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Linking University Students' Willingness to Learn to Their Recollections of Motivation at Secondary School

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Abstract

This study investigated the role of recollected school-based motivation on university students' willingness to use new learning opportunities. Following Eccles' expectancy-value theory, willingness to learn was conceptualized as task value, which has been found to predict task choice in previous empirical studies. Based on three motivational theories, we suggest two broad motivational dimensions for an economic description of motivational orientations, *inward* and *outward*, that should differentially predict the formation of task value. German university students (N = 1580) were asked about their task value for receiving their instructions in English as a foreign language at university and, retrospectively, their motivation in English language class at secondary school. Principal components analysis and confirmatory factor analyses of motivational variables yielded a two-factor solution supporting the differentiation between inward and outward motivational orientation. Inward motivational orientation at school was positively linked to students' task value in adulthood, even if the individual's self-concept of ability was controlled. The effects of outward motivation were rather small and tended to be counterproductive. Our findings suggest a complex interplay between past and present motivation and self-concept of ability underlying one's willingness to learn and to participate in education.

Keywords: adult learning, higher education, adult education, motivation, task value

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Introduction

Lifelong learning and participation in education has been a central theme in educational policy and research for decades (Field, 2000; OECD, 2005). The concept of lifelong learning emphasizes the vertical integration of educational settings. Vertical integration emanates from people's continuous cognitive and non-cognitive development and, therefore, overrides the traditional separation between an educational life phase during childhood and adolescence and a non-educational phase during adulthood (Cropley, 1977). Consequently, learners develop their habits and motivation throughout their whole lives and across educational settings.

In fact, previous educational experience is an important factor for ongoing participation in education (Wigfield & Eccles, 2000). However, although longitudinal studies suggest an evolving development of both cognitive and non-cognitive characteristics across educational settings surprisingly few studies link different educational settings

beyond secondary school. For example, while many longitudinal studies track pupils' motivational development from grade 1 to grade 12 (cf. Wigfield & Eccles, 2002), transitions from secondary school to higher and further educational institutions are scarcely considered. Similarly, research on adults' participation in education typically neglects previous educational experience (apart from quantitative information such as years of schooling; cf. Courtney, 1992). Therefore, the present study seeks to contribute to closing this gap by investigating people's willingness to learn at adult age (i.e., at university) in consideration of their previous educational experience (Eccles, 1983; Wigfield & Eccles, 2000).

From a motivational perspective, one's willingness to learn and subsequent engagement in learning reflects educational task choice. Empirical research, mostly set in secondary school, shows that a person's subjective value of a task predicts task choice (e.g., Harackiewicz, Durik, Barron, Linnenbrink-Garcia, & Tauer, 2008). Thus, task value constitutes an important prerequisite for engagement in (new) learning activities. Its importance should increase with people's freedom of choice. That is, task value is supposed to be especially important for one's decisions to participate in (voluntary) education and learning activities (Knowles, Holton, & Swanson, 2005). Recently, Gorges and Kandler (2012) showed that adult students use (recollected) school-based learning motivation as a basis to assess task value with respect to a new but similar learning opportunity. Thus, in the same way as knowledge and skills acquired in school form the basis for further cognitive development and learning (Credé & Kuncel, 2008; Helmke & Weinert 1997), adult learners' willingness to learn appears to be rooted in school-based motivational experiences recollected in adulthood. Extending this line of research, we suggest that the quality of one's learning motivation at school (i.e., their recollected motivational orientations) differentially affects the formation of task value of new learning opportunities for the better or the worse. Assuming that recollections of motivational orientations influence people's perception and behavior (even if they are not accurate accounts of the past, see Pillemer, 2001) we use retrospective assessments of previous motivation.

Educational psychologists use many different theoretical concepts to investigate learning motivation (cf. Schunk, Pintrich, & Meece, 2008). As many researchers agree that there is a certain overlap of these concepts, we introduce an integrative model of higher-order motivational factors. We argue that differentiating two broad motivational orientations allows for an economic description of differences in secondary school students' motivation accounting for students' willingness to learn at adult age, that is, at university. We call these two types of motivational orientation *inward* and *outward*, respectively, because they describe whether people's engagement in learning focuses on themselves, or on contextual or social contingencies (e.g., a personal interest versus a reward).

The present study investigated the link between university students' retrospective assessment of their former motivational orientation (i.e., at secondary school) and their current valuing of an extracurricular learning task. As our study was conducted in Germany, we examined the link between university students' task value for English-delivered instructions (i.e., a task beyond regular academic challenges) and their learning motivation in the same domain while in secondary school (i.e., during classes in English as a foreign language). Our aims with this study were twofold. First, we tested the concept of inward and outward motivational orientation as parsimonious dimensions to capture three theoretical approaches to learning motivation. Second, we examined whether students' recollections of motivational orientations endorsed at secondary school have an effect on task value in the same domain in adulthood. We hypothesized that the quality of the recollected motivational orientations differentially affects task value. Moreover, since the belief in one's own abilities is also an important predictor of task engagement (i.e., the expectancy of success within expectancy-value theory; Marsh, Köller, Trautwein, Lüdtke, & Baumert,

2005; Marsh & Yeung, 1998; Wigfield & Eccles, 2000, 2002), we controlled for both current (at university) and retrospective (at secondary school) ability beliefs.

Perspectives on Learning Motivation

Literature Review — Various empirical studies in the framework of expectancy-value theory have shown that task value predicts task choice (e.g., Durik, Vida, & Eccles, 2006; Eccles, 2005; Harackiewicz et al., 2008; Meece, Wigfield, & Eccles, 1990). This finding makes task value especially relevant for research aiming at an explanation of people's voluntary engagement in learning and education after having completed secondary schooling (Battle & Wigfield, 2003; Eccles, 2005; Wigfield & Eccles, 2000, 2002). In line with Eccles and colleagues, who propose individual and environmental factors (Simpkins, Davis-Kean, & Eccles, 2006; Wigfield & Eccles, 1992, 2000), we assume that certain motivational characteristics developed in previous educational contexts facilitate the formation of task value for a new learning task. We focused on three prominent approaches of learning motivation: Achievement goals, self-determination theory, and personal interest (for a summary, see Schunk et al., 2008).

Achievement Goals — According to achievement goal theory (Ames, 1984; Dweck, 1986; Elliot & Murayama, 2008; Nicholls, 1984, 1990), students pursue superordinate goals while learning. These goals can be located on two dimensions: Mastery vs. performance on the one hand, and approach vs. avoidance on the other (Elliot & Church, 1997; Elliot & McGregor, 2001). Students who pursue mastery (-approach[i]) goals strive to develop their skills and competence using an individual frame of reference. Mastery goal oriented students perceive mistakes as an opportunity to learn and to improve their skills, so they are open to new tasks and more risk-taking (Anderman & Maehr, 1994; Maehr & Midgley, 1991). Accordingly, mastery goals have been found to be more adaptable for accepting new academic challenges (Duda & Nicholls, 1992; Dweck, 1999; Harackiewicz, Barron, Tauer, Carter, & Elliot, 2000).

In contrast, performance-approach oriented students strive to outperform others while performance-avoidance oriented students seek not to perform worse than others do and to hide their own deficits (Elliot, 1999; Elliot & McGregor, 2001). Performance-approach goals have been linked to higher achievement (Elliot & McGregor, 2001; Elliot & Murayama, 2008) while performance-avoidance goals have often been associated with negative learning aspects, e.g., fear of failure, test anxiety, and self-handicapping (Duda & Nicholls, 1992; Dweck, 1999; Midgley, Arunkumar, & Urdan, 1996; Schwinger & Stiensmeier-Pelster, 2010). Altogether, for people pursuing performance goals, a learning opportunity promises success only when they feel they can meet the demands and only when the task holds the possibility for praise, reward, favorable social comparison, or other external incentives. Having said this, performance goals should only promote the formation of task value for new learning opportunities when expectancy of success is high while mastery goals should generally promote task value.

Self-Determination Theory — Deci and Ryan (2002; Ryan & Deci, 2000) introduced a continuum from extrinsic to intrinsic motivation and a process of internalization, which infers a stepwise transition from externally to internally motivated activities. On the externally motivated side of the continuum is extrinsic motivation (by rewards and punishment). Identified motivation is the first stage of internal forms of motivation. The motivated person consciously values the activity as important. Identified motivation is not a result of the evaluation of an activity as being enjoyable but as being beneficial for the person. Internally motivated behavior feels self-determined without being intrinsically motivated; that is, this behavior is not an end in itself (Deci & Ryan, 2002). Through internalization, (academic) learning behavior, which is at first requested by parents and teachers and motivated by extrinsic structures and rewards, can develop into internal forms of learning behavior (Deci, Vallerand, Pelletier, & Ryan, 1991; Ryan &

Deci, 2000). Overall, previous identified motivation should support the formation of task value for new learning opportunities because learning itself has become a personally important activity.

Personal Interest — Individual or personal interest (Renninger, 2000; Renninger, Hidi, & Krapp, 1992; Krapp, 1999, 2000a) refers to the liking of and the willful engagement in activities related to a particular object. Interest gains importance with age and reflects at least parts of the perceived value of a learning opportunity (Hidi & Harackiewicz, 2000; Krapp, 2000b). Both teachers and students have often seen interest as the most important construct for (learning) motivation. A broad range of interests is one of the best prerequisites for successful and enjoyable learning, both in primary and secondary school and within higher and further education (Krapp, 2000a, 2000b). The quality of interest-based motivation largely corresponds to intrinsic motivation as outlined within self-determination theory (Krapp, 2005). Thus, interest-based motivation does not require external incentives or contingencies to stimulate behavior.

Underlying Dimensions of Motivational Constructs — To date, educational psychology research has investigated learning motivation from different theoretical perspectives (for a recent review, see Wigfield & Cambria, 2010). These singular approaches have some conceptual overlap. Integrative approaches to learning motivation have shown various forms of associations both within and between different conceptualizations of learning motivation (Hidi & Harackiewicz, 2000; Standage, Duda, & Ntoumanis, 2003; Wigfield & Cambria, 2010). In addition, empirical research has shown varying degrees of correlations and causal relationships between different constructs (Harackiewicz et al., 2008; Hulleman, Durik, Schweigert, & Harackiewicz, 2008). Based on these theoretical considerations and empirical findings we deem it reasonable to distinguish between learning motivation focused (1) on the learner and (2) on contextual and social contingencies of learning. That is, learning motivation may be about the self versus about the environment. More specifically, we argue that interest-based motivation, identified motivation, and mastery goal orientation share the focus on the individual learner (i.e., the individual's interests, values, development, and growth) in terms of an inward motivational orientation. Accordingly, performance goal orientation and extrinsic motivation share the focus on contextual (e.g., rewards) or social (e.g., being better compared to others) contingencies in terms of an outward motivational orientation. With an inward motivational orientation, the learning directly relates to the individual learner. In contrast, with an outward motivational orientation, learning is attributed to environmental aspects and social influences and refers either to contingencies of learning or to other people's reactions (e.g., positive evaluations or compliments).

Theoretically, inward motivational orientation is associated with beneficial effects and should be more adaptive in terms of ongoing participation in education. An inward motivational orientation reflects self-centeredness in a positive way: The person can establish the value of a learning opportunity independently (e.g., based on personal interests). Inwardly oriented learners are supposed to behave proactively when faced with learning opportunities. Even the learners' own abilities (i.e., their self-concept of ability for the learning content in question) are second rank because the desire to learn from the task has the highest priority.

In contrast, an outward motivational orientation directs the attention and the search for guidance and for reasons to engage in learning away from the individual: The person depends on external incentives (e.g., rewards, praise) to engage in learning. For outwardly oriented learners, task engagement is only a means to an end, which serves to express one's (superb) abilities (or to hide a lack of ability), and to gain approval and recognition by significant others. If a learning task is not well suited to reach these goals beyond pure task fulfillment (e.g., because the learner's self-concept of ability suggests that the learner may not be successful), learners with this type of learning

motivation would not engage in the task. Thus, this distinction is especially important for research on voluntary participation in, or abstinence from, extra-curricular tasks and continuing education (e.g., Courtney, 1992; Maehr, 1976).

Although our distinction may appear similar to intrinsic and extrinsic motivation, we would like to emphasize that our motivational orientations are theory-driven dimensions extending the intrinsic / extrinsic distinction by Deci and Ryan (2002). Hence, we call this distinction *inward* versus *outward* motivational orientation, respectively, not least to avoid further dilution of the motivational terms intrinsic and extrinsic (see, for example, Amabile, Hill, Hennessey, & Tighe, 1994, who refer to Deci and Ryan, 1985, without being consistent in using their terminology).

In contrast to previous higher-level ordering of motivational constructs which were based on adaptive vs. maladaptive outcomes (Martin, 2007), conceptual overlap based on statistical correlations (Marsh, Craven, Hinkley, & Debus, 2003), or item-based exploration of several motivational measures (Amabile et al., 1994), the motivational orientations presented here are rooted in characteristics of the underlying motivation theories. Thus, this classification extends the utility of such integration in that it not only facilitates communication and offers parsimony but also contributes to our understanding of conceptual similarities and differences of the three motivational theories included in this study. Furthermore, our model is based on established measurement instruments and is nested within a broader framework which outlines the role of recollected motivational orientations and self-concept of ability—a complementary factor influencing learning motivation (Wigfield & Eccles, 2000)—for the formation of task value.

The dimensions of inward and outward motivational orientation are compatible with a large body of literature from psychological approaches to learning motivation (cf., Heckhausen & Heckhausen, 2006; Schunk et al., 2008), and findings from qualitative and exploratory studies in adult education (cf., Courtney, 1992). We assume that motivational orientations establish in childhood and adolescence (cf. Wigfield & Eccles, 2002) and—according to our hypothesis—are still effective during the adult years via individual recollections of past learning motivation.

The Present Study — The present study investigated the hypothesized link between recollections of broad motivational orientations during secondary school and task value with respect to a voluntary task in adulthood. More specifically, we examined students' task value for a new learning opportunity at a German university, with the opportunity being to develop and improve their English (i.e., a foreign language) by receiving their instructions and studying in English (Jochems, 1991). This task includes working with English texts and discussing topics in English in seminars and workshops allowing students to add an international component to their regular course of study (Gorges, Kandler, & Bohner, 2012). At the same time, however, English-delivered instructions would increase the challenge of studying and could compromise students' chances for receiving high marks (Jochems, 1991). As the university did not offer regular study programs or courses with English-delivered instruction at the time, students were asked to assess the value of a hypothetical task.

We linked students' task value to recollections of their school-based motivational orientations within the same domain by measuring school-based motivation retrospectively with reference to the students' English as a foreign language classes at secondary school. We expected the six motivational concepts to be structured in terms of two factors, namely inward and outward motivational concepts (hypothesis 1). In addition, we expected recollections of inward motivational orientations endorsed at secondary school to be positively related to (hypothesis 2) and outward motivational orientation to be negatively related to the formation of task value (hypothesis 3) in the same domain at university.

Moreover, drawing on expectancy-value approaches to willingness to learn, expectancy of success is an important factor (Wigfield & Eccles, 2000). Expectancy of success is based on one's self-concept of ability, which has been found to reciprocally relate to task value (e.g., interest; Amabile et al., 1994). Thus, self-concept of ability may affect interrelations between different motivational concepts as well as people's willingness to learn. Therefore, we took self-concept of ability—referring to both past motivation at secondary school and current willingness to use a new learning opportunity—into account as covariate. Controlling for self-concept of ability should not change the direction of the hypothesized association (hypothesis 4). However, it could influence their strength.

Method

Participants and Procedure

Participants included students at a German university who took part in an online survey dealing with the introduction of English-delivered instruction in selected courses of the students' study program. Only participants who completed the whole questionnaire (N = 1580; 58 participants were excluded due to missing data) were included in the analysis. About 51.2% were females. Average age was M = 23.7 (SD = 3.6). Students were from eight different fields of study: economic science (16.5%), law (15.2%), technology (16.2%), psychology (8.9%), sports science (5.0%), physics (6.7%), mathematics (13.7%), and sociology (17.8%).

The survey took about 25 minutes to complete. Its first part focused on the participants' current situation within the university, including task value (*TV*) and current self-concept of ability (SC_{CURR}). Its second part referred to participants' school experience, including retrospective measures of extrinsic and identified motivation (*ExtMot* and *IdMot*), personal interest (*INT*), mastery goal orientation (*MGO*), performance-approach orientation (PGO_{AP}), performance-avoidance orientation (PGO_{AV}), and self-concept of ability (SC_{RETRO}).

We assessed students' task value (*TV*) with reference to a possible introduction of courses with English-delivered instruction in their respective field of study. Since the use of English instruction has not yet been established in Germany (only 1.5% of all bachelor degree programs in Germany include English instruction; DAAD, 2010), this learning opportunity is truly new and beyond regular academic challenges at university. Thus, it is comparable in these aspects to potential continuing education opportunities that learners may face after graduation. We controlled for self-concept of ability, both referring to English classes at school (SC_{RETRO}) and to receiving instructions and studying in English (SC_{CURR}).

Measures

Newly developed scales were used to measure *TV* and SC_{CURR} on a 6-point Likert-type scale (ratings between *strongly disagree* and *strongly agree*). Items to measure TV emphasized the benefits of English-delivered instruction and captured students' appraisal of English-delivered instruction as a new learning opportunity. Items from the SC_{CURR} scale assessed whether students feel confident to master particular classroom situations in English. Internal consistency was rather high due to the specific context in which *TV* and SC_{CURR} was measured (see Table 1). The mean differences between *TV* and SC_{CURR} indicate that students tend to be more willing than able.

Table 1

Sample Items, Internal Consistency, and Descriptive Statistics

Variables	Items	α	*M*	*SD*	Sample Item
TV	6	.88	4.32	1.34	I would appreciate more courses taught in English. Courses taught in English would increase the value of studying here.
SC_{CURR}	9	.94	3.68	1.30	My English language proficiency is good enough to keep up with a lecture. It is no problem for me to read and understand academic journal articles in English.
ExtMot	5	.77	1.83	.66	Why did you make an effort in English classes at school? …because I wanted my teacher to be pleased with me.
IdMot	3	.80	3.02	.79	Why did you make an effort in English classes at school? …because being good at English classes was important to me.
INT	6	.91	2.36	.87	English was one of my favorite subjects.
MGO	5	.70	2.47	.58	I felt really content in English classes when I came to understand something that was not clear to me before.
PGO_{AP}	4	.86	2.22	.87	I felt really content in English classes when I knew more than the others
PGO_{AV}	3	.83	2.12	.87	It was important to me not to make a fool of myself in front of my classmates
SC_{RETRO}	4	.94	2.73	.90	I was good at English.

Note. N = 1580; SC_{RETRO} = retrospective self-concept at school; SC_{CURR} = current self-concept at university; *INT* = interest; *IdMot* = identified motivation; *MGO* = mastery goal orientation; PGO_{AP} = performance approach goal orientation; PGO_{AV} = performance avoidance goal orientation; *ExtMot* = extrinsic motivation; *TV* = task value.

All retrospective measures were adapted from previous research (adapted to German by Wild & Remy, 2002) using a 4-point Likert-type scale (ratings between *strongly disagree* and *strongly agree*) and reformulated to focus specifically on English as foreign language as a school subject. Internal consistency was acceptable to good, ranging between α = .70 and α = .94 (see Table 1). SC_{RETRO} was measured based on Jopt (1978) and Wild and Remy (2002). *INT* was operationalized as personal interest eliciting intrinsically motivated behavior and was measured using items adapted from Wild and Remy (2002). Extrinsic motivation (*ExtMot*) and identified motivation (*IdMot*) were measured using an adaptation of Ryan & Connell (1989; see Wild & Remy, 2002, for German adaptation). Mean differences between *IdMot* and *ExtMot* indicate that students had more identified than extrinsic motivation.

Goal orientation was measured by adapting a German scale by Köller and Baumert (1998; based on Nicholls, Patashnick, & Nolen, 1985) and Wild & Remy (2002). PGO_{AP} was conceptualized normatively with an emphasis on social comparisons. *MGO* was conceptualized as the "striving toward development and growth of competence" (Grant & Dweck, 2003, p. 543), with an emphasis on an individual frame of reference. PGO_{AV} items emphasized students' fear of public failure in class. Mean levels indicate that students tend to show higher mastery than performance related goal orientations.

Analyses

We started data analysis with an inspection of the bivariate correlations of the theoretical concepts. Next, we ran an exploratory principal components analysis (PCA) of the six scales *INT*, *ExtMot*, *IdMot*, *MGO*, PGO_{AP}, and PGO_{AV}. This type of statistical analysis was used to find inherent structures or patterns in the data, expecting a two-higher-order factor structure reflecting inward and outward motivational orientation.

Based on the PCA solution, we included a correspondent confirmatory factor structure over the manifest scale scores as primary predictors of *TV* in a structural equation model. That is, we specified a latent structure model that includes the six motivational variables according to the results of the PCA. As the self-concept of ability might be responsible for the correlations among motivational variables and between motivations and *TV*, we additionally controlled all retrospective variables for SC_{RETRO} and *TV* for SC_{CURR} in the model. That is, we eliminated the influence of both current and retrospective self-concept. Thus, the resulting model contains a confirmatory factor analysis (inward and outward motivational orientation as latent factors, *INWARD* and *OUTWARD*) controlled for the effects of the self-concept (*SC*).

According to our hypothesis that *INWARD* and *OUTWARD* predict *TV*, the complete model also included a predicted variable (*TV*). The full structural equation model was fitted to the complete data via maximum likelihood using the statistical software package AMOS 17.0 (Arbuckle, 2009). The model fit was evaluated by the Root Mean Square Error of Approximation (RMSEA), the Standardized Root Mean Square Residual (SRMR), and the Comparative Fit Index (CFI). Values of RMSEA, SRMR < 0.05 and CFI > .95 indicate a good fit, and values of RMSEA, SRMR < .08 and CFI > .90 indicate at least an acceptable fit.

Results

Correlations and Principal Components Analysis

Correlations showed a clear pattern grouping the six theoretical concepts into the two hypothesized dimensions (see Table 2): Interest, identified motivation and mastery goal orientation (all *r*'s > .50) on the one hand and extrinsic motivation, performance-approach and performance-avoidance goals (all *r*'s > .42) on the other hand are strongly associated. In contrast, correlations between theoretical concepts deemed inward versus outward, respectively, are weaker (all *r*'s < .32) with the exception of mastery and performance-approach goals, which typically show a positive correlation in academic achievement contexts (e.g., Steinmayr & Spinath, 2009). Moreover, correlations confirmed the need to control for self-concept of ability, which showed significant correlations to task value and to all motivational variables. Thus, self-concept of ability may represent a confounding variable accounting for the correlations between motivational orientations and *TV*.

Table 2

Correlations

Variables	*TV*	SC_{CURR}	*ExtMot*	*IdMot*	*INT*	*MGO*	PGO_{AP}	PGO_{AV}
SC_{CURR}	.44**							
ExtMot	-.10**	.07**						
IdMot	.24**	.27**	.16**					
INT	.31**	.50**	.11**	.65**				
MGO	.24**	.25**	.24**	.54**	.50**			
PGO_{AP}	.09**	.14**	.42**	.29**	.32**	.42**		
PGO_{AV}	-.04	-.14**	.51**	.12**	.03	.19**	.43**	
SC_{RETRO}	.27**	.66**	.02	.45**	.70**	.34**	.28**	-.08**

Note. N = 1580; SC_{RETRO} = retrospective self-concept at school; SC_{CURR} = current self-concept at university; *INT* = interest; *IdMot* = identified motivation; *MGO* = mastery goal orientation; PGO_{AP} = performance approach goal orientation; PGO_{AV} = performance avoidance goal orientation; *ExtMot* = extrinsic motivation; *TV* = task value.

*p < .05. **p < .01.

PCA of the six retrospective motivation scales with oblique rotation suggested a two-factor solution (see Table 3 for factor loadings). Eigenvalues dropped off markedly after the two largest values 2.67 and 1.47. The two factors accounted for 69% of variance, and the factor correlation was $r = .25$. The factors could easily be interpreted as inward and outward motivational orientations, thereby supporting hypothesis 1. Results of factor analyses for men and women separately, as well as for subsamples of students from different fields of study, did not differ markedly supporting the validity of the two-factor solution across subgroups.[ii]

Table 3

Oblique Rotated Factor Loadings for the Six Scales of Motivation

	Motivation Factors	
Scale	**Inward**	**Outward**
INT	**.863**	.107
IdMot	**.862**	.179
MGO	**.784**	.354
PGO_{AP}	.472	**.717**
PGO_{AV}	.093	**.838**
ExtMot	.176	**.820**

Note. $N = 1580$; *INT* = interest; *IdMot* = identified motivation; *MGO* = mastery goal orientation; PGO_{AP} = performance approach goal orientation; PGO_{AV} = performance avoidance goal orientation; *ExtMot* = extrinsic motivation; factor loadings greater than .5 are shown in bold.

Structural Equation Analyses

The full model with path coefficients is presented in Figure 1 ($\chi^2(19) = 213.69$). Whereas the RMSEA = .08 represented a marginally adequate fit, the SRMR = .03 and CFI = .96 showed a good model fit. Controlling for the effects of the *SC*, the influences of the latent factors *INWARD* and *OUTWARD* on *TV* are significant (hypothesis 4). Moreover, the relationships showed a clear pattern. As predicted in hypotheses 2 and 3, *TV* was positively affected by *INWARD*, whereas the effect of *OUTWARD* on *TV* was negative.

Generally, the estimates of effects indicated that *INWARD* is more important with respect to *TV* than *OUTWARD*, even though the self-concept of ability was found to explain a substantial proportion of the link between *INWARD* and *TV*.[iii] Again, there were no marked differences between sexes and among students of different study contexts.

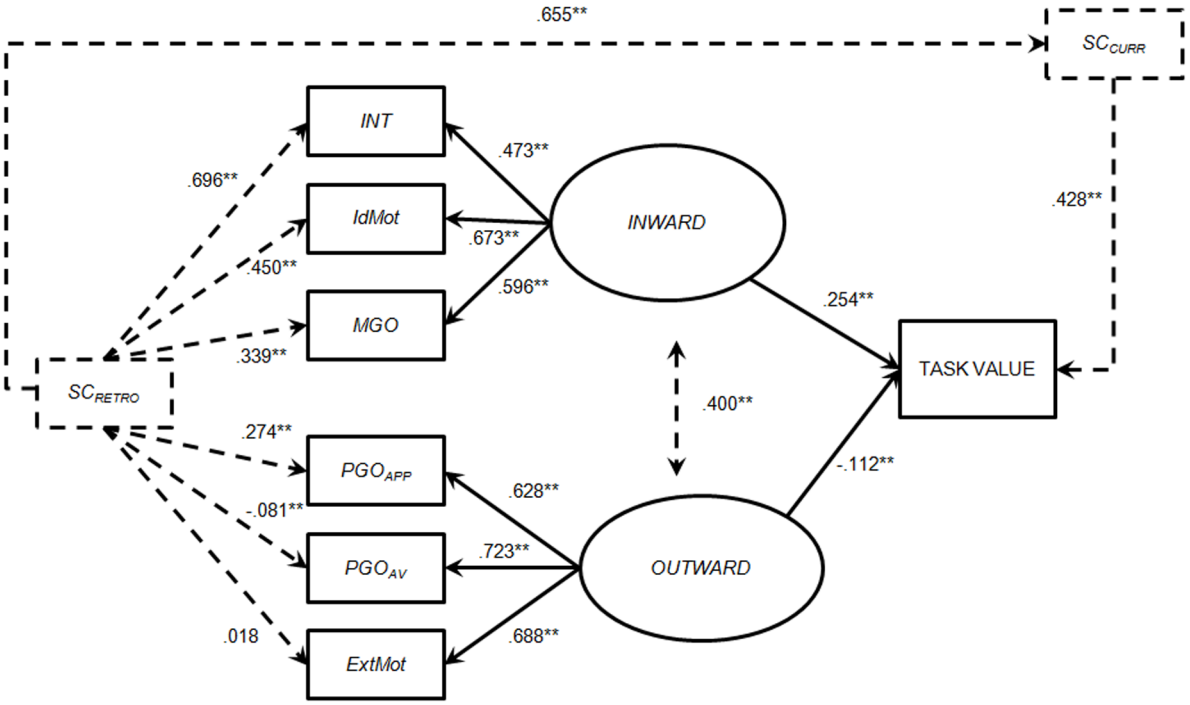

Figure 1. Inward and outward motivation factors as predictors of task value.

Note. SC_{RETRO} = retrospective self-concept at school; SC_{CURR} = current self-concept at university; *INT* = interest; *IdMot* = identified motivation; *MGO* = mastery goal orientation; PGO_{AP} = performance approach goal orientation; PGO_{AV} = performance avoidance goal orientation; *ExtMot* = extrinsic motivation; *OUTWARD* = outward motivational orientation; *INWARD* = inward motivational orientation; residuals not explained by the model are left out.

*$p < .05$. **$p < .01$.

Discussion

This study investigated the role of people's individual recollections of learning motivation at secondary school on their task value with respect to a new learning opportunity in the same domain using a university student sample. Moreover, different theoretical conceptions of learning motivation were supposed to be structured according to an inward-outward distinction. The effects of self-concept of ability, which is closely related to learning motivation, have been statistically controlled in the analyses. Results show that recollections of inwardly oriented forms of former learning motivation contribute positively to task value while recalled outward motivational orientation shows a negative relation.

Our results suggest that motivational orientations associated with secondary school—and probably actually experienced at that time—are important prerequisites for the formation of task value during adulthood. Task value, in turn, is an important factor for people's task choice, and should therefore be relevant as a predictor of their ongoing educational activities and lifelong learning. Thus, recollected motivational orientations may be used as a framework to evaluate people's learning motivation in order to predict and to promote their engagement in learning beyond the self-concept of ability. These findings are relevant especially for the field of higher and adult

education. Knowing what motivates people to learn is useful to facilitate learning in (adult) educational settings (Courtney, 1992; Knapper & Cropley, 2000) and prepare children and adolescents for ongoing participation in education.

The Concept of Inward and Outward Motivational Orientation

Inward motivational orientation means that the focus of task engagement is directly related to the learner (e.g., personal interest) while outward motivational orientation means that the focus of learning is on contextual or social contingencies of task engagement. Distinguishing inward and outward motivational orientation does not necessarily result in a new theory of motivation. Rather, it represents a simplified, but not exhaustive, dimensional structure of motivation integrating different theories of learning motivation together under the umbrella of parsimony. Thus, inward and outward motivational orientation may be useful terms to subsume more than just the motivational constructs included here when reference to that particular shared characteristic is important.

In our study, we included achievement goals, interest-based, identified, and extrinsic learning motivation as first order factors, and inward and outward motivational orientation as second-order factors. Achievement goals have been measured on a higher level of abstraction and their classification as inwardly vs. outwardly oriented is a little less clear compared to extrinsic, identified, and interest-based motivation. Moreover, as correlations show (see also Steinmayr & Spinath, 2009), many participants from our sample seemed to pursue both mastery and performance goals, which may lead to the crosswise contribution of achievement goals to both motivational orientations, accounting for the positive link between inward and outward orientations. This finding refers to the topics of multiple goals and individual motivational profiles (e.g., Pastor, Barron, Miller, & Davis, 2007). Future studies should take into account that students may be both inwardly and outwardly oriented simultaneously. Nonetheless, factor loadings indicated a classification of achievement goals according to our hypothesis.

Past and Present Factors of Task Value and Engagement in Learning

Consistent with our hypotheses and previous studies (Durik et al., 2006; Harackiewicz et al., 2008; Hulleman et al., 2008), we found that a person's task value is influenced by that person's recollections of former learning motivation. Another, and apparently, more important contributor to learning motivation is the learner's self-concept of ability (i.e., expectancy of success; Eccles & Wigfield, 1995), which is also closely associated to task value (Marsh & Craven, 2006; Steinmayr & Spinath, 2009). Since we controlled for self-concept of ability, we may say that the quality of recollected learning motivation reflected by people's motivational orientation shows its unique contribution to task value. Extending findings from Gorges and Kandler (2012), recollected learning motivation may affect the formation of task value positively or negatively depending on its quality. Our results support the assumption that learners high on recollected inward motivational orientation (beyond self-concept of ability) would use a new learning opportunity while recollected outward motivational orientation appears to be counterproductive, if at all relevant.

This is a significant finding for generating motivation in senior school students and in adult learners and important for the promotion of learning motivation in adults. In particular, while research on adult learning predominantly considers negative school experience as a factor for nonparticipation in adult and continuing education, the results presented here emphasize positive effects of previous educational experiences if adults remember inward motivational orientations. Thus, researchers should consider people's previous experiences as factors influencing engagement in learning for the better or the worse.

In addition, our results shed light on the part of the individual's background within the expectancy-value model (Wigfield & Eccles, 2000). Task value is based on prior experience, mostly within an educational or achievement context (Wigfield & Eccles, 1992, 2000, see Simpkins et al., 2006, for the role of out-of-school activities). Important factors that influence the formation of task value are hypothesized to be the learner's goals, task-specific self-concept, and interpretation of past events (e.g., attribution of success and failure). In turn, these are influenced by socialization, education, and upbringing. If we assume that recollected motivation may be an accurate account of the past (see Neisser & Libby, 2000, for a review of research on autobiographical memory), we may tentatively conclude that motivational orientations developed during school represent a specification of these antecedents of (at least) task value. However, while the chronological sequence of secondary school preceding higher education suggests that recollections of past motivation influence present motivation, we cannot rule out the possibility that people's evaluations of their previous educational experience changes over time and may be affected by people's current motivation.

Educational Implications

Our results are relevant for learners and educators from two perspectives. First, learners' motivation may be affected by their individual educational experience or behavior in the past which could promote or oppress motivation. Both the learners themselves and their instructors may benefit from an explicit consideration of recollected educational experience. For example, one's adoption of maladaptive performance-avoidance goals could be traced back to negative achievement-related experiences at school (Anderman, Austin, & Johnson, 2002), which, in turn, may be reframed by changing attributions (similar as, for example, in trauma therapy; van der Hart, Steele, Boon, & Brown, 1993).

Second, linking secondary school experience to adult students' participation in education puts new responsibilities on teachers. Instead of using marks and degrees to make students work harder and perform better, the quality of adolescents' educational experience could coin their long-term valuing of and participation in educational and learning activities. Having said this, more attention should be paid to inward motivational orientation, such as the promotion of mastery goals, and less weight should be placed on competition in educational settings. As PISA has shown, countries that introduce marks only later in pupil's educational careers actually outperform countries that emphasize performance in early school years (Ratzki, 2010) and have higher participation in continuing education rates (Schaeper, 2008).

Limitations and Outlook

Further research is needed to confirm the higher order factors of inward and outward motivational orientation, to include more theoretical approaches to learning motivation (e.g., self-efficacy and attribution style; Bandura, 1997), and to test the proposed associations with different outcome variables. Based on replications of our structural model, it may be beneficial to develop a direct measure for inward and outward motivational orientation, thus replacing the combination of scales used to measure several observed variables. This could broaden the empirical basis of the concept of motivational orientations and facilitate further research. Apart from the focus on the individual learner versus environmental contingencies, other underlying characteristics of learning motivation could be important to characterize theoretical overlap of motivational constructs. We would therefore encourage other researchers to analyze their data while keeping the idea of shared characteristics and options for integration in mind.

Some researchers argue that autobiographical memories are merely reconstructions of the past (Neisser & Libby, 2000). Therefore, retrospective assessments of learning motivation at school may be biased by later events and/or experiences (Ross, 1989). However, research on retrospective assessments of motivation based on self-report scales is scarce. In fact, we do not know much about its accuracy measured by what really happened in the past, or about the possible generalization of school experiences in terms of a broader evaluation of motivation. Thus, it remains unclear as to whether participants' assessment of their learning motivation refers to a particular episode or school year, or if it reflects a consolidation of their experience, in general, in terms of a general or domain-specific schema. In addition, in order to refine the effect of remembered motivation, more research is needed to gain insight into possible memory biases and factors that may affect people's recollections of their past learning motivation. Especially our tentative assumption that learning motivation at secondary school influences adults' willingness to learn calls for a longitudinal study. Our cross-sectional data offers a large sample size, but only correlational information about the links between past learning motivation and current task value. In addition, participants were university students who may already be more willing to learn than other groups of people. Ideally, further research on the interaction of motivation and experience will shed light onto their (causal) relationships, both short-term and in the long run and using different samples.

Finally, we agree with Wigfield and Cambria (2010) that it is important to increase research efforts that shed light on the interdependence of motivational variables and effects on achievement and other outcomes (e.g., educational task choice). Research integrating several motivational constructs is valuable because, in practice, the goal is to promote individual participation in education. We have to consider the relation and the interplay of motivational constructs within the individual learner to be able to support the individual's engagement in learning. For this, we need integrated approaches informing and directing our actions.

Notes

i) By definition, mastery-avoidance oriented students are supposed to "focus on not performing worse than before, not stagnating, or not losing their skills, abilities, or memory" (Elliot & McGregor, 2001, p. 502). However, up till now, the mastery-avoidance construct has received only limited empirical support (Moller & Elliot, 2006), so akin to recent achievement goal studies (e.g., Lau & Nie, 2008), we did not include mastery-avoidance goals in the present research.

ii) We also ran PCAs of all items from the six retrospective motivation scales with oblique rotation. Results suggested a six-factor solution. The factors represented the six scales, which measured the different motivational constructs, respectively.

iii) Without the self-concept of ability in the model (SC_{CURR} and SC_{RETRO}) the effect from *INWARD* on *TV* was .412, whereas the effect from OUTWARD on TV was -.186.

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