression and resistance as reactions to perceived unfairness. *Communication Education, 53*(3), 253–273. https://doi.org/10.1080/0363452042000265189.

Cook-Sather, A. (2020). Student voice across contexts: Fostering student agency in today's schools. *Theory Into Practice, 59*(2), 182–191. https://doi.org/10.1080/00405841.2019.1705091.

Dalbert, C., & Stoeber, J. (2006). The personal belief in a just world and domain-specific beliefs about justice at school and in the family: A longitudinal study with adolescents. *International Journal of Behavioral Development, 30*(3), 200–207. https://doi.org/10.1177/0165025406063638.

Donat, M., Peter, F., Dalbert, C., & Kamble, S. V. (2016). The meaning of students' personal belief in a just world for positive and negative aspects of school-specific well-being. *Social Justice Research, 29*(1), 73–102. https://doi.org/10.1007/s11211-015-0247-5.

Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement: Potential of the concept, state of the evidence. *Review of Educational Research, 74*(1), 59–109. https://doi.org/10.3102/00346543074001059.

Goodboy, A. K. (2011). Instructional Dissent in the College Classroom. *Communication Education, 60*(3), 296–313. https://doi.org/10.1080/03634523.2010.537756.

Grazia, V., Mameli, C., & Molinari, L. (2020). Adolescents' profiles based on student agency and teacher autonomy support: Does interpersonal justice matter? *European Journal of Psychology of Education*. https://doi.org/10.1007/s10212-020-00504-2.

Groccia, J. E. (2018). What is student engagement? *New Directions for Teaching and Learning*, (154), 11–20. https://doi.org/10.1002/tl.20287.

Hakanen, J. J., Schaufeli, W. B., & Ahola, K. (2008). The job demands-resources model: A three-year cross-lagged study of burnout, depression, commitment, and work engagement. *Work & Stress, 22*(3), 224–241. https://doi.org/10.1080/02678370802379432.

Horan, S. M., Chory-Assad, R. M., & Goodboy, A. K. (2010). Understanding students' classroom justice experiences and responses. *Communication Education, 59*(4), 453–474. https://doi.org/10.1080/03634523.2010.487282.

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal, 6*(1), 1–55. https://doi.org/10.1080/10705519909540118.

Jang, H., Kim, E. J., & Reeve, J. (2012). Longitudinal test of self-determination theory's motivation mediation model in a naturally occurring classroom context. *Journal of Educational Psychology, 104*(4), 1175–1188. https://doi.org/10.1037/a0028089.

Jang, H., Kim, E. J., & Reeve, J. (2016). Why students become more engaged or more disengaged during the semester: A self-determination theory dual-process model. *Learning and Instruction, 43*, 27–38. https://doi.org/10.1016/j.learninstruc.2016.01.002.

Kamble, S. V., & Dalbert, C. (2012). Belief in a just world and wellbeing in Indian schools. *International Journal of Psychology, 47*(4), 269–278. https://doi.org/10.1080/00207594.2011.626047.

Kazemi, A. (2016). Examining the interplay of justice perceptions, motivation, and school achievement among secondary school students. *Social Justice Research, 29*(1), 103–118. https://doi.org/10.1007/s11211-016-0261-2.

Korem, A. (2019). Supporting shy students in the classroom: A review. *European Psychologist, 24*(3), 278–286. https://doi.org/10.1027/1016-9040/a000343.

Lam, S., Jimerson, S., Wong, B. P. H., Kikas, E., Shin, H., Veiga, F. H., Hatzichristou, C., Polychroni, F., Cefai, C., Negovan, V., Stanculescu, E., Yang, H., Liu, Y., Basnett, J., Duck, R., Farrell, P., Nelson, B., & Zollneritsch, J. (2014). Understanding and measuring student engagement in school: The results of an international study from 12 countries. *School Psychology Quarterly, 29*(2), 213–232. https://doi.org/10.1037/spq0000057.

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge University Press.

Lazarus, R. S. (1991). *Emotion and adaptation*. Oxford University Press.

Molinari, L., & Mameli, C. (2018). Basic psychological needs and school engagement: A focus on justice and agency. *Social Psychology of Education, 21*(1), 157–172. https://doi.org/10.1007/s11218-017-9410-1.

Mameli, C., & Passini, S. (2017). Measuring four-dimensional engagement in school: A validation of the Student Engagement Scale and of the Agentic Engagement Scale. *TPM - Testing, Psychometrics, Methodology in Applied Psychology*, 24, 527–541. https://doi.org/10.4473/TPM24.4.4.

Mameli, C., & Passini, S. (2019). Development and validation of an enlarged version of the Student Agentic Engagement Scale. *Journal of Psychoeducational Assessment*, 37(4), 450–463. https://doi.org/10.1177/0734282918757849.

Mameli, C., Biolcati, R., Passini, S., & Mancini, G. (2018). School context and subjective distress: The influence of teacher justice and school-specific well-being on adolescents' psychological health. *School Psychology International*, 39(5), 526–542. https://doi.org/10.1177/0143034318794226.

Mameli, C., Caricati, L., & Molinari, L. (2020a). That's not fair! The effects of teacher justice and academic achievement on Self and Other's resistant agency. *British Journal of Educational Psychology*, 20(4), 933–947. https://doi.org/10.1111/bjep.12335.

Mameli, C., Grazia, V., & Molinari, L. (2020b). Agency, responsibility and equity in teacher versus student-centred school activities: A comparison between teachers' and learners' perceptions. *Journal of Educational Change*, 21(2), 345–361. https://doi.org/10.1007/s10833-019-09366-y

Matos, L., Reeve, J., Herrera, D., & Claux, M. (2018). Students' agentic engagement predicts longitudinal increases in perceived autonomy-supportive teaching: The squeaky wheel gets the grease. *The Journal of Experimental Education*, 86(4), 579–596. https://doi.org/10.1080/00220973.2018.1448746.

Molinari, L., Speltini, G., & Passini, S. (2013). Do perceptions of being treated fairly increase students' outcomes? Teacher–student interactions and classroom justice in Italian adolescents. *Educational Research and Evaluation*, 19(1), 58–76. https://doi.org/10.1080/13803611.2012.748254.

Mullola, S., Hintsanen, M., Jokela, M., Lipsanen, J., Alatupa, S., Ravaja, N., & Keltikangas-Järvinen, L. (2014). Associations between teacher-rated versus self-rated student temperament and school achievement. *Scandinavian Journal of Educational Research, 58*(2), 147–172. https://doi.org/10.1080/00313831.2012.725094.

Muthén, B., & Muthén, B. O. (2009). *Statistical analysis with latent variables*

Patulny, R., & Olson, R. (2019). Emotions in late modernity. In R. Patulny, A. Bellocchi, R. Olson, S. Khorana, J. McKenzie, & M. Peterie (Eds.), *Emotions in late modernity (8–24)*. Routledge.

Pekrun, R. (2006). The control-value theory of achievement emotions: Assumptions, corollaries, and implications for educational research and practice. *Educational Psychology Review, 18*(4), 315–341. https://doi.org/10.1007/s10648-006-9029-9.

Pekrun, R., & Linnenbrink-Garcia, L. (2012). Academic emotions and student engagement. In S. L. Christenson, A. L. Reschly, & C. Wylie (Eds.), *Handbook of research on student engagement (259–282)*. Springer.

Pekrun, R., & Perry, R. P. (2014). Control-value theory of achievement emotions. In R. Pekrun & L. LinnenbrinkGarcia (Eds.), *International Handbook of Emotions in Education (120–141)*. Taylor & Francis.

Pekrun, R., Goetz, T., Frenzel, A. C., Barchfeld, P., & Perry, R. P. (2011). Measuring emotions in students' learning and performance: The Achievement Emotions Questionnaire (AEQ). *Contemporary Educational Psychology, 36*(1), 36–48. https://doi.org/10.1016/j.cedpsych.2010.10.002.

Pekrun, R., Lichtenfeld, S., Marsh, H. W., Murayama, K., & Goetz, T. (2017). Achievement emotions and academic performance: Longitudinal models of reciprocal effects. *Child Development, 88*(5), 1653–1670. https://doi.org/10.1111/cdev.12704.

Pöysä, S., Vasalampi, K., Muotka, J., Lerkkanen, M.-K., Poikkeus, A.-M., & Nurmi, J.-E. (2018). Variation in situation-specific engagement among lower secondary school students. *Learning and Instruction, 53*, 64–73. https://doi.org/10.1016/j.learninstruc.2017.07.007.

Rajala, A., Martin, J., & Kumpulainen, K. (2016). Agency and learning: Researching agency in educational interactions. *Learning, Culture and Social Interaction, 10*, 1–3. https://doi.org/10.1016/j.lcsi.2016.07.001.

Reeve, J. (2012). A self-determination theory perspective on student engagement. In S. L. Christenson, A. L. Reschly, & C. Wylie (Eds.), *Handbook of research on student engagement (149-172)*. Springer.

Reeve, J., Jang, H., Carrell, D., Jeon, S., & Barch, J. (2004). Enhancing students' engagement by increasing teachers' autonomy support. *Motivation and Emotion, 28*(2), 147–169. https://doi.org/10.1023/B:MOEM.0000032312.95499.6f.

Resh, N., & Sabbagh, C. (2016). Justice and education. In C. Sabbagh & M. Schmitt (Eds.), *Handbook of justice theory and research (349–368)*. Springer.

Skinner, E. A., Kindermann, T. A., & Furrer, C. J. (2009). A motivational perspective on engagement and disaffection: Conceptualization and assessment of children's behavioral and emotional participation in academic activities in the classroom. *Educational and Psychological Measurement, 69*(3), 493–525. https://doi.org/10.1177/0013164408323233.

Tas, Y. (2016). The contribution of perceived classroom learning environment and motivation to student engagement in science. *European Journal of Psychology of Education, 31*(4), 557–577. https://doi.org/10.1007/s10212-016-0303-z.

Voelkl, K. E. (2012). School identification. In S. L. Christenson, A. L. Reschly, & C. Wylie (Eds.), *Handbook of research on student engagement* (pp. 193–218). Springer.

Wang, M. T., & Fredricks, J. A. (2014). The reciprocal links between school engagement, youth problem behaviors, and school dropout during adolescence. *Child Development, 85*(2), 722–737. https://doi.org/10.1111/cdev.12138.

Winkler, I., & Rybnikova, I. (2019). Student resistance in the classroom—Functional-instrumentalist, critical-emancipatory and critical-functional conceptualisations. *Higher Education Quarterly, 73*(4), 521–538. https://doi.org/10.1111/hequ.12219.

Wischmann, A., & Riepe, V. (2019). Resistant agency in German lessons in primary education in Germany. *Ethnography and Education, 14*(2), 136–152. https://doi.org/10.1080/17457823.2017.1405735.

Zhou, Q., Main, A., & Wang, Y. (2010). The relations of temperamental effortful control and anger/frustration to Chinese children's academic achievement and social adjustment: A longitudinal study. *Journal of Educational Psychology, 102*(1), 180–196. https://doi.org/10.1037/a0015908.

Consuelo Mameli. University of Bologna, Italy. E-mail: consuelo.mameli@unibo.it

Current themes of research:

Learning environments. Classroom justice. Student engagement. Agency, Responsibility and Well-being.

Most relevant publications in the field of Psychology of Education:

Mameli, C., Caricati, L., & Molinari, L. (2020). That's not fair! The effects of teacher justice and academic achievement on Self and Other's resistant agency. *British Journal of Educational Psychology*, *90*(4), 933-947.

Mameli, C., Grazia, V., Molinari, L. (2020). Agency, responsibility and equity in teacher versus student-centred school activities: A comparison between teachers' and learners' perceptions. *Journal of Educational Change, 21*(2), 345–361.

Mameli, C., Molinari, L., & Passini, S. (2019). Agency and responsibility in adolescent students: a challenge for the societies of Tomorrow. *British Journal of Educational Psychology*, 89, 41–56.

Mameli, C., Biolcati, R., Passini, S., Mancini, G. (2018). School context and subjective distress: The influence of teacher justice and school-specific well-being on adolescents' psychological health. *School Psychology International, 39*, pp. 526–542.

Valentina Grazia. University of Parma, Italy.

Current themes of research:

Engagement. Well-being and social relations in school and school climate.

Most relevant publications in the field of Psychology of Education:

Grazia, V., Mameli, C. & Molinari, L. (2020, online first). Adolescents' profiles based on student agency and teacher autonomy support: does interpersonal justice matter?. European Journal of Psychology of Education (2020). Doi: 10.1007/s10212-020-00504-2

Grazia, V., Molinari, L. (2020, online first). School climate multidimensionality and measurement: a systematic literature review. *Research Papers in Education*. Doi: 10.1080/02671522.2019.1697735

Corsano, P., Grazia, V., Molinari, L. (2019). Solitude and loneliness profiles in early adolescents: a person-centred approach. *Journal of Child and Family Studies, 28,* 3374–3384.

Stefano Passini. University of Bologna, Italy.

Current themes of research:

Obedience and disobedience to authority. Intergroup indifference. Moral inclusion/exclusion processes.

Most relevant publications in the field of Psychology of Education:

Mameli, C., Molinari, L., & Passini, S. (2019). Agency and responsibility in adolescent students: a challenge for the societies of Tomorrow. British Journal of Educational Psychology, 89, 41–56.

Mameli, C., & Passini, S. (2019). Development and validation of an enlarged version of the Student Agentic Engagement Scale. Journal of Psychoeducational Assessment, 37(4), 450–463.

Mameli, C., Biolcati, R., Passini, S., Mancini, G. (2018). School context and subjective distress: The influence of teacher justice and school-specific well-being on adolescents' psychological health. School Psychology International, 39, pp. 526–542.

Luisa Molinari. University of Parma, Italy.

Current themes of research:

Classroom justice. Responsibility and rights. Observational methods. The quality of educational processes.

Most relevant publications in the field of Psychology of Education:

Molinari, L., Grazia, V., Corsano, P. (2020). School relations and solitude in early adolescence: a mediation model involving Rejection Sensitivity. *Journal of Early Adolescence, 40*(3), 426–448.

Canovi, A.G., Rajala, A., Kumpulainen, K., Molinari, L. (2019). The dynamics of class mood and student agency in classroom interactions. *Journal of Classroom Interaction*, 54(1), 4–25.

Molinari, L., Mameli, C. (2018). Basic psychological needs and student engagement: a focus on justice and agency. *Social Psychology of Education*, 21, 157–172.

Berti, C., Mameli, C., Speltini, G., Molinari, L. (2016). Teacher justice and parent support as predictors of learning motivation and visions of a just world. *Issues in Educational Research*, 26(4), 543–560.

Molinari, L., Speltini, G., Passini, S., Carelli, M.G. (2016). Time perspective in adolescents and young adults: enjoying the present and trusting in a better future. *Time & Society*, 25(3), 594–612.