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The Decline in Mastery Goal Orientation and Person-Environment Fit and the Preventive Effect of Classroom Community: Examining Transitions Using Latent Growth Curve Modelling

Lukas Ramseier*
University of Applied Sciences and Arts Northwestern, SWITZERLAND

Markus P. Neuenschwander
University of Applied Sciences and Arts Northwestern, SWITZERLAND

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Abstract: Students' mastery goal orientation tends to decline over the course of compulsory school, especially after the transition to lower secondary school. According to stage-environment fit theory, secondary school is less accommodating to students' needs, interests, and abilities than primary school. In consequence, the perceived person-environment fit declines as well. It is assumed that a strong sense of classroom community in primary school can counteract a potential decline in both of these important individual aspects. Using data from the Swiss longitudinal research project WiSel ("Wirkungen der Selektion"; "Effects of Tracking"), we conducted a latent growth curve model (LGCM) to examine the correlation between the development of students' mastery goal orientation and the development of their person-environment fit during the transition from primary school to lower secondary school. Perceived classroom community was assumed to benefit from these developments. The results show that both mastery goal orientation and person-environment fit decrease during the transition to lower secondary school. A strong sense of classroom community in fifth grade leads to a smaller decline in both constructs. Implications for educational practice are discussed.

Keywords: *Classroom community, latent growth curve model, mastery goal orientation, motivation, person-environment fit.*

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Introduction

Students' motivation refers to their beliefs that determine the tasks they choose and the amount of effort they invest (Lazarides & Raufelder, 2017; Wentzel & Wigfield, 2009). Motivational beliefs, such as mastery goal orientation, are important determinants for educational paths (Becker et al., 2018). Research shows that mastery goal orientation is positively associated with learning strategies and educational adjustment (Muis & Franco, 2009; Neuenschwander, 2017b; Otis et al., 2005). However, students' mastery goal orientation decreases during the transition to lower secondary school (Neuenschwander, 2017a). According to stage-environment fit theory (Eccles et al., 1993), this decline coincides with a decreasing fit between students' individual needs and the school environment (person-environment fit). Identifying characteristics that benefit students' goal orientation and person-environment fit is therefore crucial for educators to counteract this problematic pattern. This applies not only to lower secondary level teachers, but also to primary school teachers, as precautions in primary school may prevent the strong decline in both mastery goal orientation and person-environment fit.

Positive relationships and a strong classroom community are determinants of the development of students' motivational beliefs (Barksdale et al., 2021; Perdue et al., 2009; Wang et al., 2020). We assume that classroom community positively influences the development of students' mastery goal orientation and person-environment fit. Notably, there exists a gap in the literature, as to our knowledge, no studies to date have empirically tested the effects of classroom community on the development of mastery goal orientation and person-environment fit in the school context.

This paper aims to address two objectives: First, to analyze the development of both mastery goal orientation and person-environment fit during the transition to lower secondary school, using latent growth curve modelling. Second, to examine

* **Corresponding author:**
Lukas Ramseier, Bahnhofstrasse 6, CH-5210 Windisch, Switzerland. ✉ lukas.ramseier@fhnw.ch

whether classroom community in primary school positively influences the development of mastery goal orientation and perceived person environment fit.

Decline of Mastery Goal Orientation During Compulsory School

Goal orientation theory posits that people's behavior can be explained by their desired goals (Dweck, 1986; Nicholls, 1984; Spinath, 2011). An established conceptualization is the distinction between mastery goal orientation and performance goal orientation (Ames, 1992; Dweck, 1986; Pintrich et al., 2003). Mastery goal orientation refers to the perceived importance of learning and skill expansion. Performance goal orientation, on the other hand, refers to the importance of social comparison and skill demonstration (Spinath, 2011). Elliot and Harackiewicz (1996) further differentiated performance goal orientation into performance-approach (the goal of demonstrating high ability) and performance-avoidance (the goal of concealing low ability), whereas mastery goal orientation is often seen as exclusively approach-oriented. Though there are theoretical approaches also suggesting mastery-avoidance (such as the 2x2 model; Elliot & McGregor, 2001), factor analytical studies support mastery goal orientation as an exclusive approach orientation (Elliot & McGregor, 2001; Strunk, 2014).

In the present study, the exclusive focus is on mastery goal orientation, due to its crucial role concerning students' academic development and achievement (Lüftenegger et al., 2016). Mastery goal orientation has also been observed to be less stable and more prone to environmental changes (Fryer & Elliot, 2007; Muis & Edwards, 2009), making its development a relevant research focus. Previous studies have already focused exclusively on mastery goal orientation, due to its relevance (e.g., Lazarides & Raufelder, 2017).

Empirical evidence shows that mastery goal orientation is positively related to school-relevant beliefs, such as enjoyment of learning, effort, self-efficacy or learning strategies (Elliot & Harackiewicz, 1994; Honicke et al., 2020; Lazarides & Rubach, 2017). In a meta-analysis, Linnenbrink-Garcia et al. (2008) found that mastery goal orientation benefits academic achievement. Furthermore, Muis and Franco (2009) report that students' mastery goal orientation positively predicted adaptive learning strategies, such as rehearsal, elaboration, critical thinking, and metacognitive self-regulation. Additionally, Schweder et al. (2019) found a positive association between mastery goal orientation and memorization. Mastery goal orientation can therefore be considered a crucial motivational belief that should be fostered and maintained throughout the school years.

However, mastery goal orientation is context-dependent and varies according to the perceived learning environment (Lüftenegger et al., 2014). Various findings show that mastery goal orientation decreases over the course of compulsory schooling. For example, Lazarides and Raufelder (2017) found a decline in German students' mastery goal orientation between grades 8 and 9. Scherrer et al. (2020) also showed a decrease in German students' mastery goal orientation between grades 5 and 7 as well as between grades 5 and 8. Similar observations have been made in other countries, such as Switzerland (Neuenschwander, 2017a), Israel (Vedder-Weiss & Fortus, 2011), Canada (Duchesne et al., 2013) and the USA (Anderman & Anderman, 1999). Based on these findings, the first research hypothesis of the present study is as follows:

H1a: Mastery goal orientation significantly decreases during the transition from primary school to lower secondary school.

Decline of Person-Environment Fit During Compulsory School

Stage-environment fit theory (Eccles et al., 1993) suggests that the decline in motivational beliefs, such as mastery goal orientation, is accompanied by a simultaneous decline in person-environment fit. Person-environment fit refers to an ideal match between individual characteristics and the learning environment. Three characteristics are central in this regard: abilities, needs, and interests (S. D. Brown & Lent, 2005; Etzel & Nagy, 2016). Especially in occupational settings, person-environment fit is often cited as a determinant for employees' work satisfaction and motivational beliefs (Kristof-Brown et al., 2005; Rauvola et al., 2020). In school contexts, the concept has been less extensively researched, though some studies found correlations between students' person-environment fit and their motivation at school (Neuenschwander et al., 2024; Zimmer-Gembeck et al., 2006).

According to Kristof-Brown et al. (2005), person-environment fit can be assessed in three different ways: objectively (by a neutral comparison of the learning environment with the individual's characteristics), subjectively (by asking the individual about their characteristics and the aspects of the learning environment), or in terms of perceived person-environment fit (by asking the individual how well they perceive the learning environment to fit their abilities, needs, and interests). Perceived person-environment fit seems to be especially crucial in explaining motivational beliefs: Nägele et al. (2017) found that while adolescents' perceived person-environment fit significantly predicted their satisfaction in upper secondary school, objective indicators of their interests and the contents of their education did so to a lesser extent. In the present study, perceived person-environment fit will be in the focus.

Eccles et al. (1993) emphasize the relevance of perceived person-environment fit at school: transition to lower secondary school is accompanied by changes that worsen students' perceived person-environment fit (e.g., less close relationships

with teachers, higher pressure to perform, less autonomy due to stricter subject separation). This decline in person-environment fit is assumed to accompany a concurrent decline in motivational beliefs, such as mastery goal orientation: students perceive the learning environment as less matching to their abilities, needs, and interests and are therefore less focused on school content. There are not many studies that empirically tested the decline of person-environment fit during compulsory school and its potential connection to motivational beliefs, but the few that exist confirm these assumptions. For example, Neuenschwander (2017a) found that both, mastery goal orientation and perceived fit, were significantly lower for students who transitioned to lower secondary school than for their peers who at the same age were still in primary school.

According to these theoretical assumptions and empirical findings, it can be expected that there is a correlation between the development of person-environment fit and the development of mastery goal orientation. However, this correlation has not been empirically tested so far. The present study aims to contribute to filling this research gap, hence the following hypotheses are tested:

H1b: Students' perceived person-environment fit significantly decreases during the transition from primary school to lower secondary school.

H1c: The decline in mastery goal orientation significantly correlates with the decline in perceived person-environment fit.

Classroom Community as a Preventive Factor

The decline in both mastery goal orientation and person-environment fit during transition to lower secondary school raises the question about potential counteractive measures. Numerous sources mention the importance of relatedness for developing adaptive motivational beliefs (e.g., Eccles & Roeser, 2011; Goodenow, 1993; Neuenschwander et al., 2024; Ryan, 1995; Zimmer-Gembeck et al., 2006). Relatedness is defined as a feeling of connectedness with other individuals in the same environment and can also be described as a feeling of belonging (Osterman, 2000). The sense of relatedness and being supported in a particular context (such as the classroom) enhances motivation and engagement (Goodenow, 1993). This is also postulated by self-determination theory, which names relatedness as one of the psychological needs closely related to students' motivational development at school (along with autonomy and competence; Connell & Wellborn, 1991; Ryan, 1995). Empirical studies confirm the positive influence of a satisfied need for relatedness and belonging on students' motivational beliefs, both in primary (e.g., Furrer & Skinner, 2003; Sancho & Cline, 2012) and secondary school (e.g., Mikami et al., 2017; Raufelder et al., 2016).

Teachers should therefore strive to create a classroom climate in which students perceive a strong sense of community (Edwards et al., 2011; Greenwood & Kelly, 2019). Community refers to a feeling "of belonging or personal relatedness [and a] shared and emotional sense of connection" (Osterman, 2000, p. 324). In classes with a strong sense of community, students matter to and help each other (Rovai & Lucking, 2003; Summers & Svinicki, 2007). This makes perceived classroom community an important aspect of a positive classroom climate, in which the need for relatedness is satisfied (Wang & Degol, 2016). Being in a group where there is a culture of support and assistance promotes students' sense of belonging, which is beneficial for their motivational beliefs (Eccles & Roeser, 2011; Wang et al., 2020).

Empirical research has shown that students' motivational beliefs are closely related to perceived classroom community (Ciani et al., 2010; Edwards et al., 2011). More specifically, positive effects of perceived classroom community on students' mastery goal orientation were found in several studies (Anderman & Anderman, 1999; Summers & Svinicki, 2007; Wolgast & Schneider-Keller, 2023).

Studies on the connection between classroom community and person-environment fit are scarce but several sources stress that a classroom climate containing a strong sense of community is an important determinant of students' perceived person-environment fit (Alley, 2019; Scherrer et al., 2020). Classrooms with a strong sense of community provide opportunities for students to develop positive relationships, which ensures a better match between school and their needs (Alley, 2019). There is, however, a lack of empirical findings on actual correlations between perceived person-environment fit and classroom community. This is because person-environment fit is rarely assessed as a construct and rather serves as a theoretical explanation in most studies. The few empirical studies that do exist, report positive effects of classroom community or related constructs on students' perceived person-environment fit. Zimmer-Gembeck et al. (2006), for example, found that positive peer relationships in the classroom benefited students' perceived fit at school.

Further, Eccles and Roeser (2011) highlight the importance of a positive peer climate among students for the further development of their educational attainment. Studies found that students' perceived classroom support had a sustained positive effect on motivational beliefs during later school years (Lazarides & Raufelder, 2017). It is therefore assumed that classroom community not only enhances current mastery goal orientation and person-environment fit, but also leads to a less severe decline in both constructs (Eccles & Roeser, 2011; Wang et al., 2020). Thus, the following hypothesizes are tested in the present study:

H2a: Perceived classroom community in primary school negatively predicts the decline in mastery goal orientation during the transition from primary school to lower secondary school.

H2b: Perceived classroom community in primary school negatively predicts the decline in perceived person-environment fit during the transition from primary school to lower secondary school.

Methodology

Sample and Data Collection

To test the hypotheses, data from the Swiss research project WiSel ("Wirkungen der Selektion"; "Effects of Tracking") was used. WiSel is a longitudinal study, in which students from four Swiss cantons were asked to complete questionnaires at different points during their school career, starting in 5th grade.

In the present study, data from Waves 1 (2012; t_1), 2 (2013; t_2) and 3 (2014; t_3) were used. At these time points, the students were in 5th (t_1), 6th (t_2), and 7th (t_3) grade, respectively. Transition from primary to lower secondary school occurred at different times in Switzerland, depending on the canton. Only students who attended school in cantons where transition occurred at the same time (between t_2 and t_3) were selected for the analysis. These cantons were Bern and Lucerne. All students who reported going to school in one of these two cantons in the t_1 survey ended up in the sample (N = 909; Bern = 48.5%, Lucerne = 51.5%; female = 48.8%, male = 51.2%; M_{Age} t_1 = 10.7, SD = 0.61).

The survey was conducted in class during regular school hours by project staff trained for this purpose and lasted 90 minutes, including instruction of the students. Teachers were present and supported the project staff in case of possible disciplinary problems or comprehension questions. This procedure was the same at all three measurement points.

We compared missing response patterns by conducting a MANOVA in SPSS 28 for all t_1 items between students who participated at all three measurement points (44%), students who participated at t_1 and t_2 (42.3%) and students who only participated at t_1 (13.7%). The analysis produced no significant results (F[24, 1250] = 1.043; p = .408), meaning that no response biases occurred.

Instruments

To assess students' mastery goal orientation, three items from Midgley et al. (2000) were used at all three measurement points (e.g., "One of my goals in class is to learn as much as I can") on a 6-point Likert scale ranging from 1 (*not true at all*) to 6 (*totally true*). The items were translated into German. Since the scale consisted of only three items, the minimum requirement for the value of Cronbach's α was set at .5, which indicates moderate reliability for shorter scales (Hinton et al., 2004). While the reliability was in the satisfactory range at all three measurement points, Cronbach's α was at the lower end at t_3 (t_1: α = .62; t_2: α = .62; t_3: α = .55). However, since other sources that used the same three-item-scale also confirmed values between α = .68 and α = .81 (Lazarides et al., 2018; Ruzek & Schenke, 2019), we assume the scale to be reliable.

Person-environment fit was assessed with five items by Neuenschwander and Frank (2009) at all three measurement points. The items refer to different aspects of perceived person-environment fit: fit to one's abilities (e.g., "I can use my strengths in class"), fit to one's emotional needs (e.g., "I feel comfortable in class") and fit to one's interests (e.g., "I get interesting tasks in class"). Participants responded on a 6-point Likert scale ranging from 1 (*not true at all*) to 6 (*totally true*). At all three measurement points, reliability was in the satisfactory range (t_1: α = .80; t_2: α = .78; t_3: α = .80).

Four items were used to assess classroom community at t_1 (e.g., "If someone needs help, the others will be happy to help them") on a 6-point Likert scale ranging from 1 (*not true at all*) to 6 (*totally true*). The items were modified from the Linzer Fragebogen zum Schul- und Klassenklima (LFSK, Linz Questionnaire on School and Class Climate; Eder, 1998 and showed satisfactory reliability (α = .65).

Analyzing of Data

The hypotheses were tested using latent growth curve modelling (LGCM) in a structural equation modeling (SEM) framework (Bollen & Curran, 2006; Christ & Schlüter, 2012). In LGCM, a single growth curve is estimated for each individual across all measurement times. The latent intercept factor shows the initial level of a person in a characteristic, while the latent slope factor models the change in the characteristic over time. A positive slope means an increase in the characteristic, a negative slope means a decrease. A mean intercept and a mean slope for the examined sample are then conducted (Christ & Schlüter, 2012). This method makes it possible to analyze changes in an individual's characteristics over several measurement points. The repeated measurement is viewed as a process and not merely as a status at two different measurement times, which provides a richer understanding of dynamic change (Willett & Sayer, 1994).

We conducted a bivariate LGCM for mastery goal orientation and person-environment fit over the three measurement points in Mplus 8.6. Classroom community at t_1 was included into the model with assumed effects on the intercepts and slopes of both longitudinally assessed variables. Comparative Fit Index (CFI), Root Mean Square Error of Estimation (RMSEA), Standardized Root Mean Square Residuals (SRMR) and χ^2/df ratio served as indicator for the model fit. We aimed for a CFI value above .90, RMSEA and SRMR values below .08 and a χ^2/df ratio below 5.0 (Byrne, 2001; Kline, 2005;

Schermelleh-Engel et al., 2003). To account for the multilevel structure of the data (individuals are nested within classes), the TYPE = COMPLEX command in MPlus was used for the analyzes.

Before calculating the LGCM, an MCAR test (Missing Completely at Random; Little, 1988) was performed in SPSS 28 for all included items. The MCAR did not provide significant results, which means that all missing values were completely at random. Since the necessary requirements were met, missing values were processed using maximum likelihood estimation (Boomsma, 2000). We also conducted scatterplots of the residuals and conducted White tests in SPSS 28 to test for homoscedasticity for all three measurement points. The results did not show any derivations from a normal distribution of residuals. Durbin-Watson statistics, also calculated in SPSS 28, were all in the range between 1.9 and 2.1, indicating no autocorrelation (Gujarati, 2003). The measurements therefore meet the requirements for using LGCM (Curran et al., 2010).

For transparency reasons, the 10% level of significance is indicated in the tables and figures, though only results at the 5% level and below will be interpreted.

Results

Measurement Invariance

The LGCM was tested for measurement invariance between the different measurement points by following a step-up approach (T. A. Brown, 2006). First, a base model with freely estimated factor loadings for both constructs (person-environment fit and mastery goal orientation) was conducted. Correlations between the two latent constructs were included. The model fit the data well ($\chi^2[213] = 416.22$; $p < .001$; CFI = .95; RMSEA = .03; SRMR = .04). To test for metric invariance, a restricted model was then tested, in which the factor loadings for mastery goal orientation and person-environment fit were assumed to be equal at all three measurement points. This model also fit the data well ($\chi^2[225] = 422.45$; $p < .001$; CFI = .95; RMSEA = .03; SRMR = .05). The restricted model and the freely estimated model were then compared using a χ^2-difference test (Christ & Schlüter, 2012). Since they did not differ significantly ($\Delta\chi^2 = 8.80$; $df = 12$; $p = .72$), metric invariance can be assumed.

In a next step, further restrictions were added to test for scalar invariance and a model with equal intercepts over time was conducted. The model fit was again satisfactory ($\chi^2[236] = 454.69$; $p < .001$; CFI = .94; RMSEA = .03; SRMR = .05). However, the model differed significantly from the model with freely estimated intercepts ($\Delta\chi^2 = 34.29$; $df = 11$; $p < .001$). In this case, it is generally advised to successively remove the restrictions and test for partial scalar invariance (T. A. Brown, 2006; Byrne et al., 1989; Christ & Schlüter, 2012). Restrictions for three items for person-environment fit and two items for mastery goal orientation had to be removed. This procedure resulted in a model with satisfactory fit ($\chi^2[233] = 437.48$; $p < .001$; CFI = .95; RMSEA = .03; SRMR = .05) that did not differ significantly from the previous one ($\Delta\chi^2 = 15.05$; $df = 8$; $p = .06$). Partial scalar invariance can therefore be assumed and the preconditions for LGCM are fulfilled.

Descriptive Statistics and Bivariate Correlations

The means, standard deviations and Pearson's correlation coefficients among the latent variables are depicted in Table 1.

Table 1. Means, Standard Deviations and Correlations Among Latent Variables.

	N	***M***	***SD***	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1 Classroom community t_1	780	4.47	0.82	1.0						
2 Person-environment fit t_1	814	4.81	0.70	.45	1.0					
3 Person-environment fit t_2	738	4.75	0.66	.29	.51	1.0				
4 Person-environment fit t_3	404	4.63	0.69	.23	.38	.48	1.0			
5 Mastery goal orientation t_1	816	5.16	0.65	.27	.54	.34	.32	1.0		
6 Mastery goal orientation t_2	735	5.09	0.64	.20	.37	.54	.33	.48	1.0	
7 Mastery goal orientation t_3	404	4.95	0.66	.17	.24	.31	.47	.39	.48	1.0

Note: All correlations are significant with $p \leq .001$.

Decline in Mastery Goal Orientation and Perceived Person-Environment Fit

Based on the described base model, a LGCM was conducted, in which random slopes and intercepts were estimated. In addition, classroom community was assumed as a predictor for both the slopes and the intercepts of mastery goal orientation and perceived person-environment fit. This final model's fit was satisfactory ($\chi^2[331] = 641.622$; $p < .001$; CFI = .93; RMSEA = .03; SRMR = .05). The unstandardized as well as the standardized means and variances for the intercepts and the slopes of both perceived person-environment fit and mastery goal orientation are depicted in Table 2. A graphic depicting the development of the means of both constructs can be seen in Figure 1. The full model is shown in Figure 2. All reported *p*-values, except bivariate correlations, are one-tailed.

Table 2. Means and Variances in the Latent Growth Curve Model.

	Perceived P-E-F				**Mastery Goal Orientation**			
	$M_{Int.}$	$V_{Int.}$	$M_{Slo.}$	$V_{Slo.}$	$M_{Int.}$	$V_{Int.}$	$M_{Slo.}$	$V_{Slo.}$
Unstandardized	4.61***	0.11***	-0.07***	0.03*	4.93***	0.21***	-0.08***	0.05†
Standardized	9.68***	0.48***	-0.39***	0.72***	9.12***	0.73***	-0.36**	0.91***

Note: †$p \leq .10$; *$p \leq .05$; **$p \leq .01$; ***$p \leq .001$; $M_{Int.}$= Mean Intercept; $V_{Int.}$ = Variance Intercept; $M_{Slo.}$ = Mean Slope; $V_{Slo.}$ = Variance Slope

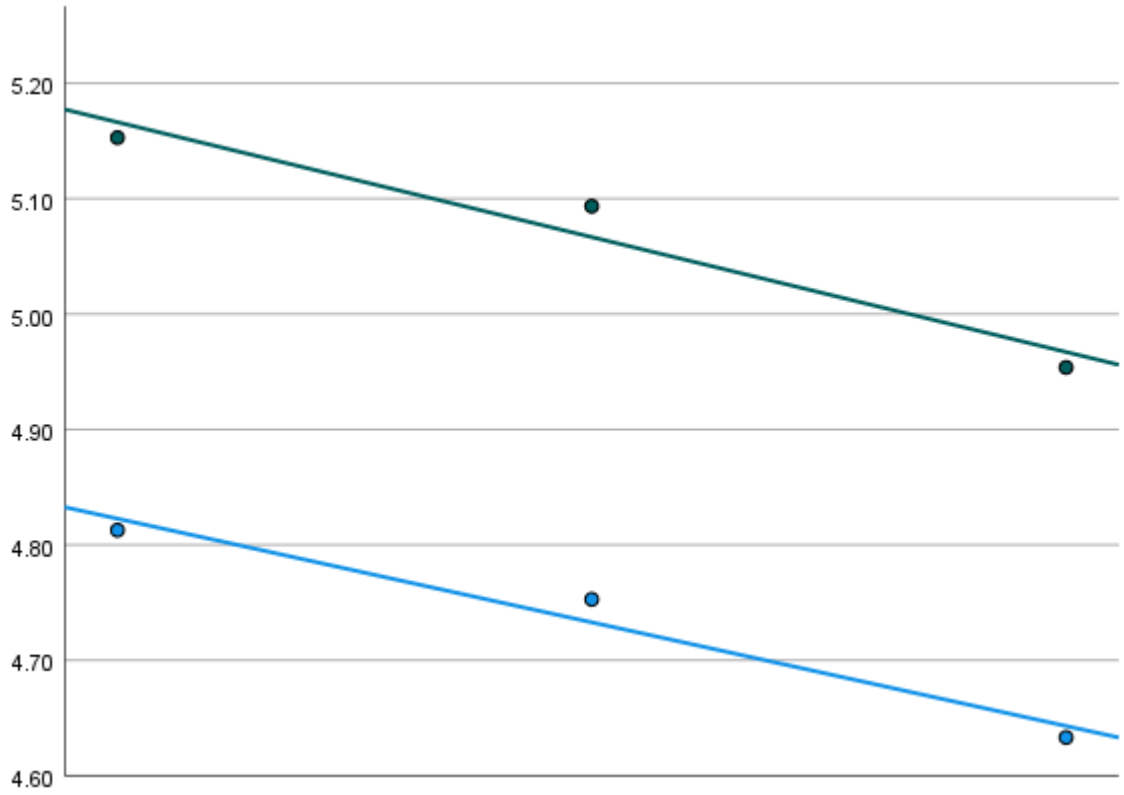

Figure 1. Decline of Perceived Person-Environment Fit and Mastery Goal Orientation

Note: Upper line: Mastery Goal Orientation; Lower line: Perceived Person-Environment fit

The negative linear slopes of both perceived person-environment fit (unstandardized: $M_{Slo.}$ = -0.07, $p < .001$; standardized: $M_{Slo.}$ = -0.39, $p < .001$) and mastery goal orientation ($M_{Slo.}$ = -0.08, $p < .001$; $M_{Slo.}$ = -0.36, $p < .001$) show a significant decline over the course of three years. Hypotheses H1a and H1b can therefore be accepted. However, the two slopes only correlate at the 10% significance level ($\varphi = .52$, $p = .06$), so H1c is rejected.

Further results show that the intercepts of both constructs correlate as well ($\varphi = .76$, $p < .001$). For mastery goal orientation, the intercept and the slope correlate negatively ($\varphi = -.46$, $p = .002$). This is not the case for person-environment fit ($\varphi = -.28$, $p = .13$).

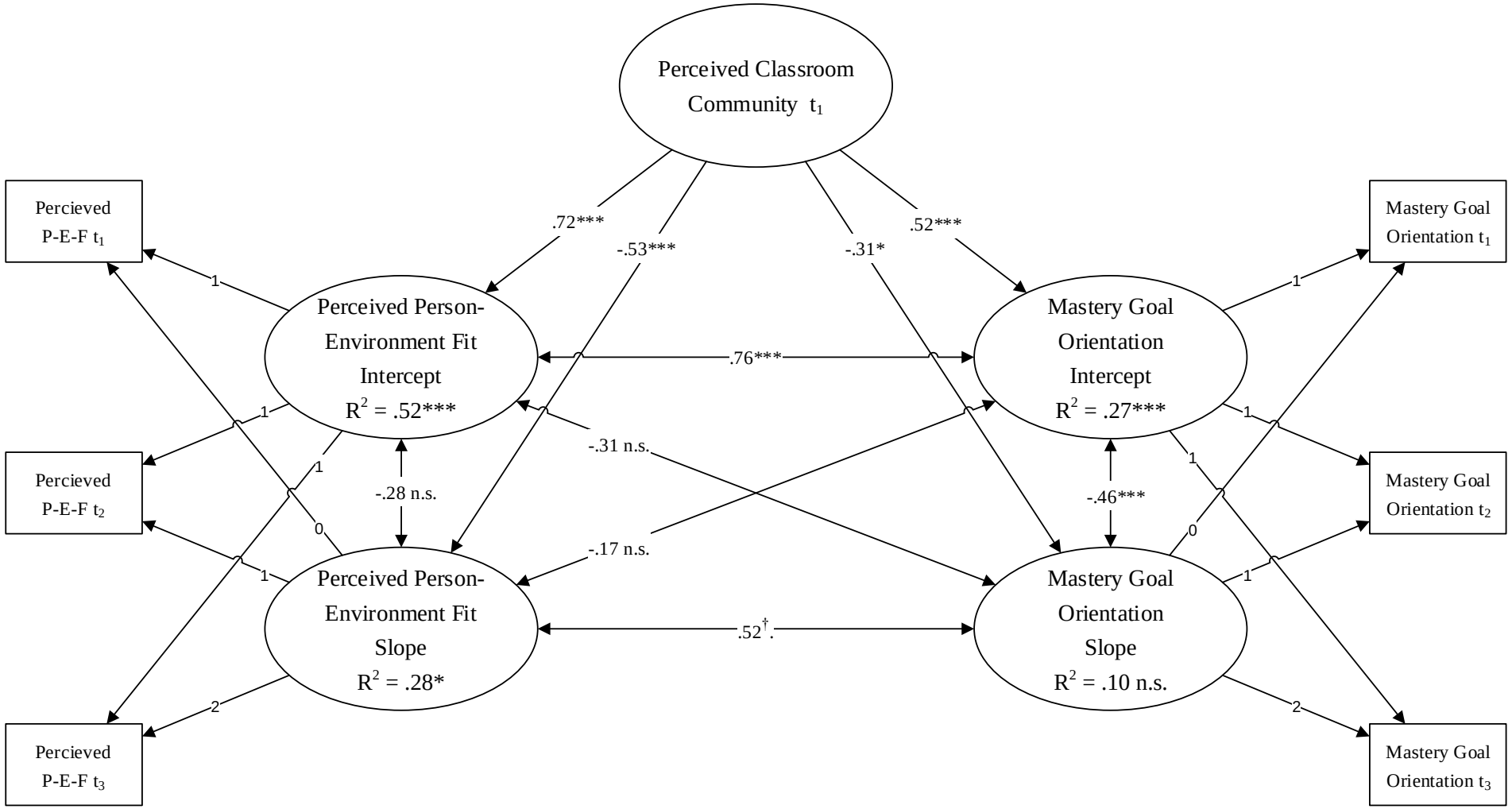

Figure 2. Latent Growth Curve Model

Note: †$p \leq .10$; *$p \leq .05$; **$p \leq .01$; ***$p \leq .00$

Effects of Classroom Community

Classroom community at t_1 shows a significant effect on the slope of perceived person-environment fit (β = -.53, p < .001) as well as on the slope of mastery goal orientation (β = -.31, p = .017). The negative effects on the negative slopes indicate that a stronger classroom community in primary school leads to a significantly lower decline in both constructs (H2a and H2b accepted). Furthermore, classroom community also shows a significant positive effect on the intercepts of both mastery goal orientation (β = .52, p < .001) and perceived person-environment fit (β = .72, p < .001).

Discussion

The aim of this paper was to examine whether the decline in students' mastery goal orientation and person-environment fit during the transition to lower secondary school are significantly correlated and whether a strong sense of classroom community in primary school has a beneficial effect on these two developments.

The significant decline in mastery goal orientation across the three measurement points confirms the assumption that motivational beliefs decrease during the transition to lower secondary school. This is in line with previous studies which also found that students' mastery goal orientation was higher in primary school than it was in secondary school (e.g., Lazarides & Raufelder, 2017; Neuenschwander, 2017a). The assumed significant decline in person-environment fit was also confirmed. This suggests, as proposed by Eccles et al. (1993), that school is gradually less accommodating to students' needs, abilities, and interests and that students therefore perceive the school environment as increasingly less fitting.

Based on stage-environment fit theory (Eccles et al., 1993), it was assumed that students with a larger decline in person-environment fit are the ones who also show a larger decline in mastery goal orientation. However, the relation between the slopes of mastery goal orientation and person-environment fit was not significant. This is a surprising result, since other studies found that person-environment fit is related to motivational beliefs (e.g., Neuenschwander et al., 2024; Zimmer-Gembeck et al., 2006) and a correlation between the two slopes would therefore have been expected. A reason might be that these previous studies compared means and not developments of the constructs. However, change in mastery goal orientation has been explained with change in person-environment fit in previous research (Becker et al. (2018) and the 5%-threshold was narrowly missed (p = .06). Further research in this area is necessary.

Classroom community at the first measurement points affects the slopes of both mastery goal orientation and person-environment fit. This indicates that classroom community in primary school can mitigate these declines. A classroom climate characterized by community satisfies students' need for belonging and relatedness, which creates a better match between their developmental needs and their learning environment (Alley, 2019) and has a favorable effect on their motivational beliefs (Ryan, 1995). This results in a less severe decline in both person-environment fit and mastery goal orientation. Classroom community therefore has a sustained effect on both these construct and can positively influence their development during transition to lower secondary school. Several other studies have identified positive effects of classroom community on mastery goal orientation (Anderman & Anderman, 1999; Summers & Svinicki, 2007; Wolgast & Schneider-Keller, 2023) and person-environment fit (Zimmer-Gembeck et al., 2006). Effects on other motivational variables have also been found, such as self-efficacy (McMahon et al., 2009) or academic effort (Lazarides & Raufelder, 2017). The present study extends these findings and shows that classroom community in primary school favors the further development of motivational beliefs. This is in line with previous research, which found positive effects of classroom community on students' academic development (e.g. Li & Stone, 2018).

Another result, consistent with the theoretical background and previous empirical research is the positive effect of classroom community on the intercepts of both mastery goal orientation and person-environment fit. Classroom community is therefore not only related to the further development of these two constructs, but also to their level at the first measurement point. This confirms the findings of previous studies (Edwards et al., 2011; Wolgast & Schneider-Keller, 2023; Zimmer-Gembeck et al., 2006). Furthermore, the intercept of mastery goal orientation negatively correlates with its slope. Thus, promoting mastery goal orientation in primary education may also be an approach to mitigate its decline. For person-environment fit, the correlation between intercept and slope was not significant. Thus, the school learning environment is generally perceived as less suitable during the transition to lower secondary school, regardless of how high person-environment fit is in primary school. In line with the assumptions of Eccles et al. (1993), this indicates that the decline in person-environment fit is not a phenomenon that only affects students with an initial negative attitude towards school, but rather a general problem.

Conclusion

Person-environment fit is often cited as a theoretical explanation for the decline of motivational beliefs in the educational context (Becker et al., 2018; Eccles et al., 1993). However, there are few studies that integrate person-environment fit as a construct in the analyses and empirically test the assumed effects. The present study used LGCM to analyze the trajectories of mastery goal orientation and person-environment fit during the transition from primary to secondary school. This offers a more nuanced picture of the development of students' school-relevant beliefs in this transition period.

Integrating perceived classroom community and its effect on the trajectories of mastery goal orientation and person-environment fit further demonstrates an empirically supported way to counteract a much-discussed problem in educational research (Alley, 2019; Eccles et al., 1993; Neuenschwander, 2017a). The sustainable effects of classroom community, that remain effective even after transition to lower secondary school, are promising. In educational research, classroom community has received less attention in recent years, due to low correlations with school achievement (Barksdale et al., 2021). The results of this study suggest that possible ways to create a positive classroom climate might need to be put more into focus again.

In summary, the present study supports the theoretical assumption that fostering a sense of belonging in the form of a strong perceived classroom community is a promising approach to prevent the decline of students' motivational beliefs as well as person-environment fit during compulsory schooling.

Recommendations

The present study allows several recommendations to educational practitioners, especially to teachers whose students are about to transition to lower secondary school. Ways to promote a strong classroom community include actively engaging students into classroom discussions (Lloyd et al., 2016) or providing cooperative learning settings (Sullivan & King, 1999). Promoting mastery goal orientation in primary school is another approach to create more favorable conditions for the transition to lower secondary school. A possibility to foster students' mastery goal orientation is the TARGET framework (Lüftenegger et al., 2014), which focuses on a specific classroom structure and provides six instructional dimensions (task, authority, recognition, grouping, evaluation, time). Furthermore, individual reference norms in grading have also been found to promote students' mastery goal orientation (Maehr & Zusho, 2011; Schöne et al., 2004).

Responsibility of peers can also be derived from the results. In the present study, perceived mutual support and a sense of belonging were defined as central components of classroom community (Osterman, 2000; Rovai & Lucking, 2003; Summers & Svinicki, 2007). This suggests that peers need to develop social skills to contribute to a supportive learning environment. Approaches to promote social-emotional learning emphasize the importance of recognizing other peoples' needs and emotions and acting accordingly, while also highlighting correlations with school adjustment (Domitrovich et al., 2017). Peers can thus be an important motivational source (Knickenberg et al., 2023), having a lasting effect into lower secondary school.

For those responsible for education policies in general, the problem of significantly decreasing person-environment fit after transition to lower secondary school still exists. Various studies have already pointed out this negative trend, in the USA (Anderman & Anderman, 1999) as well as in Germany (Lazarides & Raufelder, 2017; Scherrer et al., 2020) or Switzerland (Neuenschwander, 2017a). It can be assumed that this is a structural problem related to the design of lower secondary schools in these countries. The question therefore arises whether some key aspects of lower secondary school (e.g. the higher number of teachers per class) may need to be reconsidered, so the learning environment still accommodates to students' needs, abilities, and interests.

As for future research, the positive effects of classroom community on the development of school-relevant beliefs should also be analyzed for other motivational constructs. Lazarides and Raufelder (2017) already found positive effects on change in students' academic effort. Further studies could include variables such as academic interests or self-concepts, which also tend to decline during compulsory school (Potvin & Hasni, 2014; Weidinger et al., 2015).

Limitations

The present study focuses solely on student perceptions. Multilevel models would allow the inclusion of level 2 predictors, such as characteristics of teachers, which may also influence the development of students' school-relevant beliefs (Eccles & Wigfield, 2002). Further research could also include potential control variables, which may contribute to the development of mastery goal orientation and person-environment fit (e.g. socio-economic status; Becker et al., 2018; Miech et al., 2001).

Additionally, only mastery goal orientation was included. Since performance goal orientation as well as other motivational beliefs, are also linked to person-environment fit at school (Jederlund & von Rosen, 2022), these variables might also be included in further analyzes.

Lastly, it should be mentioned that the analyses of the present study refer exclusively to students between 5th and 7th grade and that the results may not necessarily be transferable to the development of mastery goal orientation and person-environment fit later in the educational process (e.g. during the transition to upper secondary school).

Ethics Statements

The study was conducted according to and in line with the guidelines of the research ethics board of the affiliated university. The guidelines require formal approval of proposed research if certain criteria (e.g., health studies) are fulfilled. The present study did not fulfill the criteria and thus did not require formal approval from the board. The parents

of the students were informed about the aim and the procedure of the study through the teachers. Only those students whose parents had explicitly and voluntarily agreed for their children to participate completed a questionnaire.

Authorship Contribution Statement

Ramseier: Conceptualization, design, analysis, writing. Neuenschwander: initializing the study, supervising data collection, editing/reviewing, final approval.

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