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Running head: PARENTAL INVOLVEMENT

**Parental Involvement and Student Achievement in two Language Domains: Indirect
Relations and Generalizability across Migration Status**

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Abstract

This study assesses students' reports of two facets of parental involvement (i.e., family activity and parents' subjective importance) in a sample of ninth-grade German secondary school students, related to German language (Sample 1: $N = 4476$) and English language (Sample 2: $N = 4440$). The aim was to test the direct and indirect relations between the two facets of parental involvement and student achievement and the generalizability of mean levels and patterns of relations across students' migration status. The results did not demonstrate any significant direct relations between both facets of parental involvement and student achievement. However, for both language domains, family activity was found to be indirectly related to student achievement with students' domain-specific academic self-concept serving as a mediator variable. The student sample was divided into four groups of students with different migration status (students and parents born in Germany; only one parent born in Germany; only the student born in Germany; student and parents born abroad). For both language domains, the pattern of relations between the two facets of parental involvement and student achievement was invariant across these groups of students. When considering mean level differences, the students reported similar levels of parents' subjective importance across all the four groups with respect to both German and English languages. Regarding family activity in the domain of German language, students whose parents had both been born abroad reported lower mean levels. Mean differences in the level of family activity in the domain of English language were found to be less clear-cut.

Keywords: parental involvement; achievement; self-concept; mediation; migration status; adolescence

Students' achievement has multiple determinants on the individual student level such as students' cognitive abilities (IQ; Frey & Detterman, 2004; Furnham & Monsen, 2009; Spinath, Spinath, & Plomin, 2008), motivation and emotion (Marsh & Craven, 2006; Pekrun, 2006), and learning behavior (e.g., self-regulation, Zimmerman, 2008). However, student achievement can also be influenced by students' social environment including experiences with peers, teachers, and parents (e.g., Wentzel, Russell, & Baker, 2016). Regarding parental influence, a line of research focuses on the construct of parental involvement which encompasses different practices and behaviors of parents, all aiming to contribute to, and support the educational achievements and progress of their children (see for example Jeynes, 2005; Reynolds, 1992). The present study adds to research on parental involvement by examining several outstanding research questions simultaneously. We target the question of an indirect relation between parental involvement and student achievement mediated through students' academic self-concept. Moreover, this study explores differences in the mean levels and in the relation between parental involvement and achievement across students with different migration status. To investigate these research questions, two facets of parental involvement (i.e., family activity and parents' subjective importance) are considered in two language domains (i.e., German and English), thus taking into account the multidimensionality and domain specificity of parental involvement.

1. Parental Involvement

1. The Multidimensional Nature of Parental Involvement

Parental involvement is consistently seen as a multidimensional construct comprising different forms of parents' practices and behaviors related to their children's learning (e.g., Castro et al., 2015; Fan, 2001; Fan & Chen, 2001; Hill & Tyson, 2009; Jeynes, 2005; Manz, Fantuzzo, & Power, 2004; Wilder, 2014). Although there are numerous different conceptualizations of facets of parental involvement, they seem to overlap. In fact, different

classifications all include parental socialization processes (e.g., parents' expectations, values, and aspirations) as well as parents' explicit or overt behavior at home and in school contexts.

Parental involvement has often been demonstrated to be positively related to student achievement (e.g., Fan, 2001; Hill & Tyson, 2009; Jeynes, 2005). In their meta-analysis, Fan and Chen (2001) demonstrated a mean correlation of $r = .25$ between various facets of parental involvement and student achievement across 25 studies. In their recent meta-analysis, Castro et al. (2015) revealed an average effect size of 0.124 for the relation between parental involvement and student achievement. However, the size of the relation seems to differ contingent upon the specific facet and manifestation of parental involvement considered. Among the five facets of parental involvement distinguished in their study, Fan and Chen (2001) reported the strongest achievement relation for parents' expectations and aspirations for their children's educational achievement, while supervision of children at home was found to display the weakest relations. Similarly, the largest effect size was found for parents' expectations in the meta-analysis by Castro et al. (2015) (see also Jeynes, 2005; Wilder, 2014).

Hence, it can be stated that different facets of parental involvement yield differential effects on students' achievement, the highest relations being found for those facets that address parental socialization processes, while parents' explicit behavior in the home context seems to have smaller effects (Fan & Chen, 2001; Castro et al., 2015; Jeynes, 2005; Trivette & Anderson, 1995; Wilder, 2014). Whenever studying the relation between parental involvement and achievement, it is thus advisable to take the multidimensional conceptualization of parental involvement into account and to consider various facets of parental involvement.

1.1 The Domain Specificity of Parental Involvement

Most of the studies examining the relation between parental involvement and student achievement have included measures of parental involvement that are unrelated to any

specific academic domain (e.g., Dearing, McCartney, Weiss, Kreider, & Simpkins, 2004; Desimone, 1999; Englund, Luckner, Whaley, & Egeland, 2004; Fan, 2001; Hill & Craft, 2003; Hill et al. 2004; Hong & Ho, 2005; Keith et al., 1998). However, it seems worthwhile to investigate domain-specific relations between facets of parental involvement and student achievement since domain-unspecific approaches might mask domain-specific idiosyncrasies. For instance, the same facet of parental involvement might positively affect student achievement in math but not in language domains whereas another facet of parental involvement might show a reverse pattern.

Among the few studies pursuing a domain-specific approach, some target the domain of math (Hong, Yoo, You, & Wu, 2010; Sheldon & Epstein, 2005). Regarding the verbal domain, the domain of reading has often been targeted (Sénéchal & Young, 2008). Fewer studies have considered the language domain in broader terms addressing students' overall language achievement including various language skills. Furthermore, the reported relations between parental involvement and achievement within the narrow domain of reading have been primarily demonstrated with preschool and elementary school students (e.g., Aram, & Levin, 2002; Dearing et al., 2004; Hargrave & Sénéchal, 2000; Sénéchal & LeFevre, 2002). In addition, so far, many of the studies on parental involvement in the domain of reading have only included behavioral manifestations of parental involvement such as reading books to children or practicing reading skills (Ehri et al., 2001; Jordan, Snow, & Porche, 2000; Sénéchal & Young, 2008). Hence, these studies do not consider socialization processes which, however, demonstrate substantial relations to achievement that have been found to be even higher than achievement relations of overt parental behavior and actions (Castro et al., 2015; Fan & Chen, 2001; Hill & Tyson, 2009; Hong et al., 2010; Wilder, 2014).

Against this background, the present study aims to examine the relation between family activity and parents' subjective importance on the one hand and student achievement on the other hand in the two language domains of German and English with secondary school

students in Germany. Family activity depicts a behavioral, directly observable facet of parental involvement which is manifest in shared activities of parents and children. Parents' subjective importance refers to the extent to which parents attribute high relevance to their children's learning and school accomplishments. Parents' subjective importance thus can be allocated to the category of parental socialization processes as a subcomponent of parental involvement. Therefore, the present study follows the multidimensional approach to parental involvement and includes one facet of overt parental behavior and one facet of parental socialization (i.e., one facet of the two broad categories of parental involvement, respectively), applying this approach to two language domains (German, English) when considering adolescent students.

2. Generalizability across Students' Migration Status

Another strand of research on parental involvement focuses on group differences which first can be tested regarding the mean levels of reported parental involvement. Secondly, group differences can be examined regarding the relation between parental involvement facets and student achievement since "one should not assume that the types of parental involvement that most affect academic outcomes are identical across racial, class, gender, and culture background" (Jeynes, 2010, p. 765). In the present study conducted with secondary school students in Germany, group differences are tested with respect to students' migration status. In analogy to recognized large-scale studies such as the Progress in International Reading Literacy Study (PIRLS) or the Programme for International Student Assessment (PISA), we distinguish four groups of students with different migration status. The first group consists of students without any migration status as both the students' parents and the students themselves had been born in Germany. The remaining three groups consist of students having a migration status. In the second group, students have one parent who was born abroad; the third group comprises students who were born in Germany, while both

parents were born elsewhere. The fourth group is defined by students who themselves as well as their parents were born abroad.

As can be assumed from this classification, the groups of students with different migration status might differ with regard to their parents' skills and experiences with the German language – the language of instruction in the German educational system. This might first affect the mean levels of parental involvement regarding German language. Students with one parent born in Germany (Group 2) might still report high levels of parental involvement since one parent might offer adequate levels of support. If both parents were born abroad (Groups 3 and 4), parents might lack skills and experience to adequately support their children's learning in German leading to lower levels of students' reported parental involvement. With respect to English language, it is important to note that English is a foreign language learned at school for nearly all students in Germany. Given that English is learned at school in many foreign countries, immigrant parents might have at least some prior knowledge and experiences with English which might enable them to provide some level of support to their children. Group mean level differences in parental involvement might thus be more pronounced with regard to German than to English.

Group mean level differences might also vary with the specific facet of parental involvement considered. Mean level differences between students of different migration status might be more pronounced when considering family activity whose realization depends on adequate skills and competences. On the other hand, regardless of migrant status, parents might similarly place a high value on their children's learning and achievement, which might lead to no or only low mean level differences in parents' subjective importance as a subfacet of parental involvement (Spera, 2005).

Beyond mean level differences, this study tests whether students with different migration status vary in their relations between achievement and the two facets of parental involvement examined. The strength of the relation between parental involvement and student

achievement might differ across students with different migration status due to different role understandings and student perceptions. In reaction to immigrant parents' lower levels of experiences and skills to adequately support their children, immigrant students might rely less on their parents' support and might their parents less responsible for their learning. This might lead to weaker relations between parental involvement and student achievement among immigrant students.

3. Indirect Relations between Parental Involvement and Achievement

Looking at the relations between student achievement and family activity as a facet of parental involvement targeting explicit and overt parental behavior, the underlying processes need to be investigated. To this aim, the present study investigates a potential indirect (i.e., mediated) relation between family activity and achievement. Family activity, i.e., actions and activities shared between children and parents related to the children's learning, might foster students' perceptions of competence (i.e., students' academic self-concept; Marsh & Craven, 2006). In other words, family activity might inspire students to experience skill enhancement, and thus gain a positive academic self-concept which in turn leads to increases in objective achievement.

Academic self-concept seems to be indeed a plausible mediator in the relation between parental involvement and student achievement. On the one hand, academic self-concept has been conceptualized as being influenced by individuals' experience with and within the environment (Shavelson, Hubner, & Stanton, 1976), including experiences with and feedback from parents. Accordingly, previous research documented that parents' perceptions of their children's abilities are linked to students' self-concepts (Dai, 2002; Frome & Eccles, 1998; Gniewosz, 2010; Tiedemann, 2000). Parental behavior might also impact on students' self-concept. For instance, an intervention approach targeting parents' involvement in students' school life and education was found to enhance students' academic self-concept (Fantuzzo, Davis, & Ginsburg, 1995).

On the other hand, students' academic self-concept has been consistently found to be positively related to student achievement (e.g., Marsh & Craven, 2006). The nature of self-concept–achievement relations has been demonstrated to be reciprocal since self-concept is a determinant and outcome of achievement. In addition, the self-concept–achievement relation is domain-specific in order that the highest relations are found when self-concept and achievement address the same content domains (Marsh & Craven, 2006; Möller, Pohlmann, Köller, & Marsh, 2009).

Hence, students' academic self-concept might serve as a reasonable mediator in the relation between parental involvement in terms of behavior and student achievement. Indeed, Grolnick and Slowiaczek (1994) found that the relations between mothers' and fathers' behavioral and intellectual/cognitive involvement on the one hand and students' school grades on the other hand were mediated through students' perceived academic competence. We therefore test whether the relation between family activity and student achievement might be mediated through students' academic self-concept in both the language domains of German and English.

4. The Inclusion of Further Covariates

Although this study focuses on students' migration status in examining the relation between parental involvement and student achievement, other background variables should also be included. This study considers students' gender, family's socioeconomic status (SES), and students' secondary school ability track as control variables, as these variables have been found to be substantially associated with both parental involvement and achievement.

Regarding gender and its association with parental involvement, girls were found to engage more frequently in school discussions with their parents than boys (Carter & Wojtkiewicz, 2000). Keith et al. (1998) demonstrated that parents hold higher aspirations and report more frequent school-related communication with their daughters than their sons. Gender has also been found to be related to verbal (i.e., German and English) achievement

with girls displaying higher levels (De Fraine, Van Damme, & Onghena, 2007; Skaalvik & Rankin, 1994; Van de gaer, Pustjens, Van Damme, & De Munter, 2008).

Parents with higher SES seem to be more involved in their children's education (Englund et al., 2004; Fan, 2001; Hill et al., 2004; Keith et al. 1998; Lee & Bowen, 2006; Kohl, Lengua, McMahon, & Conduct Problems Prevention Research Group, 2000; Manz et al., 2004). Students' achievement has also often been linked to SES with lower levels of achievement for students from lower SES families (Bradley & Corwyn, 2002; Sirin, 2005).

This study is based on a sample of ninth grade German students who are assigned to different ability tracks of secondary school. Students' attended ability track is also used as a covariate in the present study since students from the high-ability track have been found to demonstrate higher levels of achievement (Hanushek & Wößmann, 2006; Köller & Baumert, 2001). This is plausible since students are allocated to one ability track of secondary school [low-ability track (Hauptschule), intermediate track (Realschule), or high-ability track (Gymnasium)] mainly based upon students' achievement in the fourth grade of elementary school. The different ability tracks are associated with differential career opportunities: Graduation from the low-ability track permits students to apply for an apprenticeship, graduation from the intermediate track qualifies for vocational training, while the high-ability track prepares students for university. In contrast to clear expectations based on previous findings with respect to achievement differences between students of different ability tracks (with higher achievement levels of students attending the high-ability track), so far there is no evidence whether students attending different ability tracks differ in their reported levels of parental involvement.

5. The Present Study

The present study adds to research examining the relation between parental involvement and student achievement (Fan, 2001; Fan & Chen, 2001; Hill & Tyson, 2009; Jeynes, 2005; Wilder, 2014). It complies with the commonly accepted conceptualization of

parental involvement as a multidimensional construct as it integrates parents' subjective importance of language competence and family activity as two facets of parental involvement. The present study extends previous research by examining whether students with different migration status differ in their reported mean levels of parental involvement and in the relations between parental involvement and achievement. Moreover, for family activity, we test a mediation model according to which family activity (i.e., shared learning activities between children and parents) increases students' domain-specific academic self-concept, which in turn facilitates students' achievement. These research questions were tested by pursuing a domain-specific approach investigating the language domains of German and English separately. All relations were estimated when controlling for students' gender, SES, and ability track of secondary school.

6. Method

6.1 Sample

The data analyzed in the present study originates from a larger project conducted in Germany (Beck & Klieme, 2007; DESI-Konsortium, 2008). The project took place in the 2003/2004 school year. Its main purpose was to examine the development of student achievement in the instructional language of German and in the first foreign language of English across one school year when students attend grade level 9. In addition, data on context factors of teaching and learning were collected in order to disclose facilitating and debilitating context factors on students' language learning and achievement. To this end, achievement tests in German and English languages as well as questionnaires for students, school principals, teachers and parents were administered at the beginning (autumn) and end (spring) of the school year. In addition, English language lessons were videotaped to analyze teacher classroom instruction (Göbel & Helmke, 2010). To allow for a representative sample, participants were selected based on a stratified sampling design (Beck, Bundt, & Gomolka, 2008).

The present study only relies on the second measurement point of the complete study. The sample was randomly divided into one sample completing the measures for German (Sample 1: $N = 4476$; $N = 2073$ boys and $N = 2403$ girls) and one sample completing the measures for English (Sample 2: $N = 4440$; $N = 2091$ boys and $N = 2349$ girls). The majority (96.2%) of the students had selected English as their first foreign language, beginning in grade 5 so that the students had already been learning English for four years when the present study was conducted (Beck et al., 2008).

6.2 Instruments and Procedure

6.2.1 Parental involvement. Two facets of parental involvement were measured: parents' subjective language importance and family activity. To assess parents' subjective importance, the students were asked to rate the importance their parents attribute to German (Sample 1; $\alpha = .849$), or English (Sample 2; $\alpha = .867$). In each case, three items were rated on a 4-point Likert scale (1 = does not apply at all, 2 = does rather not apply, 3 = does rather apply, 4 = does fully apply). The scale for assessing family activity refers to the extent to which German (Sample 1; $\alpha = .775$) or English (Sample 2; $\alpha = .833$) plays a role in family activities and communication. The corresponding scales each comprised six items which were rated on the same 4-point Likert scale used for measuring parents' subjective language importance. The items of the scales for the two facets of parental involvement related to German or English are listed in Table S1 of the Online Supplements.

6.2.2 Self-concept. Students' self-concept in German for Sample 1 and English for Sample 2 was measured by four items which asked about students' self-perceived competence in the respective domains (German: $\alpha = .852$; English: $\alpha = .875$). The same 4-point Likert-type scale as applied to measure parental involvement was used as the response format. The items were formulated in parallel across German and English so that the same item wordings were used but only differed with respect to the language domain they refer to (e.g., "I get good grades in German/English", see also Table S1 of the Online Supplements). One item for

measuring self-concept was negatively worded (“I am hopeless in German/English”) so that lower values on this item depict higher levels of self-concept. These items (one for German, one for English) were reversely coded before the analysis so that higher ratings consistently demonstrated higher levels of self-concept for all items.

6.2.3 Student achievement. Students’ school grades were used as indicators for students’ academic achievement. Hence, the students of Sample 1 reported the grades they had received in German as a school subject in their latest school report, and the students of Sample 2 reported the grades they had obtained in English as a school subject in their latest school report. In Germany, students’ school grades range from 1 to 6 with lower values representing higher achievement. For ease of interpretation, students’ grades were reversely coded for the analyses so that higher values depict higher levels of achievement.

6.2.4 Migration status. As outlined above, the present study distinguishes four groups of students depending on their migration status. For this purpose, the students were directly asked whether i) the students’ parents had both been born in Germany (Sample 1: $N = 3438$; Sample 2: $N = 3490$), ii) one parent had been born abroad (Sample 1: $N = 373$; Sample 2: $N = 325$), iii) only the student but not the parents had been born in Germany (Sample 1: $N = 273$; Sample 2: $N = 272$), or iv) both the student and his/her parents had been born abroad (Sample 1: $N = 346$; Sample 2: $N = 299$). In Sample 1, 46 students did not respond to this item; in Sample 2, it was not answered by 54 students.

6.2.5 Covariates. Students’ gender, SES, and ability track were used as covariates. In order to operationalize SES, we considered the Highest International Social and Economic Index (HISEI; Ganzeboom, de Graaf, Treiman, & de Leeuw, 1992) for the students’ parents. Students were asked to report their parents’ occupation and whether they worked full-time, part-time, or were currently seeking employment. This information was combined to the HISEI which depicts the highest parental occupational level. HISEI values range from 16 to 90 with low values representing lower SES and higher values representing higher levels of

SES. To consider students' ability track of secondary school, students were separated into two groups: a group of students attending the low-ability, intermediate, or comprehensive tracks (Sample 1: $N = 2559$; Sample 2: $N = 2505$) and a group of students attending the high-ability track (Sample 1: $N = 1917$; Sample 2: $N = 1935$).

6.2.6 Procedure. Participation in the language achievement tests was mandatory for students based on federal states school law, while students' participation in the questionnaire survey was optional and written consent of parents was required and obtained beforehand. Permission to conduct this study and to administer the described measures was also given by the responsible school authorities whereby the specific institutions and stakeholders involved varied contingent upon the different federal German states. The participating students attended one day of assessment, working on the language achievement tests first before completing the questionnaires including the academic self-concept measures and background variables.

6.3 Statistical Analyses

All analyses were based on the structural equation modeling (SEM) framework and were conducted with *Mplus* Version 7.1 (Muthén & Muthén, 1998-2012). We used the maximum likelihood estimator with robust standard errors and fit statistics (i.e., the MLR option in *Mplus*) which has been found to be robust against any violations of normality assumptions of the measured variables. The used data set is characterized by a multilevel or hierarchical structure since students were grouped into classes (Raudenbush & Bryk, 2002). This might violate the assumption of the independence of observations as students attending the same class might be more similar to each other compared to students attending different classes. The neglect of this clustering effect might lead to inflated Type I errors. We thus conducted the analyses by applying the *Mplus* option "type = complex" using students' classes as a clustering variable to correct for possible biased standard errors.

The same series of analyses was conducted with regard to German with Sample 1, and English with Sample 2. It started with confirmatory factor analysis (CFA; Brown, 2006) models assuming separate factors for parents' subjective importance, family activity, students' self-concept, and achievement. Each of these factors was defined by the items of the respective scales, but students' school grades served as single-item indicators for the factors of German and English achievement. The CFA models allowed the examination of the integrity and the intercorrelations of the used measures.

The analyses continued by investigating a mediation model for depicting the direct and indirect relation between family activity and student achievement and the direct relation between parents' subjective importance and student achievement (Figure 1). The path coefficient for the indirect relation was calculated in *Mplus* by specifying it through the "model constraint" option. Students' gender, academic track, and parents' HISEI were included as covariates, thus being related to all factors. The data set contained five plausible values for the HISEI for each student established on the basis of item response theory (IRT). These values are randomly selected from a distribution of HISEI scores that approximates the individual students' true scores. All analyses including HISEI were conducted separately for each of the five plausible values and properly aggregated afterwards using multiple imputation procedures (Little & Rubin, 2002) implemented *Mplus* (Muthén, & Muthén, 1998-2012). Missing values on the other variables were estimated by using the Full Information Maximum Likelihood (FIML) method implemented in *Mplus* (Enders, 2010).

In order to test generalizability across migration status, we proceeded with a series of invariance models in which students' migration status with its four categories (i.e., both parents born in Germany; only one parent born in Germany; only student but not parents born in Germany; both the student and parents born abroad) was applied as a grouping variable. We started the sequence of invariance tests with a model of configural invariance in which the same factor structure (i.e., the same number of factors defined by the same set of items) was

assumed across groups (Meredith, 1993; Millsap, 2011). We then increasingly restricted model parameters (i.e., factor loadings, item intercepts, item uniquenesses, factor variances and covariances, factor means) to be invariant across groups. The latter model of this sequence (i.e., invariance of factor means) allows for inspecting whether students with different migration status vary in their reported mean levels of parental involvement, self-concept, and achievement. Finally, we probed whether the pattern of relations between parental involvement and achievement was similar across the different groups of students. To this end, the mediation model assuming direct and indirect relations between family activity and achievement and a direct relation between parents' subjective importance and achievement (see above and Figure 1) was first freely estimated in each group. This model was then compared to a model in which the relations were constrained to be of equal size across groups.

To evaluate the fit of the latent models, we consider various descriptive fit indices including the comparative fit index (CFI), the Tucker-Lewis index (TLI), the root mean square error of approximation (RMSEA), and the standardized root mean square residual (SRMR). For the CFI and TLI, values larger than .90 can be interpreted as adequate model fit while values above .95 reflect good model fit (Hu & Bentler, 1999). RMSEA values near .05 and .08 present close fit and fair fit, respectively (Browne & Cudeck, 1993). With regard to the SRMR, values close to .08 are indicative of a good model fit (Hu & Bentler, 1999).

To evaluate the multi-group invariance tests, we follow the current recommendations to consider the changes in the descriptive goodness-of-fit indices between two models which only differ by one set of model parameters constrained to be equal across groups (Marsh, Hau, & Grayson, 2005). According to Cheung and Rensvold (2002, also see Chen, 2007), invariance can be assumed as long as the CFI and TLI do not decline more than .01 between models with more and less invariance constraints. However, some researchers suggest that the inspection of changes in descriptive goodness-of-fit indices to judge invariance is too liberal,

particularly when testing mean level invariance (Fan & Sivo, 2009; Meade, Johnson, & Braddy, 2008). Therefore, for evaluating mean level invariance, we realize a broad approach according to which we inspect the changes in the descriptive fit indices along with other information obtained from the models with group-invariant factor loadings and item intercepts. In the latter models (i.e., models with group-invariant factor loadings and item intercepts), for model identification purposes, the factor means were set to zero in one group serving as a reference group so that the resulting values for the other three groups can be interpreted as deviations (in *SD* units) from the reference group.

7. Results

7.1 Total Sample Analyses: CFA and Mediation Models

7.1.1 German. The CFA model assuming separate factors for parents' subjective language importance, family activity, students' self-concept, and student achievement related to German demonstrated a good model fit [$\chi^2(72) = 596.623$; CFI = .969; TLI = .961; RMSEA = .040; SRMR = .038] indicating the integrity of the used measures. This was also apparent by the high standardized factor loadings of the items on their respective factors (Table S1 of the Online Supplements). Considering the factor correlations, the two facets of parental involvement were found to be separable from each other ($r = .255, p < .001$). Both facets of parental involvement demonstrated low, yet significant correlations with students' achievement (parents' subjective language importance: $r = .125$; family activity: $r = .146$; both $p < .001$). Students' German self-concept revealed statistically significant relations to family activity ($r = .174; p < .001$) as well as to students' German language achievement ($r = .618, p < .001$). This finding supports the assumption that self-concept might be a reasonable mediator variable in the relation between family activity as a subcomponent of parental involvement and student achievement.

The mediation model in which family activity was assumed to be directly and indirectly (i.e., mediated through students' German self-concept) related to student

achievement and parents' subjective importance was assumed to be directly related to student achievement while controlling for students' gender, ability track, and parents' HISEI, provided a good model fit: $\chi^2 (104) = 1013.966$; CFI = .950; TLI = .937; RMSEA = .044; SRMR = .062. The direct relation between parents' language importance and achievement was not significant (Table 1). The direct relation between family activity and achievement was also not significant but seems to be fully mediated through students' self-concept (unstandardized coefficient for the indirect effect: $b = 0.169$, $p < .001$).

Considering the covariates (Table 1), gender (0 = male, 1 = female) was found to be related to all variables. Concretely, girls were found to demonstrate higher levels of achievement and self-concept in German, and reported higher levels of parents' subjective importance and family activity. Students attending the high-ability track of secondary schools displayed higher achievement levels and reported higher levels of both facets of parental involvement. Parents' HISEI demonstrated significant relations to all variables except achievement. Thus, students whose parents had relatively higher scores on the HISEI showed higher levels of German self-concept and reported higher levels on both facets of parental involvement.

7.1.2 English. Considering the language domain of English, the CFA model provided a good model fit [$\chi^2 (72) = 515.180$; CFI = .979; TLI = .973; RMSEA = .037; SRMR = .029] with substantial loadings of the items on their corresponding factors supporting the integrity of the used measures (Table S1 of the Online Supplements). The two facets of parental involvement were found to be clearly distinguishable ($r = .091$; $p < .001$). Furthermore, both facets of parental involvement were related to students' English achievement (parents' subjective language importance: $r = .144$; family activity: $r = .113$; both $p < .001$). Finally, students' self-concept in English was found to be related both to family activity ($r = .133$; $p < .001$) and to students' English achievement ($r = .684$, $p < .001$) in order that it might be

meaningful to suppose self-concept as a mediator variable in the relation between family activity and student achievement.

The mediation model fitted the data well: $\chi^2 (104) = 874.547$; CFI = .967; TLI = .957; RMSEA = .041; SRMR = .043. The two constructs of parental involvement did not show direct relations to student achievement (Table 1). Family activity in English, however, was found to be indirectly associated with student achievement, mediated by students' English self-concept (unstandardized coefficient for the indirect effect: $b = 0.116$; $p < .001$).

Girls were found to display higher levels of achievement and self-concept in English (Table 1). Girls also reported higher levels of parents' subjective importance for English, but boys and girls did not differ in their reported levels of family activity in English. Students in the high-ability track of secondary school showed higher levels of English achievement and English self-concept. These students further reported higher levels of parental involvement. Parents' HISEI was also significantly positively related to students' reports on both dimensions of parental involvement.

7.2 Group Analyses based on Students' Migration Status

7.2.1 German. First, we tested the invariance of the CFA model including separate factors for the two facets of parental involvement, self-concept, and achievement in German across students with different migration status. The results (Table 2) indicated measurement invariance across the four groups of students (Group 1: students and parents born in Germany; Group 2: only one parent born in Germany; Group 3: only the student born in Germany; Group 4: student and parents born abroad) in terms of invariant factor loadings (Model I2), item intercepts (Model I3), item uniquenesses (Model I4), and factor variances and covariances (Model I5). The decrease in model fit ($\Delta\text{CFI} = .005$; $\Delta\text{TLI} = .003$) also indicated invariance of factor means according to the guidelines of Cheung and Rensvold (2002), but this decrease was found to be more pronounced than the decreases between preceding invariance models in the sequence. Therefore, we used Model I3 to gain further insight into

possible factor mean differences. In Model I3, the factor loadings and item intercepts were restricted to be of equal size across students with different migration status but the factor means were freely estimated across groups. However, for model identification purposes, the factor means were set to zero in one group serving as a reference group so that the resulting values for the other three groups can be interpreted as deviations (in *SD* units) from the reference group. The results are presented in Table 3, where different groups are used as the reference group to consider all possible pairwise comparisons. The four groups of students with different migration status reported similar levels of parents' subjective importance since all mean level deviations were non-significant irrespective of the reference group used. Concerning the other variables (i.e., family activity, achievement, and self-concept), mean level differences were observable between Group 1 on the one hand and Groups 3 and 4 on the other hand. Relative to students from Group 1, students from Groups 3 and 4 showed lower levels of German achievement, German self-concept, and reported family activity. There were also mean level differences between students from Group 2 and students from Groups 3 and 4. Compared to Group 2, students from Groups 3 and 4 demonstrated lower levels of German achievement and reported lower levels of family activity. Additionally, students in Group 2 displayed higher levels of German self-concept than students in Group 4, but similar levels of German self-concept to students in Group 3. Groups 3 and 4 were not found to differ in their mean levels on any of the variables.

In the next step, the mediation model assuming direct and indirect (mediated through self-concept) relations between family activity and achievement along with a direct relation between subjective language importance and achievement was estimated for each of the four groups separately (Model I7 in Table 2). When constraining the path coefficients of all direct and indirect relations to be invariant while still freely estimating the effects of the covariates (gender, ability track, HISEI) across groups (Model I8 in Table 2), the model fit even increased (due to higher model parsimony). These results imply that the relations between

parental involvement facets and student achievement were similar for the four groups of students in the domain of German language.

7.2.2 English. Considering the language domain of English, the results attested full invariance of the CFA model across the four groups of students of different migration status (Models I9 to I14; Table 2). The results from the invariance model (Model I14) argue for mean level invariance although Model I11 (invariant factor loadings and item intercepts) revealed a few mean level differences, primarily related to the level of family activity (Table 3). Students from Group 1 reported higher levels of family activity than Group 4 students, but lower levels than Group 2 students. In addition, students from Group 2 reported higher levels of family activity in English than students from Groups 3 and 4. There were no mean level differences in students' reported level of family activity between students from Groups 1 and 3 and between students from Groups 3 and 4. No mean level differences contingent upon students' migration status could be found for parents' subjective language importance. Furthermore, the groups did not differ on their mean levels of English achievement and only two group differences (Group 1 vs. Group 2, and Group 1 vs. Group 3) were found for English self-concept.

The fit of the mediation model was similar when freely estimating the direct and indirect (mediated through self-concept) relations between family activity and achievement along with the direct relation between parents' subjective importance and achievement across groups (Model I15 in Table 2) and when constraining them to be invariant (Model I16). Hence, in the domain of English, the indirect relations between parents' family activity on the one hand and achievement on the other hand seemed to be similar for students regardless of their migration status.

8. Discussion

The present study draws on the multidimensional conceptualization of parental involvement (Castro et al., 2015; Fan, 2001; Fan & Chen, 2001; Hill & Tyson, 2009; Jeynes,

2005; Manz et al., 2004; Wilder, 2014). We measured one behavioral facet, i.e., family activity, and one facet of parents' socialization, i.e., parents' subjective importance, and tested their relations with student achievement. Extending domain-specific approaches to parental involvement (math: e.g., Hong et al., 2010; reading: e.g., Sénéchal & Young, 2008), this study focuses on the two language domains of English and German. Thereby, it exceeds the commonly practiced domain-unspecific approach to parental involvement (Dearing et al., 2004; Desimone, 1999; Englund et al., 2004; Fan, 2001; Hill & Craft, 2003; Hill et al. 2004; Hong & Ho, 2005; Keith et al., 1998). Furthermore, this study elaborates on the mechanism underlying the often found relation between parental involvement and student achievement by testing whether the relation between family activity and achievement is mediated through academic self-concept. Finally, we explored whether students with different migration status vary in their mean levels of parental involvement and in their relations between parental involvement and achievement.

The findings of the present study replicated the multidimensional nature of parental involvement (Castro et al., 2015; Fan, 2001; Fan & Chen, 2001; Hill & Tyson, 2009; Jeynes, 2005; Manz et al., 2004; Wilder, 2014) since family activity and subjective importance depicted distinct constructs. Family activity was found to be related to academic achievement whereby this relation was found to be fully mediated through students' academic self-concept. Parents' subjective importance was not related with students' achievement. These findings were found to be parallel for German and English hinting at some similar mechanisms in the operation of parental involvement and its relation with achievement in both language domains.

At a first glance, it might be surprising that parents' subjective importance did not share any relation with student achievement. Parents' subjective importance can be classified as belonging to parents' socialization processes as one broad category of parental involvement. Previous findings demonstrated substantial relations between parents'

expectations as another subcomponent of parental socialization practices and student achievement which are even higher relative to achievement relations found for other (behavioral) facets of parental involvement. The non-significant relations between parents' subjective importance and student achievement indicate that even within broad categories of parental involvement, subcomponents should be identified which could reveal differential achievement relations. Parental expectations might be more directly communicated between parents and children and might be more easily understood and inferred by the students based on parents' overt behavior compared to the level of importance and relevance parents attribute to students' achievement and academic learning.

Family activity, as a subcomponent of overt behavioral parental involvement, was found to be indirectly related to achievement; the relation was fully mediated through students' domain-specific academic self-concept. This finding offers insight into the presumptive mechanisms underlying the consistently demonstrated relation between parents' behavior and student achievement. Moreover, this finding corresponds to previous research illustrating the facilitating role of students' academic self-concept for their achievement (Marsh & Craven, 2006; Marsh & O'Mara, 2008). It also corroborates studies hinting at parents' influence on students' competence self-perceptions (Dai, 2002; Frome & Eccles, 1998; Gniewosz, 2010; Tiedemann, 2000). To further substantiate the mechanisms underlying the relation between parental involvement and student achievement, future studies are necessary which should consider alternative mediator variables. Previous studies reported indirect relations between parental involvement and student achievement when using students' control understanding or locus of control (Grolnick, Ryan, & Deci, 1991; Hong & Ho, 2005), positive affect (Dearing et al., 2004), or school behavior problems (Hill et al., 2004) as mediator variables.

Besides extending the scope of possible mediator variables, it is also imperative to expand the scope of facets of parental involvement. By including parents' subjective

importance and family activity as two facets, this study considers one facet of each of the two main categories of parental involvement (i.e., parental socialization and parents' overt behavior) as classified in other studies (Castro et al., 2015; Hill & Tyson, 2009; Wilder 2014). Nonetheless, our study was limited to these two facets of parental involvement so that further studies should include more and other facets of parental involvement which might be differentially related to achievement, mediated through self-concept, and affected by students' migration status. For this purpose, it might be interesting to not only consider other facets of parental involvement which can be allocated to one of the two main categories (i.e., parental socialization and parents' overt behavior) but to also take a broader perspective into account. Following such a broad perspective, some authors (Cooper, 2009; Jeynes, 2010; Spera, 2005) argue for combining traditional research on parental involvement with research on parental styles (Glasgow, Dornbusch, Troyer, Steinberg, & Ritter, 1997; Kerr, Stattin, & Özdemir, 2012; Smetana, 1995), parent-child communication (Kernis, Brown, & Brody, 2000; Barnes & Olson, 1985), and quality of parent-child relationships (Cooper, 2009) in general.

Beyond extending the scope of possible mediator variables and facets of parental involvement, it might also be worthwhile to widen the range of outcome variables. In addition to students' achievement, parental involvement might also yield and impact on learning behavior such as engagement (King, 2015; Song, Bong, Lee, & Kim, 2015), truancy (McNeal, 1999), student aspirations (Hill et al., 2004), or motivational orientations (Bronstein, Ginsburg, & Herrera, 2005).

The relations between parental involvement and student achievement were examined when controlling for students' gender, ability track of secondary school, and SES. Corresponding to previous studies (Jacobs, Lanza, Osgood, Eccles, & Wigfield, 2002; Mullis, Martin, Kennedy, & Foy, 2007; Naumann, Artelt, Schneider, & Stanat, 2010), girls were found to have higher levels of achievement and self-concept in the two language domains of German and English. Girls also reported higher levels of parental involvement apart from the

finding of no gender differences in students' reports on family activity in English. Replicating previous findings regarding the influence of SES on parental involvement (Englund et al., 2004; Fan, 2001; Grolnick & Slowiaczek, 1994; Hill et al., 2004; Keith et al. 1998; Lee & Bowen, 2006), parents' HISEI was found to be positively associated with both facets of parental involvement. Hence, intervention approaches fostering parental involvement should ideally reach out to parents from lower SES families. Such targeted interventions might be conducive to improving achievement levels in lower SES students (Bradley & Corwyn, 2002; Sirin, 2005). Finally, students attending the high-ability track of German secondary schools displayed higher mean levels of achievement compared to students attending the other ability tracks (Hanushek & Wößmann, 2006; Köller & Baumert, 2001). High-ability track students also reported higher levels of both facets of parental involvement in both language domains. Given that so far no study has investigated similarities and differences in parental involvement across students attending different ability tracks, this study offers first insight into this issue which might also serve to explain the relatively higher achievement levels of high-ability track students. However, given that ability track and SES might be partially confounded in terms that students from higher SES families have been found to have a higher chance to attend the high-ability track (e.g., Baumert, Stanat, & Watermann, 2006; Baumert, Watermann, & Schümer, 2003), these insights should be treated with caution.

Another aim of the present study was to examine group differences contingent upon students' migration status. Students from the different migration groups did not differ in their reported mean levels of parents' subjective importance attributed to German and English languages. Thus, parents generally seem to deem students' learning of German and English important irrespective of their migration status. This finding is easily explained by the relevance of the German language in educational, social and public life in Germany and by the relevance of English in a globalized world (Phillipson, 2001). Differences did emerge, however, regarding the extent to which family activities were realized regarding students'

learning in German. Group 1 and Group 2 students were not found to differ in their ratings on family activity in German. Hence, having one native German parent (Group 2) might be sufficient for students to receive adequate levels of parental support. However, the students of this study reported lower levels of family activity related to German when both parents were born abroad [with the student born in Germany (Group 3) or the student also born abroad (Group 4)]. Hence, although parents regardless of migration status attribute similar importance to German, they might lack the competence to adequately support their children regarding their learning in German, leading to lower levels of student reports on family activities related to German. This conclusion is in line with ideas about parental involvement in minority groups: “Despite the strong value minority parents place on education, it is also possible they do not have the educational experiences to draw upon to help foster their children’s educational attainment on a day-to-day basis (...) (Spera, 2005, p. 131)”. Hence, efforts should be made to create opportunities for immigrant parents to express their high value and importance put on their children’s education in terms of behavioral and observable facets of parental involvement.

Regarding family activities in English, the findings were less clear-cut. Students with one parent born abroad (Group 2) even reported higher levels of family activity related to English compared to students without any migration status (Group 1). Possibly, such mixed-language families are more open-minded and competent in realizing family activity related to language learning. The greatest disadvantage appears for students who were themselves and whose parents were born abroad (Group 4). This group of students reported significantly lower levels of family activity than students with no parent (Group 1), one parent (Group 2), and both parents (Group 3) born abroad. Although immigrant parents might have adequate skills and competences to support their children’s learning in English, families from group 4 might face integration issues, might not yet be familiar with the German school system, and

might thus not know the requirements of adequate student support and the standards and expectations of accomplishment in the German educational system.

With regard to mean level differences in students' achievement, immigrant students demonstrated lower achievement in German language. This finding matches other studies demonstrating lower school achievement in immigrant students in Germany (Stanat, 2006; Stanat, Rauch, & Segeritz, 2010; Walter & Taskinen, 2007). Students with different migration status were not found to differ in their English achievement. A possible explanation for this finding might be that English is a foreign language for all (i.e., immigrant and non-immigrant) students, but immigrant students have already mastered to learn German as a foreign language. Hence, immigrant students' metalinguistic awareness might be more distinct than that of non-immigrant students (Rauch, Naumann, & Jude, 2012), or they might benefit from a cross-language transfer (Durgunoğlu, 2002). Future research is needed to further explain this finding.

The pattern of direct and indirect relations between the two facets of parental involvement and student achievement was found to be similar across the four groups of students with different migration status in both the domains of German and English. Hence, for all students, the relation between family activity and student achievement seems to be mediated through students' domain-specific academic self-concept. Therefore, intervention approaches targeting parental involvement and students' academic self-concept seem to be a promising way to foster students' achievement across student populations including students with different migration status. Correspondingly, research has invested effort in detecting effective interventions to promote students' academic self-concept (O'Mara, Green, & Marsh, 2006; O'Mara, Marsh, Craven, & Debus, 2006) as well as parental involvement (Fantuzzo et al., 1995; Harackiewicz, Rozek, Hulleman, & Hyde, 2012; Hoover-Dempsey, Walker, Jones, & Reed, 2002; Mattingly, Prislín, McKenzie, Rodriguez, & Kayzar, 2002). Nonetheless, caution is required regarding a non-reflective equal treatment of immigrant and non-

immigrant students since the specific situation and needs of immigrant students and their parents should also be considered (López, Scribner, & Mahitivanichcha, 2001).

The indirect relation between parental involvement and student achievement was found to be rather small, possibly due to the inclusion of control variables (i.e., gender, ability track, and SES) which were found to also explain student achievement. Moreover, student achievement is influenced by numerous variables, some of which (e.g., intelligence or student motivation; Spinath et al., 2008) are located within the individual students themselves. It might be less easy for more distal context variables such as parental involvement to become effective in also influencing student achievement. Some studies indicate that the effect of parental involvement on student achievement decreases with students' age as it becomes harder for parents to yield any impact on their children (Hill & Tyson, 2009; Hong et al., 2010; Spera, 2005). Hence, we could not expect high relations from the outset, but this calls for the need to replicate the findings with students from different age groups to see whether stronger relations can be established with younger children. Longitudinal studies are needed to examine the impact of parental involvement on student achievement across students' age. Such studies would further allow for examining whether the relative contributions of different facets of parental involvement change across age and would enable researchers to take reciprocal effects between student achievement and parental involvement into account (Hong et al., 2010). Despite the found low relations between parental involvement and student achievement, the present study entails practical relevance in terms of parents' potential to contribute to their children's school achievement by engaging in family activity and thereby enhancing students' competence self-perceptions (i.e., academic self-concept). Hence, the findings of this study might encourage parents to become involved in family activity, which might simultaneously satisfy parents' wish to play an active role in and to contribute to their children's learning progress.

This study is based on student reports on parental involvement instead of parents' self-reports or even teacher reports. This approach has been applied in other studies (e.g., Gonzalez-Pienda et al., 2002; Grolnick & Slowiaczek, 1994; Hong et al., 2010) and might be reasonable since students' perceptions (and not the objectively observable level) of parental involvement might be more relevant for student outcomes including student achievement (Desimone, 1999; Paulson, 1994). Examining students' instead of parents' reports seems to be particularly relevant when focusing on achievement relations mediated through students' self-concept. Self-concept has been conceptualized as being formed through individuals' subjective experiences with and within the environment (Shavelson et al., 1976). Hence, students' subjective perceptions of their parents' involvement might be relevant for students' self-concept in turn influencing student achievement. Nonetheless, further studies are needed to replicate these findings when different sources of reports on parental involvement are combined (e.g., students', parents', and teachers' reports; Fan, 2001; Hill et al., 2004; Keith et al., 1998; Manz et al., 2004). In addition, it might be worthwhile to differentiate between boys and girls, and between mothers and fathers to gain insight into gender-specific parent-child influence and treatment (Frome & Eccles, 1998; Grolnick et al., 1991; Kim & Hill, 2015).

We used students' school grades rather than achievement test scores as outcome variables in our mediation model. This seems to be reasonable since higher relations were found between self-concept and school grades than between self-concept and achievement test scores because of the higher saliency and importance of school grades (Marsh et al., 2014). Furthermore, previous research implied a stronger impact of parental involvement on school grades compared to test scores (Muller, 1998). Nonetheless, our findings should be tested for their generalizability when using achievement test scores instead of school grades.

9. References

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Table 1

Path Coefficients of the Mediation Models for German (Sample 1) and English (Sample 2)

	<i>German</i>		<i>English</i>	
	β	p	β	p
Family activity → grade	0.023	0.159	0.014	0.380
Importance → grade	-0.017	0.299	-0.001	0.931
Family activity → self-concept	0.138	0.000	0.112	0.000
Self-concept → grade	0.595	0.000	0.668	0.000
Gender → grade	0.053	0.000	0.073	0.000
School track → grade	0.073	0.000	0.037	0.031
HISEI → grade	0.013	0.441	0.026	0.071
Gender → self-concept	0.219	0.000	0.066	0.000
School track → self-concept	0.027	0.170	0.139	0.000
HISEI → self-concept	0.067	0.000	0.021	0.235
Gender → family activity	0.056	0.002	-0.005	0.804
School track → family activity	0.173	0.000	0.048	0.020
HISEI → family activity	0.147	0.000	0.184	0.000
Gender → importance	0.161	0.000	0.167	0.000
School track → importance	0.057	0.005	0.200	0.000
HISEI → importance	0.097	0.000	0.117	0.000

Note. All paths coefficients (β) are standardized; importance = parents' subjective language importance; gender was coded with 0 = male vs. 1 = female; school track was coded with 0 = low-ability, intermediate, or comprehensive tracks vs. 1 = high-ability track.

Table 2

Goodness-of-fit Indices of the Invariance Models

	χ^2	df	CFI	TLI	RMSEA	SRMR	
German (Sample 1)							
I1	842.695	297	.968	.961	.041	.047	Configural invariance
I2	884.862	330	.968	.965	.039	.057	Invariance of factor loadings (weak invariance)
I3	970.710	360	.965	.964	.039	.058	Invariance of factor loadings and item intercepts (strong invariance)
I4	1029.743	399	.964	.967	.038	.067	Invariance of factor loadings, item intercepts, and item uniquenesses (strict invariance)
I5	1061.776	417	.963	.968	.037	.069	Invariance of factor loadings, item intercepts, item uniquenesses, and factor variances/covariances
I6	1151.256	429	.958	.965	.039	.077	Invariance of factor loadings, item intercepts, item uniquenesses, factor variances/covariances, and factor means
I7	1443.530	458	.948	.939	.044	.072	Mediation model freely estimated in all groups
I8	1452.866	470	.948	.941	.043	.072	Mediation model with direct and indirect effects of parental involvement set invariant across groups
English (Sample 2)							
I9	854.245	297	.973	.967	.041	.041	Configural invariance
I10	937.578	330	.971	.968	.041	.057	Invariance of factor loadings (weak invariance)
I11	1050.374	360	.967	.967	.042	.058	Invariance of factor loadings and item intercepts (strong invariance)
I12	1112.123	399	.966	.969	.040	.060	Invariance of factor loadings, item intercepts, and item uniquenesses (strict invariance)
I13	1147.135	417	.965	.970	.040	.066	Invariance of factor loadings, item intercepts, item uniquenesses, and factor variances/covariances
I14	1197.445	429	.963	.969	.040	.066	Invariance of factor loadings, item intercepts, item uniquenesses, factor variances/covariances, and factor means
I15	1429.837	458	.959	.952	.044	.060	Mediation model freely estimated in all groups
I16	1446.591	470	.958	.953	.044	.061	Mediation model with direct and indirect effects of parental involvement set invariant across groups

Note. All models were estimated by the maximum likelihood estimator with robust standard errors (MLR). CFA = confirmatory factor analyses, CFI = comparative fit index, TLI = Tucker-Lewis index, RMSEA = root mean square error of approximation, SRMR = standardized root mean squared residual.

Table 3

Group Deviations (in SD units) from the Factor Means of Different Reference Groups

	Parents' subjective language importance	Family activity	Self-concept	Achievement
German (Sample 1)				
Group 1 vs. Group 2	-0.034	0.009	-0.096	-0.111
Group 1 vs. Group 3	-0.020	-0.386***	-0.252***	-0.347***
Group 1 vs. Group 4	-0.050	-0.407***	-0.276***	-0.285***
Group 2 vs. Group 3	0.014	-0.396***	-0.156	-0.236***
Group 2 vs. Group 4	-0.016	-0.416***	-0.180*	-0.174*
Group 3 vs. Group 4	-0.031	-0.020	-0.024	0.062
English (Sample 2)				
Group 1 vs. Group 2	0.112	0.232***	0.166**	0.071
Group 1 vs. Group 3	0.109	-0.137	0.147*	0.034
Group 1 vs. Group 4	0.008	-0.352***	0.015	-0.051
Group 2 vs. Group 3	-0.003	-0.369***	-0.019	-0.037
Group 2 vs. Group 4	-0.104	-0.584***	-0.151	-0.121
Group 3 vs. Group 4	-0.102	-0.215	-0.132	-0.085

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