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**The emotional faces of student agency**

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### Abstract

The aim of the present work was to identify latent profiles of adolescents characterized by unique patterns of student agency, enjoyment and anger, and to investigate whether students belonging to different profiles differ in respect to academic achievement and intention to dropout. Data were collected on a sample of 542 9th grade students at the middle (T1) and at the end (T2) of a school year with a self-report questionnaire measuring student agency, enjoyment and anger at T1, academic achievement and intention to dropout at T2. Five students' profiles emerged, which we labelled *Lukewarm*, *Annoyed*, *Lethargic*, *Restive* and *Enthusiastic*. The groups differed in their academic achievement and intention to dropout, with Enthusiastic students scoring significantly higher in academic achievement and lower in intention to dropout as compared with all the other profiles. The study results are discussed in terms of their implications for teacher practice.

### Keywords

Student agency; Enjoyment; Anger; Academic achievement; Dropout

### Highlights

- Five profiles with different levels of agency, enjoyment and anger were identified
- Students belonging to different profiles differed in various academic outcomes
- High levels of agency and enjoyment were related to positive academic outcomes
- High levels of agency and anger were associated with negative academic outcomes

### Data availability statement

The data that support the findings of this study are available upon request from the corresponding author.

**Declarations of interest**: none

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# The Emotional Faces of Student Agency

## Abstract

The aim of the present work was to identify latent profiles of adolescents characterized by unique patterns of student agency, enjoyment, and anger, and to investigate whether students belonging to different profiles differ in respect to academic achievement and intention to dropout. Data were collected on a sample of 542 9th grade students at the middle (T1) and at the end (T2) of a school year with a self-report questionnaire measuring student agency, enjoyment, and anger at T1, and academic achievement and intention to dropout at T2. Five students' profiles emerged, which we labelled *Lukewarm*, *Annoyed*, *Lethargic*, *Restive* and *Enthusiastic*. The groups differed in their academic achievement and intention to dropout, with Enthusiastic students scoring significantly higher in academic achievement and lower in intention to dropout as compared with all the other profiles. The study results are discussed in terms of their implications for teacher practice.

## The Emotional Faces of Student Agency

In educational research, the concept of student agency is defined as the student's desire, will and skill to proactively engage in activities and interactive exchanges that have the *potential* to influence and transform classroom practices, making them more motivating and responsive to the learners' needs (Lipponen & Kumpulainen, 2011; Mameli & Passini, 2019; Reeve, 2013). While, in general, student agency is associated with positive outcomes, such as successful academic performance (Reeve, 2013) and school completion in due time (Mendoza Cazarez, 2019), some investigations have instead found contradictory or mixed results (Luo et al., 2019; Mameli, Molinari, et al., 2019). These inconsistencies might be related to the fact that student agency can represent a positive or negative experience, depending on the effectiveness of its transformative potential. In the course of student-teacher interactions, students may perceive that the transformative potential of their agentic actions is fulfilled when they feel that teachers appreciate and value them, or frustrated when they perceive that teachers contradict or oppose them (Rajala et al., 2016; Reeve & Shin, 2020). It is presumable, although never hitherto investigated, that in these two cases, student agency may be accompanied by different emotions, either positive or negative. Given that positive and negative emotions affect students' outcomes differently (Pekrun & Linnenbrink-Garcia, 2012), the current study sought to understand whether the blurred association between student agency and outcomes might be explained by considering the different emotional states experienced by students behaving agentically in the classroom interactional context.

The goal of this study was to examine whether combinations of student agency and positive or negative emotions have distinct associations with school outcomes. To do so, we adopted a person-oriented approach to identify profiles of students characterized by unique patterns of student agency, enjoyment and anger. We then explored whether membership in different profiles was related to academic achievement and intention to dropout.

**Student Agency**

Student agency embodies the opportunity for learners to assume an active and potentially transformative role in everyday school life (Reeve & Shin, 2020). In the classroom, student agency takes the form of actions: students act agentically when they intervene in the course of classroom activities with their behaviours and words (Mäkitalo, 2016), with the aim to influence and transform educational and didactic practices (Clarke et al., 2016; Mameli, Caricati, et al., 2019; Mameli, Molinari, et al., 2019; Martin, 2016). With agentic stances, in fact, students take the chance to act with the purpose of re-directing the unfolding of interactions (Mameli & Molinari, 2014) to produce intentional and strategic changes in their learning environment (Matos et al., 2018; Reeve & Shin, 2020). These changes may include, for example, the discussion of new and unexpected topics, the review of evaluation criteria, or modifications in the procedures for completing a task. A wide range of agentic actions can be identified during lessons (Mameli & Passini, 2019; Reeve & Shin, 2020). Students act agentically when they ask questions, offer suggestions, express preferences, share their ideas and opinions, as well as when they engage in oppositional initiatives, such as contesting educational contents or procedures or expressing criticisms (Engestrom, 2014; Rajala & Sannino, 2015). Beyond the diversity of its manifestations, student agency is conceived as a generative and constructive force for learners to take on an active and engaged role in school (Rajala et al., 2016; Rainio, 2008).

Notwithstanding the constructive nature of student agency, its association with educational outcomes somehow remains blurred. Contrasting findings emerge insofar as student agency and academic achievement are concerned. Longitudinal variable-oriented studies conducted on university (Reeve, 2013) and secondary school students (Reeve et al., 2020; Reeve & Tseng, 2011) showed that student agency is a positive predictor of academic achievement, whereas in cross-sectional studies involving samples of secondary school students (e.g., Mameli, Molinari, et al., 2019) the association between these two variables was not found. Experimental studies that examined different degrees of agency (from low to high) and conducted on university students in non-conventional educational contexts, such as flipped classrooms (Luo et al., 2019) or game-based

learning environments (Taub et al., 2020), have shown that low levels of student agency predicted more positive outcomes as compared to higher degrees of student agency.

The link between student agency and dropout has seldom been investigated, which is surprising given that this outcome has negative long-term consequences both for young people's career prospects and for societal social and economic costs (Rumberger, 2011; Rumberger & Rotermund, 2012). A longitudinal variable-oriented investigation conducted on a large sample of middle schoolers (Anderson et al., 2019) found that personal agency, here defined as self-efficacy and perceived control, was effective in reducing the risk of disengagement from school, which in turn was associated with lower attendance. In another variable-oriented study, Mendoza Cazarez (2019) found that secondary school students were more likely to complete their upper-secondary education if they had the chance to exercise their agency, here defined as freedom of choice, in deciding the school they would attend.

Although promising, the findings described above raise some unanswered questions that need to be addressed. It remains unclear why student agency is associated with positive academic performance in some variable-oriented studies, whereas in others it is not. Furthermore, although a few investigations have consistently indicated that student agency represents a protective factor against dropout, additional research is needed to confirm this association and to explore whether it generally applies to all students. In this article, we address these questions by considering, with a person-oriented approach, the emotions that students experience when they engage in agentic actions.

**Student Emotions**

Emotions, intended as affective internal states (Pekrun, 2006), are pervasive in educational contexts, and can raise in a variety of circumstances, including when students engage in activities and interactive exchanges with their classmates and especially with teachers (Lei et al., 2018). Moreover, previous literature has shown that pleasing and displeasing emotions have positive and negative associations, respectively, with student outcomes (Pekrun & Linnenbrink-Garcia, 2012).

The Control-Value Theory (CVT) of achievement emotions (Pekrun, 2006; Pekrun & Linnenbrink-Garcia, 2012; Pekrun & Perry, 2014), which focuses specifically on emotions experienced by students in school contexts, paves the way for exploring how students might feel when behaving agentically. Among the many achievement emotions (e.g., relief, hope, pride, shame, anxiety, boredom, hopelessness) described and classified in the CVT taxonomy, enjoyment and anger are the most plausible to arise when students act agentically, for the following two reasons. First, they are activating emotions, one positive and one negative, that lead to action (contrary to deactivating emotions like boredom). Second, they are characterized by a high appraisal of control over the activity (see Pekrun, 2006, p. 320). This is central, as the function of student agency is that of transforming classroom activities by exercising control over them (Rajala et al., 2016). Specifically, and based on CVT, students experience enjoyment when they appraise an activity as pleasant and judge to be able to control its unfolding and results through their own actions. Students feel angry instead when they perceive an activity as displeasing, but nonetheless judge to be able to control and eventually change it through their own actions.

Some research has shown that enjoyment and anger are associated with student results, in terms of academic achievement and intention to dropout. Research is consistent in indicating that enjoyment is positively related to student attention, motivation and learning strategies, which in turn are crucial for academic achievement (Pekrun et al., 2017; Pekrun & Linnenbrink-Garcia, 2012). Although anger is occasionally able to promote actions for failure avoidance (Boekaerts, 1994; Pekrun, 2006), anger is more often negatively associated with cognitive processes, motivation, and eventually with academic achievement (Chang & Beilock, 2016; Linnenbrink, 2007; Pekrun & Linnenbrink-Garcia, 2012). These relations have been observed among secondary (Goetz et al., 2012) and university students (Pekrun et al., 2002), and in cross-sectional (Goetz et al., 2010) and longitudinal (Pekrun et al., 2017) studies. In a correlational study conducted on a sample of 8th and 11th grade students (Goetz et al., 2012), for instance, enjoyment and anger were found to be positively and negatively related, respectively, to academic achievement – here measured using

students' self-reported grades – in four separate subjects. Consistently, in a five-years longitudinal study (Pekrun et al., 2017) conducted on a sample of 5th to 9th grade students, enjoyment and anger were found to positively and negatively predict, respectively, academic achievement in math, measured here as the end-of-the-year grades and test scores in this subject.

To our knowledge, very few studies have investigated the association between emotions and dropout directly. There is some evidence that emotional disorders, involving for instance issues in anger-control (Riccomini et al., 2005), increase the dropout risk. Furthermore, in a cross-sectional investigation conducted on a sample of university students (Respondek et al., 2017), a negative relation between enjoyment and intention to dropout was found for second-year students. Beyond the scarcity of studies, these findings suggest the evidence of a negative and positive association, respectively, between enjoyment and anger, and intention to dropout.

**The Combination Between Student Agency and Emotions**

As discussed above, previous variable-oriented studies have found contradictory results with respect to the association between student agency and educational outcomes, while research is consistent in showing that enjoyment and anger have a positive and negative relation, respectively, with students' results. In this article, we focus on the combination between student agency and emotions, which can help us to understand why student agency was found to have positive outcomes in some studies while in others did not.

Socio-cognitive approaches to emotions (e.g., Pekrun, 2006) propose that it is the learners' appraisal of the interactive exchanges they participate in, that orients the development of their emotions. In fact, "emotions are not generated per se by factors in the environment or by intrapsychic processes, but by person-environment relationships that change over time and circumstances" (Lazarus, 1991, p. 819). In this regard, it is important to consider that, whilst basically being a student action, the transformative potential of agency is realised *only if* such actions are taken up and positively responded to by teachers (Engestrom, 2014; Rajala et al., 2016). In a theoretical article, Reeve and Shin (2020) discussed the reciprocal nature of student agency,

which makes this construct unique and different from other forms of engagement. By asking questions, supporting their opinions, or criticising educational procedures, students express their desire and motivation to enrich and improve the learning environment. Such actions, however, do not always reach their transformative purpose, as their effectiveness depends on how the teacher responds. As shown in a few qualitative studies analysing classroom discursive episodes from both primary (Rainio, 2008; Rajala et al., 2016) and secondary (Lanas & Corbett, 2011) schools, there are cases in which teachers appreciate students' efforts and incorporate the desired change into the flow of their instruction; in other cases, teachers communicate instead that such desire is inappropriate or counterproductive to the lesson plan, and thus ignore or refute it. To quote Reeve and Shin (2020), "when teachers are responsive to student's inputs and suggestions, reciprocal causation is likely to occur and the teacher and student become increasingly in sync with each other. When teachers are not responsive, however, (…) the teacher and student become increasingly in conflict with each other" (p. 153).

This transactional and reciprocal nature of student agency is best grasped by focusing on the combination between student agency and emotions. Agentic actions may in fact bring along different emotional experiences: a positive powerful experience of enjoyment, when students feel that their transformative purposes are fulfilled, or a frustrating experience of anger, when students feel that their transformative efforts are ignored, suppressed or contradicted.

To test such combination, the adoption of a person-oriented approach is particularly suitable. The variable-oriented approach, more commonly used, examines variables by searching for general associations supposed to be equal in a whole sample (Bergman &Wångby, 2014). This would only allow testing whether the global level of student agency is associated, on average, with the global levels of enjoyment and anger. Instead, a person-oriented approach allows researchers to identify groups of adolescents with *specific* patterns of student agency, enjoyment, and anger, thus outlining the plurality of emotional experiences that students may feel when behaving agentically.

In line with the above reported literature (Rajala et al., 2016; Reeve & Shin, 2020), we argue that: (a) there may be students whose agentic actions come in combination with high enjoyment and low anger, presumably when they perceive that the teacher acknowledges and recognizes their agentic role; (b) there may be other students whose agentic actions come in combination with high anger and low enjoyment, possibly when they perceive that the teacher either ignores or refutes their expression of agency; and (c) the above mentioned students will have different outcomes.

**Aims of the Present Study**

In this study we adopted a person-oriented approach (Bergman & Wångby, 2014; Salmela-Aro et al., 2016) to explore the various configurations deriving from the interplay between student agency and enjoyment and anger. More specifically, the first aim of the present work was to identify subgroups of students characterized by different profiles of student agency, enjoyment and anger. In line with the literature stressing the active (Rajala et al., 2016; Reeve, 2013) and transactional (Reeve & Shin, 2020) nature of student agency, and consistent with studies classifying both enjoyment and anger as activating emotions (Pekrun & Linnenbrink-Garcia, 2012) with, respectively, a pleasing or displeasing value (Pekrun, 2006), we expected that high levels of agency would be accompanied by either high enjoyment or high anger, depending on the perceived valence of the interactive experience. Furthermore, since the individual's activation is a feature common to all three variables investigated, we expected that low levels of agency would combine with low levels of both emotions (where there are no agentic actions, it is unlikely that there are activating emotions). In summary, we hypothesized to find at least three distinct profiles: a first profile characterized by high levels of student agency and enjoyment, and a low level of anger; a second profile characterized by high levels of student agency and anger, and a low level of enjoyment; and a third profile scoring low in student agency, enjoyment and anger. Considering that research has shown gender differences in student agency (higher for boys; e.g., Mameli & Passini, 2019) and emotions (with enjoyment higher for girls and anger higher for boys; e.g., Pekrun et al., 2011), we controlled for the role of gender in predicting profile membership.

Given the mixed and incomplete findings on the association between student agency and academic outcomes in terms of achievement and intention to dropout, the second aim of this study was to investigate whether students belonging to different profiles would differ with respect to these variables by the end of the school year. In particular, considering the contradictory results on the relation between student agency and academic achievement (Mameli, Molinari, et al., 2019; Reeve et al., 2020), and the positive and negative associations found between enjoyment and anger, respectively, and academic achievement (Goetz & Hall, 2013), we expected students scoring high in student agency and enjoyment to score higher in academic achievement as compared to students scoring high in student agency and anger. Moreover, based on the few results showing the importance of student agency (Anderson et al., 2019; Mendoza Cazarez, 2019) and enjoyment (Respondek et al., 2017) in mitigating the risk of disengagement from school, we expected that students belonging to profiles characterized by high levels of agency, and especially those also showing high levels of enjoyment, would score lower than the other profiles in their intention to dropout from school.

## Methods

### Participants and Procedure

This study was part of a larger longitudinal investigation (Authors, 2019) focused on students' perceptions of their learning environment, participation in classroom activities, and emotions. For the work presented in this paper, we recruited a sample of 542 students (55.8% male, 94% born in Italy, $M_{age}$ = 14.24, $SD_{age}$ = .53), who represented the whole population enrolled in the Year-1 of three urban public high schools in Northern Italy that agreed to participate in this study. A self-report questionnaire was completed in an online platform during school lab hours. Data used for this study were collected at two different times, that is, in the middle (T1) and at the end (T2) of the school year 2018/2019. At each time, a researcher was present to advise the students as to the main research goals, to give them the same instructions and to answer any queries. To account for the domain-specific organization of academic emotions (Goetz et al., 2012; Pekrun et al., 2017) –

given the importance of investigating emotions not in general but with reference to specific learning environments – participants were asked to answer with reference to a specific randomly assigned class (i.e., literacy, mathematics or English language), which remained the same at both times points. More specifically, in order to match the two compilations for each student, participants were asked to indicate a code including their day and month of birth at the beginning of the questionnaire. Subjects were then assigned depending on this code, so that students born in certain months (four for each class) were assigned a specific subject. As the analysis of differences among subjects was beyond the scope of this research, all the answers were examined collectively.

The study protocol followed the ethical guidelines for the protection of human participants and received formal approval from the Bioethics Committee of the University of (*blinded for review*; protocol number: 0017375). More in detail, before proceeding with the data collection and after obtaining formal approval from the school principals, the minors' parents were asked to sign an informed written consent form to allow their son or daughter to participate in the study. Students as well were asked to express their consent to take part in the study. Eleven families and one student declined to participate.

**Measures**

*Gender* was measured with a dichotomous item coded as (0) for boys or (1) for girls.

*Student agency* was measured at T1 using the 10-item Agentic Engagement scale (Mameli & Passini, 2019). Sample items were: "During classes, I ask questions to help me learn," "I make sure that my teacher understands if there is something I don't like." Participants answered on a 7-point Likert scale of agreement, from 1 (Strongly disagree) to 7 (Strongly agree). Cronbach's alpha for this scale was .85.

*Enjoyment* and *Anger* were assessed at T1 via a back-translated Italian version of the enjoyment and anger subscales from the Achievement Emotion Questionnaire (AEQ; Pekrun et al., 2011). The original instrument is divided into three main sections, i.e., class-related, learning-related, and test-related emotions. For the purposes of this study, we only selected the 4-item

enjoyment subscale and the 3-item anger subscale referring to class-related emotions. Sample items are "I enjoy my *subject*[1] class" for the enjoyment scale, and "I get irritated by my *subject* class" for the anger scale. On both scales, students answered on a 7-point Likert scale of agreement. Cronbach's alpha for these scales were .92 for enjoyment and .71 for anger.

*Academic achievement* was assessed at T2 with a single item asking students to indicate, in a scale ranging from 1 to 10, their scored achievement in the assigned subject at the end of the school year. The choice to rely on a self-report index instead of on official reports was made to guarantee the students' anonymity. Furthermore, previous studies indicated that students' self-reported marks can be considered as reliable measures as they tend to reproduce their actual marks quite accurately (Kuncel et al., 2005).

*Intention to dropout* was assessed at T2 with an ad-hoc 3-item scale focused on the student's intention to leave or change school. As for leaving school, we made use of an item originally proposed by Vallerand and colleagues (Vallerand et al., 1997), that is, "I often consider dropping out of school." As for our choice to explore the students' intention to change school, it was due to the fact that, in Italy, education is compulsory until the age of sixteen. As our sample was made up of students whose average age was 14, we considered that the desire to change was an important expression of dissatisfaction with the current school. Furthermore, it is important to mention that in Italy, when a student drops out at an age when school is still mandatory, s/he commonly enrolls in a lower and less prestigious school path, with higher chances of leaving school for good as soon as s/he reaches the legal age to do so, and fewer chances to apply to university or pursue high profile careers (Contini & Scagni, 2013). The items were "I doubt whether this is the right school for me" and "I think I might decide to change school." Participants answered each item on a scale ranging from 1 (Not at all) to 7 (Absolutely yes). Cronbach's alpha for this scale was .85.

**Data Analysis**

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[1] The term "subject" was replaced by the specific subject (literacy, maths or English) assigned to the participant.

Prior to addressing our aims, we performed preliminary analyses to assess the structural validity of our measures. After testing skewness and kurtosis of all items, we conducted a confirmatory factor analysis (CFA) using the Mplus 8 software (Muthén & Muthén, 2009) to test a model including the four variables used in the study (except for the single item on academic achievement), using the robust maximum likelihood estimator (MLR) and the full information likelihood method (FIML) to deal with missing data. This and the following analyses were conducted using the TYPE = COMPLEX command provided by the Mplus software in conjunction with the clustering command in order to obtain corrected standard errors estimates and account for the grouping of participants in classes. For the evaluation of the model fit, we relied on the comparative fit index (CFI), the standardized root-mean-square residual (SRMR), and the root-mean-square error of approximation (RMSEA) with goodness-of-fit criteria 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) (Hu & Bentler, 1999). We then computed composite reliability scores ($\omega$), descriptive statistics and intercorrelations for each investigated variable.

In order to reach our first goal, we conducted a Latent Profile Analysis (LPA). The common practice in LPA is to test the fit of a two-class model and then increase the number of classes until the addition of classes no longer improves the model in terms of goodness of fit and interpretability. We compared models with two to six classes using the sample size adjusted Bayesian Information Criterion (aBIC), the Vuong-Lo-Mendell-Rubin Likelihood Ratio Test (VLMR-LRT), the Bootstrapped Likelihood Ratio Test (BLRT) as fit indices (Nylund et al., 2007). In comparing indices, lower adjusted BIC values are usually preferred as they indicate a better fit to the data; the likelihood ratio tests (VLM-LRT and BLRT) should be significant, indicating that, in the comparison of the specified class model with a previous model with one less class, adding one class improves the fit. We also considered entropy values as indicators of classification quality, with values higher than .70 considered as sufficient in indicating an acceptable classification accuracy (Jung & Wickrama, 2008), and the interpretability of the emerging latent classes. We controlled the

role of gender in predicting the likelihood of profile membership by conducting a multinomial logistic regression using the 3-step approach with the Mplus software (Asparouhov & Muthén, 2014).

To reach our second goal, the 3-step approach was again used to examine distal outcomes for profile belonging. More specifically, the 3-step approach allowed us to conduct an equality test of means (t-test) for analysing group differences in academic achievement and intention to dropout at T2, while considering possible measurement errors in the identification of profiles.

## Results

### Preliminary Analyses

Skewness and kurtosis values, which are reported in Table 1, were all included between the threshold of |2| (Gravetter et al., 2020), thus supporting the normal distribution of our data. The expected four-factors CFA model, including ten indicators of student agency, four indicators of enjoyment, three indicators of anger, three indicators of intention to dropout and four correlations between error terms of student agency items[2], achieved satisfactory model fit (MLR $\chi^2$ (160) = 483.66, $p < .001$; CFI = 0.92, RMSEA = 0.061, 90% CI [.055, .067], SRMR = 0.067). Each item loaded significantly ($p < .001$) on the factor it was conceived to represent, with factor loadings ranging from .43 to .90. We tested a one-factor model comprising all indicators to exclude the possibility that this would provide better fit than our four-factor model: the model reported largely worse and inacceptable indices of fit (MLR $\chi^2$ (166) = 2107.63, $p < .001$; CFI = 0.52, RMSEA = 0.146, 90% CI [.141, .152], SRMR = 0.163) so it was rejected. Composite reliability scores (ω) were good: .84 for student agency, .92 for enjoyment, .74 for anger and .85 for intention to dropout. Descriptive statistics and bivariate correlations among the study variables are indicated in Table 1.

### Student Profiles

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[2] As some scholars have pointed out (see Beckstead, 2002), the inclusion of correlated error terms in the CFA models does not undermine factorial validity, if they are theoretically plausible.

Fit indices for all the computed models can be found in Table 2. The five-classes model reported the highest entropy value, indicating a clearer classification for this model. The aBIC always improved with the addition of more classes, supporting the choice of a six-classes model. The VLM-LRT was significant for the five-classes model, indicating that adding a fifth class improved the model, but not for the six-classes model. In the five-classes model, while one class was numerically small (3.6 % of participants), average posterior probabilities for each class were all higher than .70, indicating that classes were well separated (Nylund & Choi, 2018), and each class was qualitatively different from the others, offering good interpretability. Overall, the results supported the choice of the five-classes model; the best loglikelihood value was replicated in several final stage solutions, supporting this as a good solution.

The five emerging profiles are represented in Figure 1. A first profile (clustering 23.0% of our participants) comprised those that we labelled *Lukewarm* students, reporting a moderate level of anger and scores below the middle point of the scale in both student agency and enjoyment. A second profile (3.6% of our participants), which we named *Annoyed*, consisted of students reporting a score below the middle point of the scale in student agency, and the lowest and highest values in enjoyment and anger, respectively. A third profile (37.6% of our participants) comprised students that we labelled *Lethargic*, who reported scores below the middle point of the scale in all the three variables examined. A fourth profile (11.4% of our participants) included those that we called *Restive* students, displaying scores above the average in student agency and especially in anger. Finally, a fifth profile (clustering 24.3% of our participants), labelled as *Enthusiastic*, included students who reported the highest scores in both student agency and enjoyment and the lowest score in anger.

Gender did not emerge as a particularly discriminating variable, as the multinomial logistic regression computed with the 3-step approach indicated that this dimension was a predictor of profile membership only in the comparison between the Restive profile, on one hand, and the Lukewarm and Lethargic profiles, on the other, with female adolescents more likely to belong to the

latter profiles (respectively, B (SE) = 1.17 (.33), *p* = .000 and B (SE) = .69 (.31), *p* = .027). This is consistent with previous studies indicating lower levels of anger in academic settings for girls (Pekrun et al., 2011) and higher agency scores for boys (e.g., Mameli & Passini, 2017).

**Profile Differences in Academic Achievement and Intention to Dropout**

Profile differences on student academic achievement and intention to dropout at the end of the school year are shown in Table 3. Enthusiastic adolescents scored significantly higher on academic achievement than all the other profiles. Furthermore, Annoyed students scored significantly lower on academic achievement than Lukewarm and Lethargic students, and the latter scored significantly higher than Restive adolescents. Adolescents belonging to the Enthusiastic profile scored significantly lower on intention to dropout than students belonging to all the other classes. Moreover, students in the Lethargic profile scored significantly lower on intention to dropout than those in both the Annoyed and Restive profiles, with no other significant differences between profiles.

## Discussion

The aims of this work were to identify profiles of students characterized by different patterns of student agency, enjoyment and anger, and to investigate whether the different profiles differed in terms of academic outcomes. Only partially consistently with our expectations, we found the three expected profiles plus two others, with significant differences among them in academic achievement and intention to dropout. Key findings and educational implications are discussed at length in the following sections.

**Student Profiles**

In line with our prediction that we would find two profiles scoring high in student agency (one high in enjoyment and low in anger and another high in anger and low in enjoyment), we found two groups, i.e., the Enthusiastic and Restive students, who were similar with respect to their perceived levels of student agency, but differed as far as their feelings were concerned. On the one hand, Enthusiastic students, showing the highest score of student agency combined with the highest

and lowest scores of enjoyment and anger, respectively, seem to be "optimal" students, whose agentic actions are accompanied by a positive emotional experience. Based on previous literature on the reciprocal nature of agency (Matos et al., 2018; Reeve & Shin, 2020), we advance that these students' emotions might signal a perception of teacher appreciation of their active contribution to the lesson. On the other hand, when student agency is accompanied by anger instead of enjoyment, as in Restive students, we catch a glimpse at the "stormy side" of agency, as the combination of student agency and anger indicates a negative appraisal of the learning activities and interactive dynamics (Pekrun, 2006). Still considering the transactional and reciprocal nature of student agency (Reeve & Shin, 2020), the negative emotional activation probably indicates that students perceive that their transformative actions are contradicted and refuted in the interactive context. As the association among student agency, emotions, and teacher responses was never directly studied, these considerations will need further research to be substantiated. Nonetheless, the identification of students belonging to the Enthusiastic and Restive profiles represents an innovative finding, as it empirically shows an association – that is, between student agency and emotions – which was neither speculated on nor directly investigated in previous research. Such result supports our claim that student agency is further understood when also considering the emotions accompanying students' actions. We add that, although student agency and enjoyment were positively correlated in this study, student agency and anger were not (see Table 1). This further confirms the value of a person-oriented approach (Bergman & Wångby, 2014) in bringing to light groups of students who live their school experience differently from what is indicated by the general trends between variables. The distinction between the Enthusiastic and Restive profiles will become even clearer by considering their differences in academic achievement (higher for the former) and intention to dropout (higher for the latter), which are discussed further below.

Again, consistent with our hypothesis to find a third profile characterized by low levels of student agency, enjoyment and anger, we found a group of students – the Lethargic – who scored below the average in all the three measured variables. Neither proactively involved nor emotionally

activated, these adolescents, representing more than a third of our population, reveal a condition of detachment from their school life, which was found to be quite common in previous studies on high school students (Anderson et al., 2019; Wang & Eccles, 2012). Nonetheless, as the literature provided evidence that student commitment and activating pleasing emotions are positively connected with academic success (Pekrun & Linnenbrink-Garcia, 2012), teachers and other school professionals should not overlook the importance of adopting strategies capable of improving young people's activation, at least on an emotional level, and getting them involved in meaningful experiences.

Notably, two unexpected profiles – the Lukewarm and the Annoyed – emerged. These groups similarly showed scores well below the middle point of the scale in student agency and enjoyment and higher scores in anger, with the important difference that anger was at the low midpoint of the scale in the Lukewarm profile, and close to the highest point of the scale in the Annoyed profile. Unlike Restive students, Lukewarm and especially Annoyed adolescents, whose negative emotional activation can be interpreted as a signal of dissatisfaction with their school environment (Pekrun, 2006), remain passive and waive the chance to act to change their learning conditions. Why do these adolescents not manifest student agency? Do Lukewarm students run the risk, over time, of becoming Annoyed? Although our data do not allow us to provide clear answers to these questions, and bearing in mind that the small class-size of the Annoyed cluster requires due caution in both the generalization and understanding of the profile's results, we can put forward two possible interpretations. First of all, individual differences should not be overlooked. Although anger was defined as an appetitive or approach system (Carver & Harmon-Jones, 2009) motivating the individual to act in order to re-establish a desired state, our results are consistent with a few studies providing evidence that sometimes students remain passive even if the learning environment is perceived to be disturbing (Horan et al., 2010). This result has important educational implications, as when an emotional negative activation is only internally expressed (anger-in; Boekaerts, 1994) it is hard for teachers and other school professionals to detect students' distress

and take steps to reduce it. However, teachers and school managers are called to make an effort to face the risky situations affecting these adolescents. Second, it is possible that students, in the course of repeated interactions with teachers who may tend to ignore or suppress their agentic stances (Rajala et al., 2016), have learned to withhold from behaving agentically, in order to avoid conflicts (Reeve & Shin, 2020) and possibly negative consequences (Boekaerts, 1994; Chory-Assad & Paulsel, 2004). Nonetheless, if promoting agency and wellbeing has been recognized in many countries as one of the main school goals (OECD, 2019), then our findings contribute to corroborating the importance for schools of identifying innovative ways to engage learners in taking a proactive and transformative role in their everyday school life.

**Academic Achievement and Intention to Dropout for Different Profiles**

Consistent with our hypotheses, our results showed that, at the end of the school year, the Enthusiastic students were the ones who performed the best and had the least intention to dropout. Shedding some light on the contradictory results found in previous studies focused on the relationship between student agency and academic achievement (Mameli, Molinari, et al., 2019; Reeve et al., 2020), this result suggests that students who enjoy their learning environment, and presumably feel legitimated by teachers in taking on an agentic role, achieve very positive results. The academic achievement of Restive students was lower, not unlike what was reported by Lukewarm and Annoyed students, and even worse than the Lethargic students. Although these findings should be interpreted with caution, as the score differences among profiles on academic achievement were often below 1 on a 10-point scale, they seem to confirm the negative role played by anger on the learning attainment (Pekrun et al., 2017; Pekrun & Linnenbrink-Garcia, 2012). Moreover, they also suggest that student agency, which in all cases is an expression of constructive instances and an index of interest and attachment to school (Lanas & Corbett, 2011; Mameli, Caricati, et al., 2019), does not necessarily lead to good performance nor is it always rewarded in the school context.

As far as intention to dropout was concerned, Lethargic students were found to be more prone to leave or change schools as compared to the Enthusiastic students. This result confirms that the perceived behavioural and emotional flattening of the former is a sign of dissatisfaction with the current school experience and a risk factor for school successful completion. Furthermore, and even more importantly, our findings once again emphasize the important role played by anger. In fact, unlike other studies showing that student agency in general functions as a protective factor with respect to the risk of dropout (Anderson et al., 2019; Mendoza Cazarez, 2019), the Annoyed and Restive students, both reporting high feelings of anger but with different levels of agency, reported the highest scores in the intention to dropout, with no difference between them and with a significant difference from both the Lethargic and Enthusiastic students. If, for the Annoyed students, this result is interpretable with reference to their compromised situation both in terms of perceived agency and emotional negative activation, the case of Restive students deserves more attention. It is possible that Restive students, despite their perceived agency, are pessimistic about the possibility to eventually transform their learning environment, perhaps because they feel that their actions go unheeded, or even contradicted, by teachers  (Burroughs et al., 1989; Goodboy, 2011; Reeve & Shin, 2020). Combined with the results described in the previous section, the intention to dropout is further evidence of discontent concerning these students' educational experience. By and large, these findings stress the importance for teachers to monitor the classroom's emotional dynamics, paying attention to – and possibly recognizing and legitimizing – manifest as well as silent signs of discomfort and distress.

**Limitations**

The study presented in this paper has some limits that ought to be considered when interpreting these results and for future works. First, the generalizability of our findings, especially those related to the small class-size of Annoyed students, is limited since our sample only consisted of 9th grade students from Italy. Second, the use of self-report instruments is only partially reliable, as students' perceptions do not always represent their actual actions and feelings. Third, we are

aware that the investigation of additional variables, related for example to other emotions (e.g., anxiety) and students' individual characteristics (e.g., introversion), might be significant to further explain the associations we found. Fourth, our analyses do not provide information as to the possible development of the profiles over time, nor do they offer any evidence as to the possible variations of the investigated variables based on students' age differences. Finally, in this study we considered the transformative potential of student agency that, in the interactive flow, can be perceived as fulfilled or denied. However, we did not verify how the learning environment, and especially teachers, *actually* respond to students' agentic actions, nor did we explore whether these responses are possibly associated with different academic outcomes. Future studies are needed to investigate systematically, possibly through a sequential analysis of ongoing interactions observed in the classroom, which types of teacher responses follow students' transformative stances.

**Conclusion**

On a scientific level, the profiles emerging through the person-oriented approach raise two important issues. First, they emphasize the importance of students' emotions for a thorough understanding of the multiple faces that student agency, as well as students' *lack* of agency, may take on. Second, our findings shed light on the various nuances of student agency, which can indeed be a positive indicator of learners' educational experiences and learning environments (Matos et al., 2018; Robertson, 2017; Schweisfurth, 2015; Vaughn, 2020), but can also have a negative or risky face.

Implications for intervention emerging from our findings are numerous and have already been advanced above. In conclusion, we wish to highlight the importance for teachers to acknowledge and recognize that, in the complex interactive flow of the classroom, student agency and emotions do matter, with the former taking on different nuances on the grounds of the combined triggered emotions, which deserve to be considered and accounted for. Once again, students' questions or comments, but also their silence and passivity, may express different needs or

inner experiences that teachers should be able to identify, or at least notice, in order to help learners

to become engaged in their own school life.

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**Table 1**. Descriptive statistics and intercorrelations for all variables.

| | Variables | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| 1 | Agency | - | .304*** | -.047 | .223*** | -.089* |
| 2 | Enjoyment | | - | -.453*** | .313*** | -.169*** |
| 3 | Anger | | | - | -.311*** | .349*** |
| 4 | Academic achievement | | | | - | -.278*** |
| 5 | Dropout | | | | | - |
| | *M (SD)* | 3.54 (1.25) | 3.36 (1.60) | 2.23 (1.34) | 6.89 (1.27) | 2.51 (1.55) |
| | Range | 1-7 | 1-7 | 1-7 | 1-10 | 1-7 |
| | Skewness | .15 | .33 | 1.34 | -.14 | 1.23 |
| | Kurtosis | -.52 | -.82 | 1.50 | .21 | .71 |

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

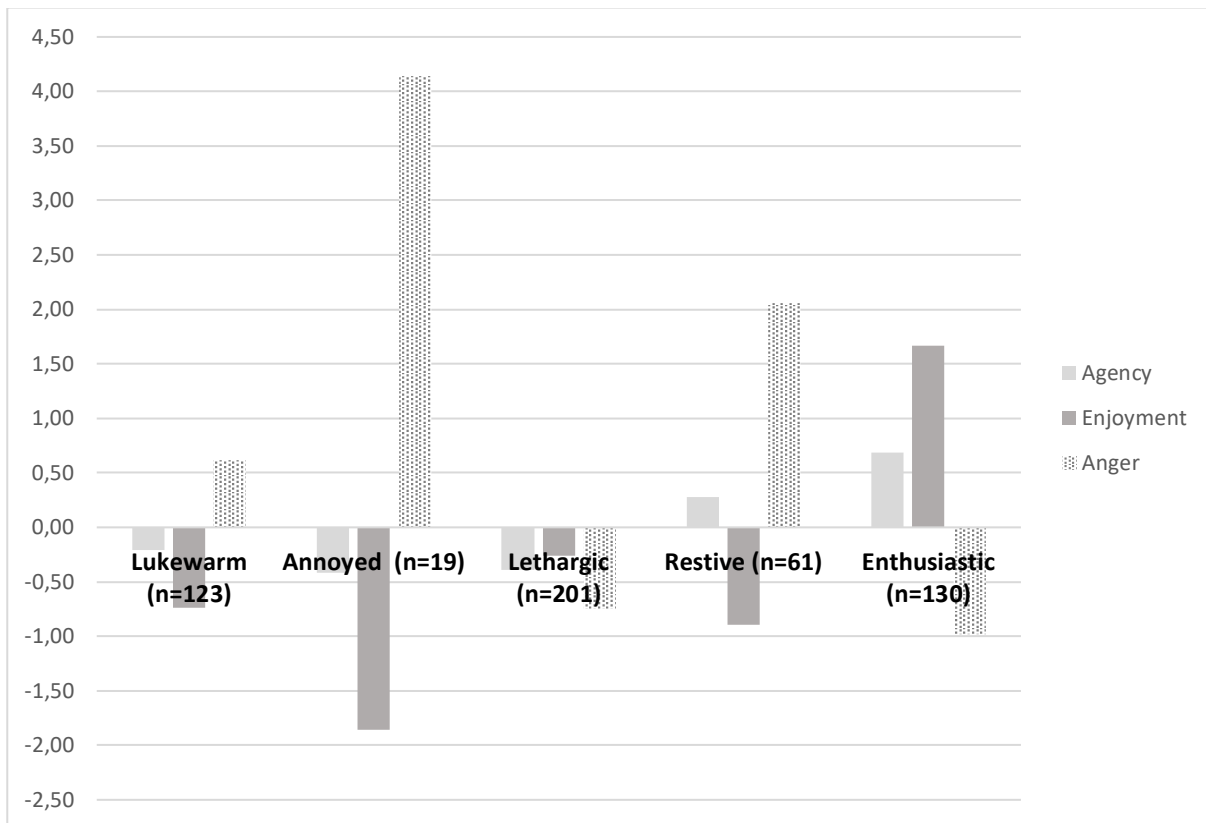**Table 2**. Fit indices for latent profile models with 2-6 classes.

| Number of classes | loglikelihood | N° of parameters | VLMR-LRT | aBIC | Entropy |
|---|---|---|---|---|---|
| 2 | -2704.536 | 10 | $p = .000$ | 5440.133 | .667 |
| 3 | -2631.042 | 14 | $p = .189$ | 5305.569 | .697 |
| 4 | -2582.246 | 18 | $p = .059$ | 5220.402 | .740 |
| 5 | -2549.299 | 22 | $p = .008$ | 5166.931 | .765 |
| 6 | -2536.343 | 26 | $p = .613$ | 5155.444 | .755 |

**Table 3**. Descriptive statistics and differences among profiles in student achievement and dropout.

| Outcomes | Profile 1 Lukewarm *M (SE)* | Profile 2 Annoyed *M (SE)* | Profile 3 Lethargic *M (SE)* | Profile 4 Restive *M (SE)* | Profile 5 Enthusiastic *M (SE)* |
|---|---|---|---|---|---|
| Academic achievement | 6.69 (.14) be | 5.74 (.29) ace | 6.81 (.12) bde | 6.32 (.20) ce | 7.61 (.12) abcd |
| Intention to dropout | 2.63 (.47) e | 3.90 (.54) ce | 2.73 (.15) bde | 3.66 (.38) ce | 1.41 (.07) abcd |

*Note*. Subscripts indicate that the profile is statistically different at $p < .05$ from Profile 1 (a), Profile 2 (b), Profile 3 (c), Profile 4 (d), Profile 5 (e). Multiple subscripts (e.g., be) indicate that the profile significantly differs from two or more other profiles.

**Fig. 1** Student profiles from the Latent Profile Analysis. All variables were centred by mean.