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RESEARCH

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A research study on the relationships between student achievement goals, perception of contextual achievement goals and academic performance in Italian and Mathematics

SUMMARY. ***Introduction**: The study investigated the role of students' and relevant adults' achievement goals for academic performance in Italian and Mathematics. Taking into account class level and subject matter, the aims were to investigate the relationship (a) between students' goals and students' perception of teachers' and parents' goals, and (b) between these goals and achievement. **Methods**: The participants were 435 Italian students, aged 10, 13 and 17 years. They completed a questionnaire, related to Italian or Mathematics, evaluating students' mastery goals (MG), performance approach goals (PAPG) and performance avoidance goals (PAVG); students' perception of teachers' MG, PAPG and PAVG; students' perception of parents' MG and performance goals (PG); achievement. **Results**: Regression analyses were run. As age increased, students had fewer goals and performance worsened. Students' MG and achievement were higher in Italian, while students' PAVG were higher in Mathematics. Teachers' and parents' MG positively predicted students' MG; teachers' PAVG and parents' PG positively predicted students' PAPG; teachers' PAVG and parents' PG positively predicted students' PAVG. Finally, achievement was positively predicted by students' MG, and negatively by teachers' PAPG. **Conclusions**: With some differences related to class level, personal goals are linked to the perception of the same goals in relevant adults, such as teachers and parents, for both Italian and Mathematics. Finally, students' mastery goals seem to play the strongest role in relation to achievement.*

Keywords: Achievement Motivation; Goal Orientation; Education

1. INTRODUCTION

Over the last years, educational psychology has underlined the relevance of the context in which learning takes place (Anderman, 2004). Within that perspective, the present study investigates the way different age students perceive personal and relevant adults' achievement goals and the relationship of such goals with academic performance in two specific subject matters, Italian and Mathematics, taking into account also the role of school level.

Achievement goals. Achievement goals refer to the purposes or reasons underlying people's endeavors in a learning task (Pintrich, 2000a), implying a cognitive representation of the competence that they can reach (Elliot, 1999; Elliot & McGregor, 2001). Criteria for judging competence are key concepts in order to distinguish two different achievement goals: mastery goals, when individuals strive to reach competence, and performance goals, when individuals focus on comparisons with others (Ames, 1992; Dweck & Leggett, 1988; Nicholls, 1984). A number of terms, similar in some respects but not completely overlapping, have been used in relation to the two concepts. For example, mastery goals have been referred to as learning goals (Dweck & Leggett, 1988), task goals (Nicholls, 1984) and intrinsic goals (Pintrich & Garcia, 1991). Performance goals have been referred to as ability goals (Ames, 1992), ego goals (Nicholls, 1984) and extrinsic goals (Pintrich & Garcia, 1991).

According to achievement goal theory, mastery goals had adaptive consequences for learning, while performance goals were associated to maladaptive behaviours (Dweck & Leggett, 1988). These negative consequences (not so univocally found compared to the positive consequences of mastery goals) have been recently revised, after the identification of the approach-avoidance dimension that can characterize performance goals (Elliot, 1999; Elliot & McGregor, 2001; Pintrich, 2000a; 2000c). In other words, individuals can compare themselves to others in two ways: striving either to demonstrate competence or not to demonstrate incompetence. Therefore, in light of this distinction, some Authors have stated that a goal can operationally be defined as "*a future-focused cognitive representation that guides behavior to a competence-related end state* that the individual is committed to either *approach or avoid*" (Hulleman, Schrager, Bodmann & Harackiewicz, 2010, p. 423). The introduction of the approach-avoidance dimension has cleared up some previous

ambiguous results, according to which, for example, performance goals were linked both to positive aspects, such as high self-efficacy and effort, and negative effects, such as low task persistence (Harackiewicz, Durik & Barron, 2005; Pajares, Britner & Valiante, 2000; Urdan, 2004). As underscored by Urdan (2004), negative consequences were probably linked to performance-avoidance goals, while positive consequences to performance-approach goals.

It is worth noting that, even if the approach-avoidance distinction has theoretically been applied also to mastery goals, thus allowing to distinguish four different types (mastery approach, mastery avoidance, performance approach and performance avoidance goals), researchers have so far focused mainly on the first three goals, with less attention devoted to mastery avoidance goals (Hulleman et al., 2010).

Achievement goals and context. Within the motivational field, some researchers have paid attention to contextual dimensions, studying for example whether and how relevant adults' behaviors, beliefs or emotions are linked to students' motivation and academic performance (Duchesne & Ratelle, 2010; Gutman, 2006; Lemos, 1996; Spera & Wentzel, 2003; Urdan, Solek & Schoenfelder, 2004). In addition, some studies have investigated how students perceive significant others' goals, considering mainly school in general. Spera and Wentzel (2003), for example, have examined congruency between students' goals and perception of teachers' goals. Gonida, Voulala and Kiosseoglou (2009) have studied relationships among perception of parents' goals, school structure goals and personal goals. Specifically, some data indicate that ninth graders perceive discrepancies between the goals they set for themselves and the goals they believe their teachers want them to pursue. The same data indicate also that these discrepancies have negative implications for other aspects of student motivation, such as interest, perceived control and ability (Spera & Wentzel, 2003). As regards class goal structures, there seems to be some consistency between the achievement goals that students perceive are stressed in their learning environments and their personal achievement goals both for mastery and performance goals (Anderman & Midgley, 1997; Carr, 2006; Gonida et al., 2009; Roeser, Midgley & Urdan, 1996; Urdan, Midgley & Anderman, 1998). Perceptions of parents' mastery goals positively predicted seventh and ninth graders' mastery goals, and perceptions of parents' performance goals positively predicted both students' performance approach and performance avoidance goals (Gonida, Kiosseoglou & Voulala 2007; Gonida et al., 2009).

Another way to study contextual influences on students' goals is to consider different subject matters, which can be viewed as specific contexts, given differences, for example, in aspects such as their typical instruction strategies (Bouffard & Couture, 2003; Wolters, Yu & Pintrich, 1996). Our choice to focus on Italian and Mathematics is related to the existence of different constructs for the different abilities necessary to tackle verbal tasks and scientific subjects (Boekaerts, Otten & Voeten, 2003). For example, while abilities related to Mathematics are mostly applied within that subject matter, abilities related to Italian are 'transdisciplinary' in nature, because fundamental also for all other subject matters (Boscolo & Hidi, 2007). Moreover, even elementary students differentiate their motivational beliefs such as self-efficacy, task-value and causal attributions according to one discipline or the other (Boekaerts et al., 2003; Wigfield & Eccles, 2000). With reference to achievement goals, some researchers found that mastery goals differed in different domains. For example, they were higher in Mathematics than in French/Korean (Bong, 2001, 2004; Bouffard & Couture, 2003) while others did not find any differences (Anderman & Midgley, 1997; Duda & Nicholls, 1992). In contrast, performance goals were consistent across domains (Anderman & Midgley, 1997; Bong, 2001, 2004; Bouffard & Couture, 2003; Duda & Nicholls, 1992), even if in some of these studies the approach and avoidance dimensions were not separated (Anderman & Midgley, 1997; Duda & Nicholls, 1992). However, different school level might have accounted for these effects, given that, for example, Bong (2001) found that high school students' motivational beliefs were more clearly differentiated than middle school students' motivational beliefs.

Achievement goals and academic performance. As regards relationships between achievement goals and academic performance in specific subject matters, different studies have reported contrasting data, in terms of (a) positive, negative or absent relationships for mastery goals; (b) positive, negative or absent relationships for performance approach goals; (c) negative or absent relationships for performance avoidance goals (Bouffard & Couture, 2003; Gutman, 2006; Ironsmith, Marva, Harju & Eppler, 2003; Linnenbrink, 2005; Pintrich, 2000b; Wolters, 2004; Zusho, Pintrich & Cortina, 2005). However, according to Hulleman and colleagues (2010), high correlations between mastery goals and performance seem to characterize the European samples; moreover, high correlations between performance goals and academic outcomes seem to characterize research works with some scales, such as the AGQ (Achievement Goal Questionnaire, Elliot & Murayama, 2008). Different studies have reported contrasting data about academic achievement in specific subject matters, like for example higher grades in Mathematics than in French (Bouffard & Couture, 2003) versus higher grades in English than in Mathematics (Anderman & Midgley, 1997).

However, taking into account possible differences in national school systems, we underline that data related to the Italian context, such as PISA (Program for International Student Assessment) average scores on quality of learning outcomes for 15-year-olds (OECD, Organization for Economic Cooperation and Development, 2010), indicated better outcomes in Italian than in Mathematics.

Developmental differences. Some of the studies which have focused on achievement goals and/or academic performance have addressed developmental differences, considering school level as a factor that could be linked to variations in motivational dimensions. As regards personal achievement goals, some authors have found that students decreased in mastery goals for some specific subject matters throughout elementary and middle school (Anderman & Midgley, 1997; Bouffard, Boileau & Vezeau, 2001; Chouinard & Roy, 2008). The same trend emerged in longitudinal studies (Bouffard et al. 2001) and also when considering school in general (De Bernardi & Raccanello, 2008; Gonida et al., 2007). Data related to performance goals seem more inconsistent. For example, while examining the transition from elementary to high school, Bouffard and others (2001) found stability in performance approach goals, but increases in performance avoidance goals. Other studies focusing on school in general found decreases in both types of performance goals, with fourth graders' goals or seventh graders' goals higher than older students' goals (De Bernardi & Raccanello, 2008; Gonida et al., 2007). About academic performance, the literature reported grade decreases with increasing age, for example in the transition from elementary to middle school (Anderman & Midgley, 1997).

Aims. In the present study we focused on different age students' achievement goals and on their perception of relevant others' goals about two specific subject matters, Italian and Mathematics, particularly salient for each of the scholastic level considered. On the basis of the existing literature, we hypothesized: (a) a positive relationship between perception of adults' goals and personal goals, with teachers' and parents' mastery and performance goals predicting, respectively, personal mastery and performance goals; (b) a positive relationship between mastery goals – both personal and perceived in relevant adults – and performance. In addition, as class level increased, we expected decreases in personal achievement goals, especially in mastery goals, and in academic performance. Finally, for the two subject matters, we explored possible differences between the two disciplines in terms of the three kinds of personal goals, and hypothesized lower performance in Mathematics than in Italian.

2. METHODS

2.1. Sample

The participants were 435 students attending different school levels in Verona, in the North-East of Italy, and coming from a variety of social backgrounds. Four of them were eliminated because of missing answers (specifically, for Italian, one fourth grader, one seventh grader and one eleventh grader; for Mathematics, one fourth grader). Therefore, the final sample comprised 431 students: 130 fourth graders (M = 10 years, 0 months; 60 girls, 70 boys), 125 seventh graders (M = 13 years, 1 month; 72 girls, 53 boys) and 176 eleventh graders (M = 17 years, 2 months; 59 girls, 117 boys). On the whole, 198 students completed the version of the questionnaire related to Italian (64 fourth graders, 63 seventh graders and 71 eleventh graders), and 233 students completed the version related to Mathematics (66 fourth graders, 62 seventh graders and 105 eleventh graders). The students had written parental consent to participate, and they also gave their own consent.

2.2. Measures and procedure

A 64-item questionnaire on motivational dimensions, affect and academic performance, focused either on Italian or on Mathematics, was administered during regular school hours. In the present work only items related to achievement goals and academic performance were taken into account. The participants were told that there were no right or wrong answers and they were guaranteed anonymity. Their teachers were not present while the questionnaire was administered. The students were instructed to evaluate each item on a 5-point Likert-type scale according to how true the item was for them (1 = not at all true for me, 2 = a little true for me, 3 = somewhat true for me, 4 = true for me, 5 = completely true for me). A scale with the grades typically used in the Italian education system (from 1 to 10) was proposed for academic achievement.

Students' achievement goals. Thirteen items about students' achievement goals for specific subject matters (Italian, Mathematics) were adapted from *Patterns of Adaptive Learning Survey* (PALS, Midgley et al., 2000), with forward and back translation (here and for items in the following sections). Five items measured mastery goals (e.g., One of my goals in Italian/Mathematics is to learn as much as I can), four items measured performance approach goals (e.g., One of my goals is to show others that I'm good at my

Italian/Mathematics work) and four items measured performance avoidance goals (e.g., It's important to me that I don't look stupid in Italian/Mathematics).

Perception of teachers' achievement goals. The 12-item-scale on perception of teachers' goals was also adapted from the PALS (Midgley et al., 2000): five items referred to mastery goals (e.g., My Italian/Mathematics teacher thinks mistakes are okay as long as we are learning), three items referred to performance approach goals (e.g., My Italian/Mathematics teacher tells us how we compare to other students) and four items referred to performance avoidance goals (e.g., My Italian/Mathematics teacher tells us that it is important that we don't look stupid in class).

Perception of parents' achievement goals. The 11-item-scale on perception of parents' goals was also adapted from the PALS (Midgley et al., 2000): six items related to mastery goals (e.g., My parents want me to understand my Italian/Mathematics work, not just memorize it) and five items to performance goals (e.g., My parents would like me to show others that I am good at Italian/Mathematics work), without any further distinction on the approach-avoidance dimension.

Academic performance. For each subject matter, the students were asked to report the grade obtained in their last written test.

The presentation order of the items was randomized and was consistent across groups. Each session lasted about 50 minutes for seventh graders, and 40 for all the other students. At the end of the session, all the students were thanked for their participation.

2.3. Data analysis

For each participant, the value related to each item was registered. The measure about academic achievement was transformed into a 5-point scale for reasons of uniformity with the other dimensions (1 = very low, 2 = low, 3 = medium, 4 = high, 5 = very high).

The data were analyzed in several steps, separately for the two subject matters. First, two factor analyses for personal academic goals were carried out, and the internal consistency for each scale was calculated. Second, three hierarchical regression analyses were run, with students' mastery, performance approach and performance avoidance goals, respectively, as dependent variables. Third, a hierarchical regression analysis was run, with students' performance in Italian and Mathematics as the dependent variable. Preliminary analyses also included gender as a control variable, but it was not included in later analyses due to non-significance. The level of significance was set at $p < .05$.

3. RESULTS

3.1. Confirmatory factor analyses, internal consistency, correlations and descriptive statistics

To verify the validity of personal goal scales in the Italian context, three confirmatory factor analyses were run, for personal goals, perceived teachers' goals and perceived parents' goals, respectively. The various goodness-of-fit indexes (Hu & Bentler, 1999) indicated that, for students' goals (GFI = .96, AGFI = .93, CFI = .98, NNFI = .97, RMSR = .04, RMSEA = .05), the observed variables (13 items) corresponded to the three latent variables (students' mastery, performance approach and performance avoidance goals). For teachers' goals (GFI = .96, AGFI = .93, CFI = .95, NNFI = .94, RMSR = .06, RMSEA = .06), the 12 items corresponded to the three latent variables (teachers' mastery, performance approach and performance avoidance goals). For parents' goals, three items had to be eliminated in order to obtain a good model. After this, the indexes (GFI = .98, AGFI = .96, CFI = .99, NNFI = .98, RMSR = .05, RMSEA = .04) indicated a good correspondence between the 8 items selected and the two latent variables (parents' mastery and performance goals).

Moreover, before calculating the mean value between the items belonging to each scale, internal consistency coefficients (Cronbach's α) were calculated (Table 1), and they were found to be adequate, higher than .70.

Subsequently, Pearson correlation coefficients among measured variables were calculated (Table 1). All personal goals correlated between themselves. Regarding perceived teachers' goals, significant correlations were found between performance approach and avoidance goals. Moreover, teachers' mastery goals correlated positively with performance avoidance goals. Regarding perceived parents' goals, they correlated positively. Significant correlations were also found between (a) personal, teachers' and parents' mastery goals; (b) personal and teachers' performance approach goals and parents' performance goals; (c) personal and teachers' performance avoidance goals and parents' performance goals.

3.2. Relationships between (1) class level, subject matter, teachers' and parents' goals and (2) personal goals

Three hierarchical regression analyses were carried out, with students' mastery goals, performance approach goals and performance avoidance goals, respectively, as dependent variables (Table 2). In the first step,

Table 1
Descriptive statistics, Cronbach's α coefficients and correlation coefficients of measured variables

Variables	*M (SD)*	α	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*
1. Students' mastery goals	3.70 (.86)	.88								
2. Students' performance approach goals	2.16 (.94)	.88	.25***							
3. Students' performance avoidance goals	2.55 (.96)	.82	.31***	.73***						
4. Teachers' mastery goals	3.53 (.90)	.81	.52***	.13**	.21***					
5. Teachers' performance approach goals	2.73 (1.06)	.73	.05	.26***	.30***	.05				
6. Teachers' performance avoidance goals	2.54 (.99)	.78	.21***	.53***	.65***	.21***	.41***			
7. Parents' mastery goals	3.77 (.79)	.77	.53***	.19***	.28***	.55***	.15**	.30***		
8. Parents' performance goals	2.26 (.97)	.77	.14**	.67***	.59***	.06	.26***	.56***	.22***	
9. Achievement	3.03 (1.18)		.37***	.12*	.15**	.36***	–.01	.12*	.35***	.02

*Note: *p < .05; **p < .01; ***p < .001.*

school level and subject matter were entered into the model; in the second step, teachers' mastery goals, performance approach goals and performance avoidance goals were entered; in the third step, parents' mastery goals and performance goals were entered. All the models considered covariance between latent variables.

The third model was significant for each dependent variable and it significantly differed from the previous models (mastery goals: adjusted R^2 = .37, p < .001; performance approach goals: adjusted R^2 = .48, p < .001; performance avoidance goals: adjusted R^2 = .54, p < .001). As school level increased, students' goals decreased (mastery goals: β = –.15, p < .01; fourth graders: M = 4.20, SE = .06; seventh graders: M = 3.73, SE = .07; eleventh graders: M = 3.31, SE = .06; performance approach goals: β = –.09, p < .05; fourth graders: M = 2.54, SE = .10; seventh graders: M = 2.12, SE = .07; eleventh graders: M = 1.90, SE = .05; performance avoidance goals: β = –.20, p < .001; fourth graders: M = 3.15, SE = .09; seventh graders: M = 2.50, SE = .07; eleventh graders: M = 2.15, SE = .06). Moreover, while students' mastery goals were higher in Italian than in Mathematics (β = –.10, p < .05; Italian: M = 3.75, SE = .06; Mathematics: M = 3.66, SE = .06), students' performance avoidance goals were higher in Mathematics than in Italian (β = –.09, p < .05; Mathematics: M = 2.60, SE = .07; Italian: M = 2.49, SE = .06). Lastly, perceived teachers' (β = .32, p < .001) and parents' (β = .29, p < .001) mastery goals positively predicted students' mastery goals; teachers' performance avoidance goals (β = .18, p < .001) and parents' performance goals (β = .54, p < .001) positively predicted students' performance approach goals; teachers' performance avoidance goals (β = .37, p < .001) and parents' performance goals (β = .34, p < .001) positively predicted students' performance avoidance goals. (As regards parents' performance goals, preliminary analyses showed similar results when running the three ANOVAs by separating items related to performance approach (3 items) and performance avoidance goals (1 item), not explicitly distinguished in the PALS but different on the basis of their content. Specifically, teachers' performance approach goals positively predicted students' performance approach goals, while both teachers' performance approach and avoidance goals positively predicted students' performance avoidance goals).

3.3. Relationships between (1) class level, subject matter, personal, teachers' and parents' goals and (2) performance

A hierarchical regression analysis was run, with students' achievement in Italian or Mathematics as dependent variable (Table 3). In the first step,

Table 2
Summary of hierarchical regression analyses on the relationship between (1) class level, subject matter, teachers' and parents' goals and (2) personal goals

	Students' mastery goals [a]			*Students' performance approach goals* [b]			*Students' performance avoidance goals* [c]		
Variables	B	SE B	ß	B	SE B	ß	B	SE B	ß
Step 1									
School level	–.44	.05	–.43***	–.32	.05	–.28***	–.50	.05	–.44***
Subject	.03	.08	.02	–.08	.09	–.04	–.18	.08	–.10*
Step 2									
School level	–.23	.05	–.23***	–.10	.06	–.09	–.23	.05	–.20***
Subject	–.18	.07	–.11*	–.07	.08	–.04	–.18	.07	–.09*
Teachers' mastery goals	.42	.05	.44***	–.01	.05	–.01	.03	.05	.03
Teachers' performance approach goals	–.02	.04	–.03	.05	.04	.05	.03	.04	.03
Teachers' performance avoidance goals	.04	.04	.04	.45	.05	.47***	.54	.04	.55***
Step 3									
School level	–.16	.05	–.15**	–.10	.05	–.09*	–.23	.05	–.20***
Subject	–.17	.07	–.10*	–.04	.07	–.02	–.17	.07	–.09*
Teachers' mastery goals	.30	.05	.32***	.06	.05	.05	.06	.05	.06
Teachers' performance approach goals	–.03	.03	–.04	.03	.03	.04	.02	.03	.02
Teachers' performance avoidance goals	.01	.04	.01	.17	.05	.18***	.36	.04	.37***
Parents' mastery goals	.32	.05	.29***	–.06	.05	–.05	–.02	.05	–.02
Parents' performance goals	.02	.04	.03	.53	.04	.54***	.34	.04	.34***

Note: N = 431.
[a] R^2 = .19, p < .001 for Step 1; $R^2\Delta$ = .14, p < .001 for Step 2; $R^2\Delta$ = .06, p < .001 for Step 3.
[b] R^2 = .08, p < .001 for Step 1; $R^2\Delta$ = .21, p < .001 for Step 2; $R^2\Delta$ = .20, p < .001 for Step 3.
[c] R^2 = .19, p < .001 for Step 1; $R^2\Delta$ = .27, p < .001 for Step 2; $R^2\Delta$ = .08, p < .001 for Step 3.
**p < .05, **p < .01, ***p < .001.*

school level and subject matter were entered into the model; in the second step, students' mastery goals, performance approach goals and performance avoidance goals were entered; in the third step, teachers' mastery goals, performance approach goals and performance avoidance goals, and parents' mastery goals and performance goals were entered.

The best model was the one including all the predictors (adjusted R^2 = .28, p < .05). As school level increased, achievement decreased (β = –.40, p < .001; fourth graders: M = 3.75, SE = .09; seventh graders: M = 3.17, SE = .11; eleventh graders: M = 2.40, SE = .07). Moreover, performance was higher (β = .09, p < .05) in Italian (M = 3.23, SE = .08) than in Mathematics (M = 2.86, SE = .08). Finally, achievement was positively predicted by students' mastery goals (β = .15, p < .01), while it was negatively predicted by teachers' performance approach goals (β = –.09, p < .05).

3.4. Synthesis of the results

As regards school level, the results showed that both students' goals and performance decreased as age increased. Concerning differences between subject matters, both students' mastery goals and achievement were higher in Italian, while students' performance avoidance goals were higher in Mathematics.

About the relationship between students' and significant others' goals, the data indicated that teachers' and parents' mastery goals positively predicted students' goals of the same kind, while for performance goals a more complex pattern emerged. Finally, regarding the relationship between goals and academic achievement, academic performance was predicted positively by students' mastery goals and negatively by teachers' performance approach goals.

Table 3
Summary of hierarchical regression analysis on the relationship between (1) class level, subject matter, personal, teachers' and parents' goals and (2) achievement

	***Achievement*[a]**		
Variables	B	SE B	ß
Step 1			
School level	–.67	.06	–.47***
Subject	.28	.10	.12**
Step 2			
School level	–.59	.07	–.42***
Subject	.25	.10	.11*
Students' mastery goals	.29	.06	.21***
Students' performance approach goals	.03	.08	.03
Students' performance avoidance goals	–.13	.08	–.10
Step 3			
School level	–.56	.07	–.40***
Subject	.22	.10	.09*
Students' mastery goals	.21	.07	.15**
Students' performance approach goals	.11	.08	.09
Students' performance avoidance goals	–.07	.09	–.06
Teachers' mastery goals	.04	.07	.03
Teachers' performance approach goals	–.10	.05	–.09*
Teachers' performance avoidance goals	–.03	.07	–.02
Parents' mastery goals	.14	.08	.09
Parents' performance goals	–.11	.07	–.09

Note: N = 431.
[a]R^2 = .24, p < .001 for Step 1; $R^2\Delta$ = .04, p < .001 for Step 2; $R^2\Delta$ = .02, p < .05 for Step 3.
**p < .05, **p < .01, ***p < .001.*

4. DISCUSSION

Assumptions about the nature of motivational constructs, in terms of reflecting stable individual differences versus being malleable by contextual influences, lie behind completely different kinds of endeavors of those professionals who are responsible for students' education. Consequently, exploring students' motivations, and in particular achievement goals, assumes relevance not only for its theoretical implications, but also for its practical issues. Specifically, identifying how students' goals can be influenced by their contexts gives suggestions on the possibility that figures such as teachers, parents or educators could intervene to foster students' motivation (Anderman, 2004).

In our view, context was conceptualized in a twofold way: it was considered both as perception of relevant adults' goals and as different subject matters. Thus, taking into account the role of class level and school discipline, the aims of the study were to explore (a) relationships between students' perception of teachers' and parents' achievement goals and personal achievement goals; (b) relationships between these goals and academic performance.

As regards the first aim, we found positive relationships both between students' goals and perceptions of teachers' goals and between students' goals and perceptions of parents' goals as hypothesized on the basis of previous literature (Anderman & Midgley,

1997; Carr, 2006; Gonida et al., 2007, 2009; Roeser et al., 1996; Urdan et al., 1998). On the whole, our results reveal general consistency between goals endorsed by students and goals they perceive as important for relevant adults. Spera and Wentzel (2003) maintain that discrepancies between the goals students set for themselves and those they believe their teachers want them to pursue are negatively linked to students' interests, perceived control and ability. In the light of their considerations, we could presume that the consistency we found in our data could be linked to positive effects not only on the mentioned aspects but also on positive feelings related to integration and social support.

As regards the second aim, we found that students' mastery goals were associated with higher levels of academic performance in both subject matters, while we did not find any significant relationship between students' performance goals and achievement outcomes. Our data are consistent with what has been revealed in a recent meta-analysis by Hulleman and colleagues (2010), who took into account contrasting results emerging from previous literature: the association between mastery goals and academic performance is usually more frequent for European students than for students of other nationalities, say US or Canadian. Further, the association between performance approach goals and performance outcomes is more frequent when scales different from PALS are used, for example AGQ (Elliot & Murayama, 2008). Regarding the role played by different instruments, as stated by the authors, 'the type of item used in each scale may partially explain this difference – AGQ performance approach subscale is dominated by goal-relevant items, whereas the PALS scale is characterized by nearly equal numbers of goal- and non-goal-relevant items' (Hulleman et al., 2010, p. 442). Concerning perception of contextual goals, our results did not reveal relationships between teachers' or parents' goals and performance, except for teachers' performance approach goals, which are negatively correlated to grades. Even if our data do not directly address other factors responsible for these effects, we could hypothesize the presence of other intermediating emotional processes, such as the anxiety elicited by specific instructional/educational practices in the class.

Considering the different school levels, we found decreases both in mastery goals and in performance (approach and avoidance) goals as age increases. These results are in line with some studies about school in general, which report decreases in mastery goals, but not with other findings, for example, which reveal some stability in performance approach goals and increases in performance avoidance goals (Anderman & Midgley, 1997; Bouffard et al., 2001; Chouinard & Roy, 2008; De Bernardi & Raccanello, 2008; Gonida et al., 2007). However, the documented decreasing trend in achievement goals is consistent with the same decline for several other motivational constructs (Spinath & Spinath, 2005), and could be linked to a variety of dimensions, such as changes in academic tasks, concurrent psychological development and changes in peer relations (Anderman & Midgley, 1997). Finally, the decreases in performance outcomes confirm results from previous studies (Anderman & Midgley, 1997).

Referring to the two subject matters, on the one hand, students' mastery goals were higher for Italian than for Mathematics, suggesting positive association between these goals and positive performance, confirmed by the presence of better evaluations reported by students in Italian. On the other hand, performance avoidance goals were higher for Mathematics than for Italian. This could be due to the particular relevance students attribute to not appearing incompetent in a subject matter, Mathematics, which is frequently seen as particularly difficult. Again, this perceived difficulty is confirmed by lower grades in Mathematics than in Italian, which corresponded to the same relations found for PISA among 15-year-olds' average scores on quality of learning in Italian and Mathematics (OECD, 2010) in the Italian context. However, differences in academic goals between specific subjects only partially support the literature (Anderman & Midgley, 1997; Bong, 2001, 2004; Bouffard & Couture, 2003; Duda & Nicholls, 1992). For example, if we compare our study with Bong's (2004), we can confirm both specificity of mastery goals and consistency of performance approach goals in different subject matters, but we do not find support for consistency of performance avoidance goals. Different factors, such as students' age, gender or even school culture should be taken into account to explain these differences.

5. CONCLUSIONS

To sum up, our study showed that students' goals are generally linked to the perception of the same goals in relevant adults, such as teachers and parents, for the two different domains: Italian and Mathematics. In addition, in our sample, students' mastery goals seem to play a very strong role in academic achievement. However, also perception of teachers' performance approach goals – the only dimension not related to the same goal perceived by students for themselves – is linked to students' achievement, but these two measures are negatively related. One of the educational implications of our study is specifically based on this finding, referring to Anderman's assumptions about motivation modifiability (2004). Teachers and educators should acknowledge the possible impact of students' perceptions of their motivations on performance outcome. In other words, they should pay

particular attention not only to the kinds of achievement goals they want their students to pursue, which can be implicitly and/or explicitly communicated, but also to the representation of the same goals that their students have. Future reflections and empirical investigations could be devoted to exploring how students' perception of relevant adults' achievement goals might be changed, including direct measures of both students' and adults' motivational dimensions.

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