Sog Yee Mok, Sarah E. Martiny, Ilka H. Gleibs, Kay Deaux, Laura Froehlich

The interaction of vertical collectivism and stereotype activation on the performance of Turkish-origin high school students

Article (Accepted version) (Refereed)

Original citation:
Mok, Sog Yee and Martiny, Sarah E. and Gleibs, Ilka H. and Deaux, Kay and Froehlich, Laura (2017) *The interaction of vertical collectivism and stereotype activation on the performance of Turkish-origin high school students.* Learning and Individual Differences, 56. pp. 76-84. ISSN 1041-6080

DOI: 10.1016/j.lindif.2017.05.002

The Interaction of Vertical Collectivism and Stereotype Activation on the Performance of Turkish-Origin High School Students

Sog Yee Mok[1*], Sarah E. Martiny[2], Ilka H. Gleibs[3], Kay Deaux[4], & Laura Froehlich[5]

[1]Technical University of Munich, Germany

[2]UiT The Arctic University of Norway, Norway

[3]London School of Economics and Political Science, UK

[4]New York University, USA

[5]University of Hagen, Germany

* Address correspondence to:

Sog Yee Mok

Technical University of Munich

Arcisstrasse 21

80333 Munich, Germany

phone: +49 89 289 24336

e-mail: sogyee.mok@tum.de

Abstract

The activation of negative stereotypes in achievement situations can lead to decreased performance (i.e., *stereotype threat effect*). Research has shown that stereotype threat effects increase when performance outcomes become more important. Cultural value orientations such as vertical collectivism can influence the perceived importance of performance outcomes. For this reason, we investigate the interaction between vertical collectivism and the activation of negative stereotypes on the academic performance of migrant students. More precisely, we argue that the more Turkish-origin students endorse vertical collectivism (i.e., the willingness to sacrifice individual interests for their group's interests), the more they try to meet their group's high achievement expectations after negative stereotype activation. This increases performance pressure and thus impairs their performance. We further argue that vertical collectivism increases migrants students' motivation to temporarily join a high performing outgroup in order to achieve high performance outcomes in the future. An experiment conducted in classrooms (N = 94) with Turkish-origin students confirmed our hypotheses. Implications for dealing with stereotype threat in educational contexts are discussed.

Keywords: stereotype threat, vertical collectivism, migrants, individual mobility, high school students

The Interaction of Vertical Collectivism and Stereotype Activation on the Performance of Turkish-Origin High School Students

One of the biggest challenges in modern schools is to create learning environments that allow all students to optimally develop their individual abilities (e.g., Corno & Snow, 1986; Jurik, Gröschner, & Seidel, 2014). Creating optimal learning environments can be difficult because students differ not only in terms of their cognitive abilities and motivation, but also in their cultural backgrounds. In Germany, the number of migrant students has increased steadily in recent years (Eurostat, 2015); Turkish-origin migrants are the largest ethnic minority group (18.5%; Statistisches Bundesamt [Federal Statistical Office], 2012). Turks were recruited by the German government as unskilled workers in the 1960s and often settled in Germany (Worbs, 2003). Today, children of Turkish-origin migrants perform more poorly in standardized tests than Germans and other migrant groups (e.g., Bos, 2012; Klieme et al., 2010; Mok, Martiny, Gleibs, Keller, & Froehlich, 2016) and are less likely to attain higher education (e.g., Kristen, Reimer, & Kogan, 2008). On the one hand this underperformance is surprising, because research shows that the Turkish culture strongly values achievement motivation (e.g., Phalet & Claeys, 1993; Verkuyten, Thijs, & Canatan 2001), and high achievement motivation and good performance outcomes are expected from Turkish students by their families (Phalet & Claeys, 1993). On the other hand, research has shown that negative stereotypes about Turkish-origin migrants are widespread in Germany and can hinder the performance of this group (Froehlich, Martiny, Deaux, Goetz, & Mok, 2016; Martiny, Mok, Deaux, & Froehlich, 2015). For this reason, in the present work we aim at examining the interplay of cultural values and the activation of negative stereotypes on the performance and coping strategies of Turkish-origin students in German high schools.

Negative Stereotypes and Their Effects on Performance

In Germany, negative stereotypes about Turkish-origin migrants are widespread (Asbrock, 2010; Froehlich, Martiny, Deaux, & Mok, 2016; Kahraman & Knoblich, 2000).

Research has shown that the activation of negative stereotypes in performance situations can hinder the performance of targeted group members (*stereotype threat effect*; e.g., Steele & Aronson, 1995). This effect has also been shown for Turkish-origin students in Germany (Froehlich, Martiny, Deaux, Goetz et al., 2016; Martiny et al., 2015) and thus might contribute to the observed performance differences between German and Turkish-origin students (e.g., Martiny, Götz, & Keller, 2013; Schauenburg, 2011; Schofield, 2006; Strasser, 2012). However, the effect of stereotype threat for Turkish-origin students may depend on individual students' cultural value orientation. Thus, in the present work, we aim to extend earlier research by taking into account the cultural value orientation of Turkish-origin students as an important individual difference when investigating the effect of stereotype activation on performance.

Cultural Values and Vertical Collectivism

Cultural values refer to "shared conceptions of what is good or desirable in the culture" (Schwartz, 2006, p. 139). One important aspect for characterizing differences in cultural values pertains to how individuals define themselves and their relationships with others (Brewer & Chen, 2007). Whereas in most Western countries one's self-definition is based on individual autonomy (i.e., individualism), in most Eastern cultures one's self-definition is mainly based on social embeddedness (i.e., collectivism; Brewer & Chen, 2007; Varnum, Grossmann, Kitayama, & Nisbett, 2010). Thus, for people endorsing collectivistic values, interpersonal connectedness and social belonging are important (Güngör, Karasawa, Boiger, Dinçer, & Mesquita, 2014) and social behavior is best predicted by group norms, perceived duties, and obligations (Miller, 1994). However, not all collectivistic cultures endorse all aspects of collectivism to the same extent. For example, the Japanese culture highlights conformity, whereas the Turkish culture stresses relatedness (Güngör et al., 2014). Relatedness means that people think of themselves as connected to significant others and try to fulfill their expectations (Cross, Bacon, & Morris, 2000). This focus on fulfilling the

expectations of others and adapting one's behavior to group norms is best represented by the cultural value orientation of *vertical collectivism* (Singelis, Triandis, Bhawuk, & Gelfand, 1995). In detail, vertical collectivism describes the willingness of a group member to sacrifice individual interests for the sake of the group's interests, especially when a higher-status group member requires him or her to do so (Komarraju & Cokley, 2008). As mentioned earlier, research has shown that the Turkish culture strongly values achievement motivation and Turkish families expect high achievement motivation and good performance outcomes from their children (e.g., Phalet & Claeys, 1993; Verkuyten, Thijs, & Canatan 2001). Meeting the group's and family's high achievement expectations is important for Turkish-origin students because the fulfillment of these expectations is associated with loyalty (Phalet & Claeys, 1993). Thus, Turkish-origin students who strongly endorse vertical collectivism should be motivated to fulfill the high achievement expectations of their family and ethnic ingroup. Because vertical collectivism is an important value orientation in the Turkish culture, in the present work we will investigate the interplay between vertical collectivism and stereotype activation on the performance of Turkish-origin migrant students.

The Interaction of Vertical Collectivism and Stereotype Activation on Performance

To predict how vertical collectivism may moderate the effect of negative stereotype activation on performance, one first needs to consider the mechanisms underlying the stereotype threat effect. Even though researchers have not yet fully agreed upon the underlying processes, empirical evidence shows that the activation of negative stereotypes can increase distracting cognitions (e.g., worry, rumination, and mind-wandering; Mrazek et al., 2011; Schmader, Johns, & Forbes, 2008) and thereby occupy working memory capacity. This leads to reduced working memory resources for the task at hand (e.g., Inzlicht & Schmader, 2012; Schmader & Johns, 2003) and thus decreases performance, especially in difficult tasks (Keller, 2007). In line with this, research has shown that some individuals who face negative stereotypes show an increased motivation to work on the task, but this increased motivation

does not necessarily result in a positive performance outcome (e.g., Jamieson & Harkins, 2007). In addition, research has found that stereotype threat effects increase along with the importance of the performance situation for the stereotyped group member. For example, the more important the group membership (i.e., group identification) or the performance domain (i.e., domain identification) is for the stereotyped group member, the more the performance is hampered by the activation of negative stereotypes (Aronson et al., 1999; Schmader, 2002). This is the case because in a stereotype threat situation the value attached to the group or the domain adds to the pressure to perform well, which increases distracting cognitions and thereby impairs performance. In accordance with this earlier research, we argue that migrants who endorse high levels of vertical collectivism will be especially worried about the negative stereotypes that are activated in a stereotype threat situation. This should be the case because they fear that their performance outcome will reflect poorly on their group and show that they do not endorse the values (i.e., achievement motivation) of their group. Thus, vertical collectivism should increase pressure, leading to more distracting cognitions and subsequently less working memory capacity, resulting in poor performance in difficult tasks. For this reason, we postulate that the more vertical collectivism Turkish-origin migrants endorse, the more their performance will be hindered by the activation of negative stereotypes.

The Interaction of Vertical Collectivism and Stereotype Activation on Coping Strategies

In addition to investigating the effects of stereotype activation and vertical collectivism on performance, we are also interested in the combined effect of the two variables on strategies to cope with negative stereotypes. In line with Steele, Spencer, and Aronson (2002), we argue that making a negative stereotype salient in a performance situation is a form of social identity threat. According to social identity theory, people try to cope with threats in order to maintain a positive self-esteem (Tajfel & Turner, 1979; 1986). As people endorsing a collectivistic value orientation feel especially connected to their group, they should perceive the activation of a negative group-related stereotype as a major threat to their

positive collective self-esteem. Earlier research has shown that one of the most prevalent strategies to cope with social identity threats is to leave the group and join the higher-status outgroup when group boundaries are permeable (i.e., individual mobility; Ellemers, van Knippenberg, & Wilke, 1990). In the present work, we sought to investigate the interaction of negative stereotypes and vertical collectivism on motivation to use this coping strategy by providing participants with the opportunity to temporarily join a high-performing outgroup after working on a performance test under stereotype threat. This would potentially improve their own performance outcomes in the future. This mobility motivation may be seen in an individual's desire to represent a successful outgroup or to collaborate with that outgroup as part of a collective team (Ellemers, Spears, & Doosje, 1997). As outlined above, achievement motivation is an important value for many Turkish-origin migrants and is expected from Turkish children by their parents (e.g., Phalet & Claeys, 1993). Employing such a strategy to fulfill expectations of achievement should therefore be in line with strong vertical collectivism endorsement. Moreover, findings by Van Laar and colleagues (2014) have shown that a group member's individual upward mobility (i.e., towards a successful outgroup) is accepted by one's original group when it leads to benefits for their group. Taken together, we argue that Turkish-origin students who strongly endorse vertical collectivism will try to fulfill their group's achievement expectations and therefore will be motivated to choose a temporary individual mobility strategy after stereotype threat.

The Present Study

To our knowledge, no research has yet been conducted to examine the influence of Turkish-origin students' vertical collectivism on their performance and motivation to deploy coping strategies after stereotype activation. To address this, an experiment was conducted in German high school classrooms to investigate the interaction effects of stereotype activation and endorsement of vertical collectivism on the performance and temporary individual mobility motivation of Turkish-origin students. We predicted that the more strongly Turkish-

origin students endorsed vertical collectivism, the lower their performance would be when a negative stereotype was activated. We also predicted that the more strongly Turkish-origin students endorsed vertical collectivism, the higher their motivation would be to employ a temporary individual mobility coping strategy when a negative stereotype was activated. To measure temporary individual mobility we used a scenario reflecting a future performance situation in which Turkish-origin students could explicitly choose to identify with the higher performing outgroup (i.e., Germans).

Method

Participants and Design

Ninety-four 9th and 10th-grade students of Turkish origin (M_{age} = 15.41, SD_{age} = 1.03; 46 male, 48 female) participated in the present study. We assessed 9th and 10th grade students as ethnic minority students with a greater sense of obligation to their family appear to peak in their motivation to be successful academically in these age groups (Fuligni, 2001). To ensure adequate variability in Turkish cultural value orientations, we recruited participants from two private high schools that offer additional courses for Turkish-origin students (e.g., Turkish language classes) because we assumed that some of these students might strongly endorse Turkish cultural values. The schools were located in large cities in two different German federal states. Both schools charge tuition, but one school also has scholarships available for high performing students with low socio-economic status. In Germany, students can either attend a lower, middle, or higher track secondary school depending on their achievement level at the end of primary school; both schools in our sample contained the middle and the highest school tracks (i.e., “Realschule” and “Gymnasium”).

We used a between-participants design with experimental condition (positive stereotype activation vs. negative stereotype activation; for details see below) and vertical collectivism as independent variables. The study consisted of two measurement points. At Time 1, students filled in a questionnaire assessing vertical collectivism. At Time 2 (six

weeks after the first session), students participated in an experiment in their classroom in which stereotype activation was manipulated before students worked on a performance test and filled in a questionnaire. Performance on a verbal test and temporary individual mobility motivation were the dependent variables.

Procedure and Manipulation

In accordance with the ethical guidelines of the German Psychological Society (DGPs, 2004), receiving permission from principals and teachers in school and the verbal consent from students is sufficient to assess anonymous and non-sensitive information from high school students. In addition, no formal ethical approval was required by the Institutional Review Board of the University of Konstanz previous to the study because there was no reason to assume that the procedures could entail any lasting harms or risks for the students. We invited students from two private high schools to participate in our study. Before conducting the study, we received consent from the principals in charge of the two participating schools and the teachers in the classrooms. Then, participants gave verbal consent after receiving information about the procedure of the study, including assurances that their data would be treated as anonymous and confidential. The data collection in the schools was conducted either close to the end of the school year (in school 1) or at the beginning of the next school year (school 2), depending on the timing of permission for the study given by principals. Thus, the data collection in the two schools was separated by a period of six months.

The study was conducted at two time points. At time 1, a questionnaire measuring vertical collectivism was distributed to students by a female experimenter at the beginning of a class. In most cases, this was a German language class. Students generated a code (i.e., first two letters of mother's first name, first two letters of father's first name, and student's month of birth) to guarantee anonymity when matching the data collected at the two time points. At time 2 (about six weeks after the questionnaire session), the experimental study was

conducted by a female experimenter, again mostly in German language classes. All students remained in their regular classrooms during the study. First, a booklet including questions related to students' individual code, the stereotype activation manipulation, the verbal ability test, and a post-experimental questionnaire was handed out to the students. To randomly assign participants within classes to one of the stereotype activation conditions, two versions of the booklets were distributed. This ensured that the experimenter was blind to the conditions. After students indicated their individual code, they read one of two versions of the stereotype activation manipulation. In the stereotype activation manipulation a social identity associated with either a positive or a negative stereotype for Turkish-origin students was made salient (see Shih, Pittinsky, & Trahan, 2006). To activate a positive identity, participants' identity as students of a private school was made salient by asking which type of school they attended (i.e., private, public, or other school types) and three related items (e.g., "I feel connected with students of this school"; adapted from Rydell, McConnell, & Beilock, 2009). Participants in the negative stereotype condition were asked to indicate their ethnic group (i.e., Turks or Germans) and to respond to three related items (e.g., "I feel connected with my ethnic ingroup"; adapted from Shih, Pittinsky, & Ambady, 1999). Participants then worked for 22 minutes on a verbal ability test and filled out a post-test questionnaire measuring socio-demographic data (e.g., gender, age, and migration background) and reported their math grade as a covariate. Temporary individual mobility motivation was assessed in a scenario at the end of the questionnaire. Finally, students were debriefed and thanked for their participation.

Measures

Vertical collectivism. Vertical collectivism in our study was measured with three items from the vertical collectivism subscale (Singelis et al., 1995; e.g., "I would do what would please my family, even if I detested that activity"). The original subscale consisted of eight items; however, due to the limited amount of time for the questionnaire session (Time 1)

during a school lesson, we chose only three vertical collectivism items (along with other items such as socio-demographic questions). Participants rated the items on a 7-point Likert scale, ranging from 1 “strongly disagree” to 7 “strongly agree” (M = 4.96, SD = 1.39; α = .53).

Verbal ability test. The verbal ability test consisted of a reading comprehension task (three texts and questions from the PISA test; Kunter et al., 2002; OECD, 2014) followed by a verbal performance task from an intelligence test (ten items from the I-S-T 2000 R test; Amthauer, Brocke, Liepmann, & Beauducel, 2001). The correlation between the reading comprehension and verbal performance tasks was significant, but not very high, $r(92) = .41$, $p < .001$. The item difficulty index of the reading comprehension items was moderate (p_i = 59.91) indicating that a majority of the items were answered correctly by the participants. In contrast, the item difficulty index of the verbal performance items (p_i = 27.78) was below 30 (i.e., meeting the definition of a difficult item; Shete, Kauser, Lakhar, & Khan, 2015). The item difficulty of the verbal performance items ranged from very difficult (p_i = 0.06) to moderate (p_i = 0.61). In line with previous research suggesting that performance items need to be difficult to trigger stereotype threat effects (Keller, 2007), and research defining $p_i < 30$ as difficult (e.g., Shete et al., 2015), we analyzed only the performance results on the more difficult verbal performance task.[1] In our verbal performance task (“analogies”), which was adapted from the I-S-T 2000 R test (Amthauer et al., 2001), participants had to identify the relationship between two given words and then apply that rule to choose a word out of five possible alternatives that shows a similar relationship (i.e., analogy) to another given word (Beauducel, Liepmann, Horn, & Brocke, 2010). For example, the word pair *forest* and *trees* was given and participants had to find the analogous pair for the word *meadow* among the words *grass*, *hay*, *food*, *green* or *pasture*. The ten verbal performance items had a maximum score of 10 points (α = .57). Participants’ performance scores ranged from 0 to 8 points (M = 2.78, SD = 1.87).

Temporary individual mobility motivation. We assessed the motivation of Turkish-origin students to join a higher performing outgroup (i.e., Germans) by means of a scenario. We used the single item "I want to represent the German group" to measure temporary individual mobility motivation toward Germans, which was assessed on a 7-point Likert scale ranging from 1 "do not want to represent" to 7 "strongly want to." All participants were asked to visualize the following situation:

> Imagine that you were a representative of your ethnic group (e.g., Germans, Italians, Turks, etc.) in the previous verbal ability test, which means your test result is representative for your whole ethnic group and will be transferred to this group. Now imagine that you have to complete a second verbal ability test.[2] Imagine you are able to choose what group you will represent. Please indicate to what extent you would like to represent each of the following: "I want to represent Germans" (1 "do not want to represent" to 7 "strongly want to"); "I want to represent Turks" (1 "do not want to represent" to 7 "strongly want to").

Not surprisingly, Turkish-origin students showed a high mean on the item "I want to represent Turks" (M = 6.02, SD = 1.47) pointing to a ceiling effect. We did not find an interaction effect in the regression analysis for the item "I want to represent Turks" (all ps > .396). Thus, we do not further report on this item in the present work.

Mobility motivation in an ideal team composition. In the questionnaire administered at the second school, we added a question to assess whether participants' favoritism for the higher performing outgroup (i.e., Germans) would be expressed when their group (i.e., Turks) is included in the measure. Participants in this subsample (N = 62) were asked to indicate their preferred ethnic composition for an ideal team for the imagined test. Specifically, they indicated their preference on a 7-point Likert scale, ranging from 1 "only Germans", 4 "equal proportion", to 7 "only

Turks". The final item was recoded (1 "only Turks" to 7 "only Germans"), so that higher scores on this measure indicate stronger support for the temporary mobility strategy.[3]

Covariate. The verbal performance task (i.e., analogies) is a task that requires the participant to discover a logical relationship between two words and therefore involves logical analytical skills (Amthauer et al., 2001). Findings by Liepmann and colleagues (2007) showed that the verbal subtask including verbal analogies correlated with high school students' math grade (r = -.29, p < .05). It should be noted that school grades in Germany range from 1 "very good" to 6 "insufficient" explaining this negative correlation. Thus, based on the findings of Liepmann et al. (2007) and in line with the work by Steele and Aronson (1995), we controlled for previous performance in math (i.e., self-reported math grade) in the regression analyses on verbal performance.

Results

Verbal performance. We first conducted a multiple regression analysis on verbal performance. The regression model consisted of all simple effects (experimental condition was dummy-coded: 0 = positive stereotype, 1 = negative stereotype; vertical collectivism was mean-centered; math grade was uncentered) and the two-way interaction between experimental condition and vertical collectivism[4]. The regression model was significant, $F(4, 89) = 3.26$, p =.015, R^2 = .13 (Table 1). The simple effects of vertical collectivism (b = -.37, $t(89)$ = -2.65, SE = .14, p = .010) and the covariate math grade were significant (b = -.48, $t(89)$ = -2.32, SE = .21, p = .022). The simple effect of experimental factor was not significant (p = .206). As predicted, the two-way interaction between the experimental factor and vertical collectivism was significant (b = -.66, $t(89)$ = -.2.30, SE = .29, p = .024).

Table 1. Regression results for verbal performance.

	b	*SE(b)*	*t*	*p*
Verbal Performance				
Intercept	4.05	0.60	6.78	< .001
Math Grade	-0.48	0.21	-2.32	.022
Condition	-0.48	0.38	-1.27	.206
Vertical Collectivism	-0.37	0.14	-2.65	.010
Condition x Vertical Collectivism	-0.66	0.29	-2.30	.024

Simple slope analyses (Aiken & West, 1991; Hayes, 2013) showed that when a negative stereotype was activated (but not when a positive stereotype was activated, $p = .840$), vertical collectivism negatively predicted verbal performance ($b = -.69$, $t(89) = -3.20$, $SE = .22$, $p = .002$; see Figure 1). This means that when a negative stereotype was activated, the more strongly students endorsed vertical collectivism, the stronger was the detrimental stereotype threat effect on verbal performance.[5]

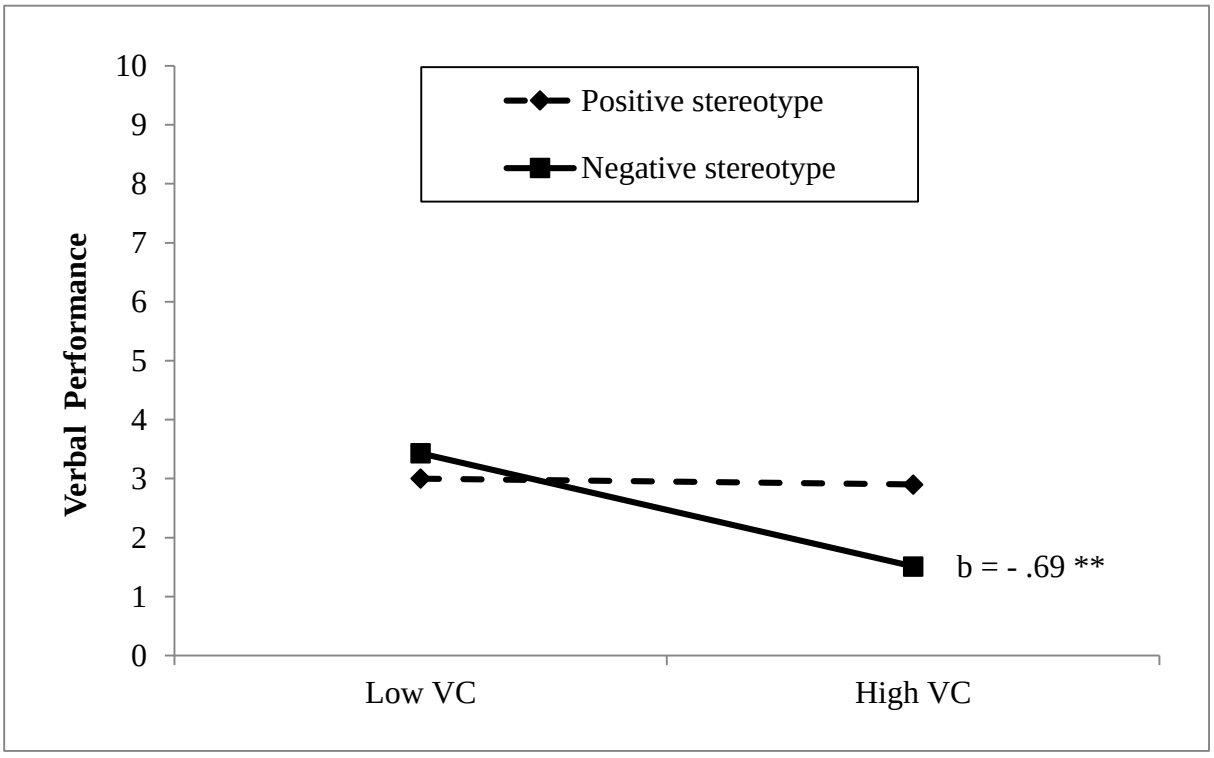

Figure 1. Interaction effect between experimental condition and vertical collectivism (VC) on verbal performance ($N = 94$). * $p \leq .05$; ** $p \leq .01$.

Temporary individual mobility motivation. We then conducted a multiple regression analysis on temporary individual mobility motivation, as assessed by desire to represent Germans in a future performance situation[6]. The regression model consisted of all simple effects (experimental condition was dummy-coded: 0 = positive stereotype, 1 = negative stereotype; vertical collectivism was mean-centered) and the two-way interaction between experimental condition and vertical collectivism. The regression model was significant, $F(3,90) = 4.32$, $p = .007$, $R^2 = .13$ (Table 2). The simple effect of vertical collectivism was marginally significant ($b = .27$, $SE = .15$, $t(90) = 1.87$, $p = .065$). As predicted, the two-way interaction between vertical collectivism and our experimental factor was significant ($b = .81$, $SE = .29$, $t(90) = 2.81$, $p = .006$).

Table 2. Regression results for temporary individual mobility motivation.

	b	*SE(b)*	*t*	*p*
Temporary Individual Mobility Motivation				
Intercept	4.42	0.20	22.46	< .001
Condition	-0.57	0.39	-1.46	.149
Vertical Collectivism	0.27	0.15	1.87	.065
Condition x Vertical Collectivism	0.81	0.29	2.81	.006

Simple slope analyses (Aiken & West, 1991; Hayes, 2013) revealed that vertical collectivism was a significant predictor of temporary individual mobility motivation in the negative stereotype condition ($b = .68$, $SE = .22$, $t(90) = 3.06$, $p = .003$; see Figure 2). This was not the case in the positive stereotype condition ($p = .469$). This finding is in line with our expectation that when a negative stereotype was activated, the higher Turkish-origin students' level of vertical collectivism was, the more motivated they would be by their group's

expectations for them, and thus the more likely they would be to temporarily join the higher performing group when given the possibility. When experiencing stereotype threat, Turkish-origin students with low levels of vertical collectivism did not appear motivated to temporarily leave their group in order to join a higher status group, as they were not motivated by their group's expectation for higher performance.

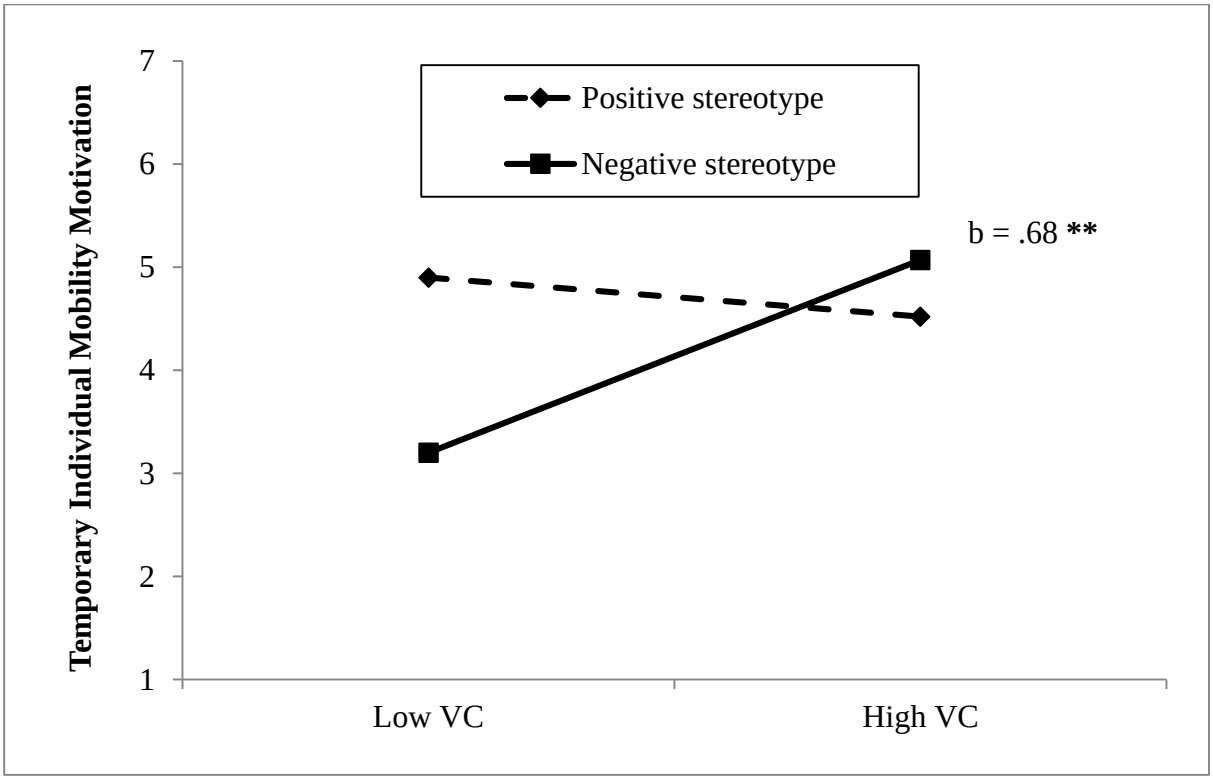

Figure 2. Interaction effect between experimental condition and vertical collectivism (VC) on temporary individual mobility motivation (N = 94). * $p \leq .05$; ** $p \leq .01$.

Mobility motivation in an ideal team composition. We additionally examined whether vertical collectivism and the experimental condition would interact to affect a second item assessing temporary individual mobility motivation in a team-based performance situation, using only students from the second school. On this measure, individual mobility motivation was defined as a preference for a higher ratio of Germans to Turks on a team. We entered participants' scores into a multiple regression analysis, $F(3, 58) = 3.72$, $p = .016$, $R^2 = .16$ (Table 3). The simple effect of experimental condition was significant ($b = .54$, $t(58) = 2.36$, $SE = .23$, $p = .021$), showing that students preferred a higher proportion of Germans on

their team following the activation of a negative stereotype. As predicted, the two-way interaction between experimental condition and vertical collectivism was also significant (b = .41, $t(58) = 2.39$, SE = .17, p = .020).

Table 3. Regression results for temporary individual mobility motivation in an ideal team.

	b	*SE(b)*	*t*	*p*
Mobility Motivation in an Ideal Team				
Composition				
Intercept	3.70	0.12	32.27	< .001
Condition	0.54	0.23	2.364	.021
Vertical Collectivism	0.14	0.09	1.64	.106
Condition x Vertical Collectivism	0.41	0.17	2.39	.020

Simple slope analyses (Aiken & West, 1991; Hayes, 2013) showed that vertical collectivism was a significant predictor of preferences for a higher proportion of Germans in an ideal team in the negative stereotype condition (b = .34, $t(58) = 2.50$, SE = .14, p = .015; see Figure 3). This was not the case in the positive stereotype condition (p = .509). This suggests that when a negative stereotype was activated, Turkish-origin students with low levels of vertical collectivism did not appear be motivated to surround themselves with a higher proportion of Germans. However, the higher students' level of vertical collectivism was, the more motivated they were by their group's expectations and thus the greater their preference was for a higher proportion of Germans in an ideal team.

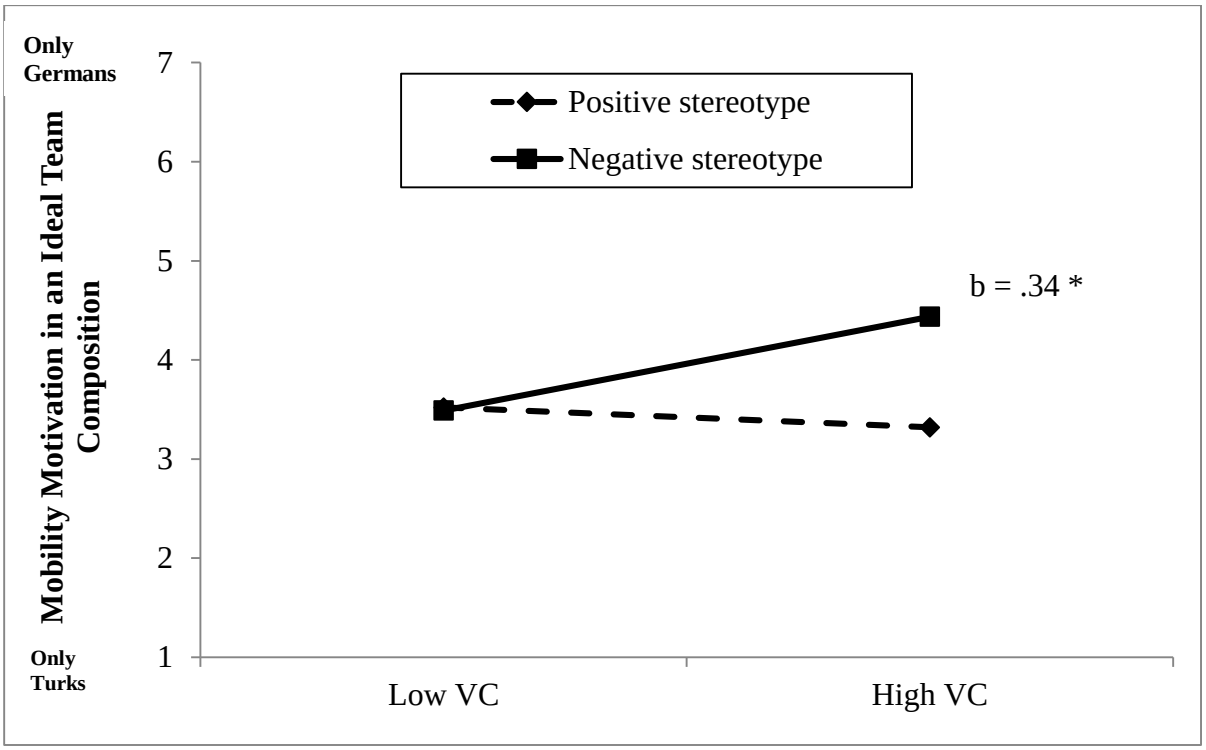

Figure 3. Interaction effect between experimental condition and vertical collectivism (VC) on temporary individual mobility motivation measured by ideal team composition (N = 62).

* $p \leq .05$.

Discussion

The present work investigated how individual differences in vertical collectivism influence the performance and temporary individual mobility motivation of Turkish-origin students following the activation of negative performance-related stereotypes. In line with our first hypothesis, we showed that when a negative stereotype about their group was activated, the more strongly Turkish-origin students endorsed vertical collectivism, the lower their performance (i.e., the greater the stereotype threat effect). In line with our second hypothesis, we found that when a negative stereotype was activated, the more strongly Turkish-origin students endorsed vertical collectivism, the higher their motivation to temporarily join a higher performing outgroup (and to choose a higher proportion of Germans in an ideal team) in a future performance situation.

Importantly, the present study was conducted at two time points, which allowed us to measure vertical collectivism endorsement several weeks prior to the experimental session. We assessed students' general levels of vertical collectivism by using items focusing on students' relationship to their family in general, independent of the specific experimental situation. The general wording of the items in combination with the assessment prior to the experimental procedure ensured that we assessed students' chronic endorsement of vertical collectivism in an everyday life situation. In addition, in contrast to most laboratory studies on stereotype activation effects, our experimental study was conducted with high school students in real-life settings, completing typical standardized tests in their standard classrooms. Thus, this work contributes to previous research that argues that stereotype threat is a useful construct for understanding the achievement of minority groups in real-world settings (Aronson & Dee, 2012).

Effects on Performance

The interaction effect of stereotype activation and vertical collectivism found on performance has three major implications. First, our study expands previous stereotype threat literature (e.g., Appel, Weber, & Kronberger, 2015; Martiny & Götz, 2011; Nguyen & Ryan, 2008) by showing that vertical collectivism can influence stereotype threat effects. This interaction effect might help explain the heterogeneous effect sizes of stereotype threat effects reported in meta-analyses (e.g., Nguyen & Ryan, 2008). Second, the interaction effect shown in our study also emphasizes the importance of cultural values (e.g., vertical collectivism) that are shaped by members of their ethnic group for negatively stereotyped migrant students in the achievement context. Thus, our results add to the discussion of whether adopting the values of one's own culture or one's host culture or a combination of the values of both cultures is most beneficial for migrant students' achievement (e.g., Hannover et al., 2013; Van Laar, Derks, & Ellemers, 2013). However, more research is necessary to explore how vertical collectivism differs from other cultural value orientations (e.g., focusing on values of the host

culture or both cultures) in stereotype threat situations. Third, we contribute to the discussion of why Turkish-origin students underperform relative to other migrant groups and native speaking students (Mok et al., 2016; Walter & Stanat, 2008). The interaction effect shown in our study might provide a further explanation for the low performance of Turkish-origin students in standardized performance tests (e.g., PISA: Klieme et al., 2010). This means that when thinking about how to create optimal learning and achievement conditions for culturally diverse groups, we do not only need to think about negative stereotypes and their activation, but also about differences in the cultural value orientations of the students within one class.

Effects of Coping Strategies

The present work provides initial support for the idea that migrant students' motivation to use coping strategies, such as the temporary individual mobility strategy (both individually and in composing an ideal team), for a future performance situation depends on a combination of stereotype activation and students' level of vertical collectivism. Thus, our study's findings contribute to the existing literature by combining research on stereotype threat effects with an individual coping strategy postulated by social identity theory (Tajfel & Turner, 1979). Our finding on the motivation to temporarily join higher performing German students in a future performance situation further adds to the discussion of whether ethnically mixed classrooms can promote a favorable learning environment for students from different ethnic groups (e.g., Antonio et al., 2004). Future research should test our temporary individual mobility motivation scenario with outgroups other than Germans (e.g., other migrants) to explore whether Turkish-origin students with high levels of vertical collectivism can benefit from joining other ethnic group members and working with them. Using these coping strategies can have several benefits. First, by showing motivation to represent the outgroup and to work with outgroup members on a future task, migrant students high in vertical collectivism may maintain their self-esteem while dealing with the stereotype threat effect. This is important because studies have found that stereotype threat effects can lead to

disengagement with the academic domain (Schmader, Major, & Gramzow, 2001), which might amplify educational disadvantages (e.g., Kristen et al., 2008). Second, the deployment of these temporary individual mobility strategies should be valued by their own group because it is consistent with the group's achievement expectations (Phalet & Claeys, 1993), and thus should reduce potential worries about not living up to the group's expectations. This is consistent with research by Van Laar and colleagues (2014) showing that a group member's pursuit of individual upward mobility was accepted by the group when it provided benefits to the group. Third, the use of these strategies, and especially the temporary individual mobility strategy for an ideal team composition, allows students to think about working with outgroup members, which might contribute to positive intergroup relations. In line with this, research has found that imagined and real contact between ingroup and outgroup members reduces prejudice and benefits intergroup relations (Pettigrew, Christ, Wagner, & Stellmacher, 2007; Pettigrew & Tropp, 2006; Turner, Crisp, & Lambert, 2007). However, it needs to be noted that Martiny and colleagues (2015) found that self-categorized Turkish-origin students chose a different coping strategy after negative stereotype activation in the math domain, namely they increased their identification with the ingroup. An important difference to the present study was that in the prior study the group boundaries were not permeable so that an individual mobility strategy could not be pursued by threatened group members (Ellemers et al., 1990).

Limitations

One limitation of the present work is that we investigated the impact of vertical collectivism on stereotype activation effects only for private school students. We used Turkish-origin students from private schools that offered additional courses for Turkish-origin students so that our sample would include a wide range of vertical collectivism, including students who strongly valued vertical collectivism. To investigate the generalizability of the results, future studies should examine the effects with students in public schools as well.

The low reliability of the verbal analogies measure was another restriction. The variability in item difficulty of the ten verbal analogies as well as the low number of items might have contributed to this low reliability. However, we chose to include less of the medium-difficult items and more of the highly difficult items because we wanted to avoid floor effects from using only very difficult items. Future research should include a higher number of verbal analogies to increase the reliability.

A further limitation of the study is the low internal consistency of our vertical collectivism scale. This means we cannot absolutely be sure that the vertical collectivism scale used in our study is a valid measure of the vertical collectivism construct developed by Singelis and colleagues (1995). Consequently, the reported effects and their generalization should be interpreted with caution. Different reasons can explain the low internal consistency. One reason is that we used only three items from the full vertical collectivism scale developed by Singelis and colleagues (1995) due to the time limits set by the schools. It would be useful for future research to replicate our findings with the full vertical collectivism scale to ensure the generalization of our effects. One further reason could be that two of our vertical collectivism items refer to the family, whereas the other item refers to the ethnic group. It might be that students aged of 15 to 16 can relate the family items more to their daily life than the abstract ethnic group-related item. The different response patterns to these two referent groups might have influenced the internal consistency. Despite the low consistency of our vertical collectivism measurement, we believe that our results should be considered as important first evidence for the important role vertical collectivism plays in stereotype threat situations for two reasons. First, our main predictions for the effects of vertical collectivism in situations of stereotype activation were based on existing theories and previous empirical evidence. These predictions for three different dependent variables, namely performance, temporary individual mobility motivation, and mobility motivation in an ideal team, were supported by our data. Second, we conducted the study in a natural real-life setting (i.e.,

regular classrooms) that inevitably goes along with several uncontrollable factors leading to high levels of error variance (Aronson & Dee, 2012). Even under these circumstances, we were able to detect the predicted patterns. In our understanding, this provides evidence for the internal validity of the used measure and again highlights the high ecological validity of our study. Still we would recommend that future research should replicate our results using an improved measure of vertical collectivism.

Practical Implications

Based on the present findings, practical implications can be drawn. One implication is that teachers should not make students' ethnic group membership salient before conducting a performance test in order to avoid stereotype threat effects in the classroom for Turkish-origin students who strongly endorse vertical collectivism. Instead, teachers can encourage these students by referring to students' effort so that students feel recognized for their achievement motivation. The focus on effort might also positively affect performance of these students (Blackwell, Trzesniewski, & Dweck, 2007).

Our findings on coping strategies show that migrant students with high vertical collectivism deploy temporary individual mobility strategies after negative stereotype activation to deal with this threat to their self-esteem. One implication is that teachers can let their students use these strategies (i.e., temporary joining and working with a high performing outgroup) in real group work situations. For example, teachers can implement more group work units with heterogeneous students in terms of their achievement level and ethnicity, which can have a positive impact on the group outcome (Antonio et al., 2004; Aronson, Blaney, Stephan, Sikes, & Snapp, 1978). These group work units might be beneficial especially for Turkish-origin students with strong vertical collectivism endorsement. Moreover, research has found that the standardized test performance of (higher performing) German students do not suffer when they are in classrooms with a high proportion of (lower-performing) Turkish-origin students (e.g., Mok et al., 2016), which also speaks for an

implementation of ethnically mixed and ability-related grouping during collaborations in the classroom. However, more research is needed to explore these effects. Previous interventions with ethnic minority students have shown that writing about possible selves in school (i.e., "what students expect to achieve next school year") and concrete behavioral strategies can result in positive achievement effects (Oyserman, Bybee, Terry, & Hart-Johnson, 2004). We believe that these findings together with our temporary individual mobility strategy can build a combined intervention for migrant students with high vertical collectivism endorsement. In detail, these students should write about their group's achievement expectations and behavioral strategies related to how they plan to achieve these expectations by working with outgroup members in the future. This intervention may reduce stereotype threat effects and increase self-esteem in these students.

Conclusion

We contribute to the existing research literature on stereotype threat effects for migrants (e.g., Appel et al., 2015; Froehlich, Martiny, Deaux, Goetz, et al., 2016; Martiny et al., 2015) by revealing that vertical collectivism interacts with the activation of negatives stereotypes on performance and individual mobility motivation. Our findings are also relevant to work on the relationship between individual differences in student characteristics and achievement-related outcomes (e.g., Jurik et al., 2014) revealing that migrant students with high vertical collectivism endorsement suffer from stereotype threat effects. This is especially the case when their negatively stereotyped ethnic group membership is made salient. Therefore, to avoid these effects teachers should create an environment in which performance results are related to individual students and not to their ethnic group membership. Moreover, the present study also showed that deploying a temporary individual mobility strategy after stereotype threat can have different benefits such as maintaining self-esteem or gaining their group's acceptance by acting in line with their group's high achievement expectations.

References

Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage Publications.

Antonio, A. L., Chang, M. J., Hakuta, K., Kenny, D. A., Levin, S., & Milem, J. F. (2004). Effects of racial diversity on complex thinking in college students. *Psychological Science, 15,* 507-510. doi: 10.1111/j.0956-7976.2004.00710.x

Amthauer, R., Brocke, B., Liepmann, D., & Beauducel, A. (2001). *Intelligenz-Struktur-Test 2000 R* [Intelligence Structure Test 2000 R]. Göttingen: Hogrefe.

Appel, M., Weber, S., & Kronberger, N. (2015). The influence of stereotype threat on immigrants: Review and meta-analysis. *Frontiers in Psychology, 6*. doi: 10.3389/fpsyg.2015.00900

Aronson, E., Blaney, N., Stephan, C., Sikes, J., & Snapp, M. (1978). *The jigsaw classroom*. Beverly Hills, CA: Sage Publications.

Aronson, J., & Dee, T. (2012). Stereotype threat in the real world. In M. Inzlicht & T. Schmader (Eds.), *Stereotype threat: Theory, processes, and application* (pp. 264-279). New York, NY: Oxford University Press.

Aronson, J., Lustina, M. J., Good, C., Keough, K., Steele, C. M., & Brown, J. (1999). When white men can't do math: Necessary and sufficient factors in stereotype threat. *Journal of Experimental Social Psychology, 35,* 29-46. doi:10.1006/jesp.1998.1371:

Asbrock, F. (2010). Stereotypes of social groups in Germany in terms of warmth and competence. *Social Psychology, 41,* 76-81. doi: 10.1027/1864-9335/a000011

Beauducel, A., Liepmann, D., Horn, S. & Brocke, B. (2010). *Intelligence Structure Test*. Oxford: Hogrefe.

Blackwell, L. S., Trzesniewski, K. H., & Dweck, C. S. (2007). Implicit theories of intelligence predict achievement across an adolescent transition: A longitudinal study

and an intervention. *Child Development,* 78 (1), 246-263. doi: 10.1111/j.1467-8624.2007.00995.x

Bos, W. (2012). *TIMSS 2011: Mathematische und naturwissenschaftliche Kompetenzen von Grundschulkindern in Deutschland im internationalen Vergleich* [TIMSS 2011: Mathematics and science competencies of elementary school children in Germany and in international comparison]. Münster [u.a.]: Waxmann.

Brewer, M. B., & Chen, Y.-R. (2007). Where (who) are collectives in collectivism? Toward conceptual clarification of individualism and collectivism. *Psychological Review, 114*, 133-151. doi: http://dx.doi.org/10.1037/0033-295X.114.1.133-151

Corno, L., & Snow, R. E. (1986). Adapting teaching to individual differences among learners. In M. Wittrock (Ed.), *Handbook of Research on Teaching* (pp. 605-629). New York: Macmillan.

Cross, S. E., Bacon, P. L., & Morris, M. L. (2000). The relational-interdependent self-construal and relationships. *Journal of Personality and Social Psychology, 78*, 791-808. doi: 10.1O37//0O22-3514.78.4791

DGPs. (2004). *Revision der auf die Forschung bezogenen ethischen Richtlinien [Revision of the research related ethical guidelines]*. Retrieved from http://www.dgps.de/index.php?id=2000498&tx_ttnews[tt_news]=984&cHash=2bbb5c92b15d6ac9581f67873e0aab4e

Ellemers, N., Spears, R., & Doosje, B. (1997). Sticking together or falling apart: In-group identification as a psychological determinant of group commitment versus individual mobility. *Journal of Personality and Social Psychology, 72*, 617-626. doi: 10.1037/0022-3514.72.3.617

Ellemers, N., van Knippenberg, A., & Wilke, H. (1990). The influence of permeability of group boundaries and stability of group status on strategies of individual mobility and

social change. *British Journal of Social Psychology, 29*, 233-246. doi: 10.1111/j.2044-8309.1990.tb00902.x

Eurostat (2015). *Migration and migrant population statistics.* Retrieved from http://ec.europa.eu/eurostat/statistics-explained/extensions/EurostatPDFGenerator/getfile.php?file=138.246.2.117_1455190254_64.pdf

Froehlich, L., Martiny, S. E., Deaux, K., Goetz, T., & Mok, S. Y. (2016). Being smart or getting smarter: Implicit theory of intelligence moderates stereotype threat and stereotype lift effects. *British Journal of Social Psychology, 55*, 564-587. doi: 10.1111/bjso.12144

Froehlich, L., Martiny, S. E., Deaux, K., & Mok, S. Y. (2016). "It's their responsibility, Not ours" – Competence stereotypes and causal attributions for immigrants' academic underperformance. *Social Psychology, 47*, 74-86. doi: 10.1027/1864-9335/a000260

Fuligni, A. J. (2001). Family obligation and the academic motivation of adolescents from Asian, Latin American, and European backgrounds. *New Directions for Child and Adolescent Development*, *2001*(94), 61-76. doi: 10.1002/cd.31

Güngör, D., Karasawa, M., Boiger, M., Dinçer, D., & Mesquita, B. (2014). Fitting in or sticking together: The prevalence and adaptivity of conformity, relatedness, and autonomy in Japan and Turkey. *Journal of Cross-Cultural Psychology, 45*, 1374-1389. doi: 10.1177/0022022114542977

Hannover, B., Morf, C. C., Neuhaus, J., Rau, M., Wolfgramm, C., & Zander-Musić, L. (2013). How immigrant adolescents' self-views in school and family context relate to academic success in Germany. *Journal of Applied Social Psychology, 43*, 175-189. doi: 10.1111/j.1559-1816.2012.00991.x

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York: Guilford Press.

Inzlicht, M., & Schmader, T. (2012). *Stereotype threat: Theory, process, and application*. New York, NY: Oxford University Press.

Jamieson, J. P., & Harkins, S.G. (2007). Mere effort and stereotype threat performance effects. *Journal of Personality and Social Psychology, 93*, 544-564. doi: 10.1037/0022-3514.93.4.544

Jurik, V., Gröschner, A., & Seidel, T. (2014). Predicting students' cognitive learning activity and intrinsic learning motivation: How powerful are teacher statements, student profiles, and gender? *Learning and Individual Differences, 32*, 132-139. doi: http://dx.doi.org/10.1016/j.lindif.2014.01.005

Kahraman, B., & Knoblich, G. (2000). "Stechen statt Sprechen": Valenz und Aktivierbarkeit von Stereotypen über Türken. ["Stereotypes about Turks“: Valence and activation]. *Zeitschrift für Sozialpsychologie, 31*, 31-43. doi: 10.1024//0044-3514.31.1.31

Keller, J. (2007). Stereotype threat in classroom settings: The interactive effect of domain identification, task, difficulty and stereotype threat on female students’ maths performance. *British Journal of Educational Psychology, 77*, 323–338. doi: 10.1348/000709906X113662

Klieme, E., Artelt, C., Hartig, J., Jude, N., Köller, O., Prenzel, M., . . . Stanat, P. (2010). *PISA 2009: Bilanz nach einem Jahrzehnt* [PISA 2009: Drawing a balance after a decade]. Münster: Waxmann Verlag.

Komarraju, M., & Cokley, K. O. (2008). Horizontal and vertical dimensions of individualism-collectivism: A comparison of African Americans and European Americans. *Cultural Diversity and Ethnic Minority Psychology, 14*, 336-343. doi: 10.1037/1099-9809.14.4.336

Kristen, C., Reimer, D., & Kogan, I. (2008). Higher education entry of Turkish immigrant youth in Germany. *International Journal of Comparative Sociology, 49*, 127-151. doi: 10.1177/0020715208088909

Kunter, M., Schümer, G., Artelt, C., Baumert, J., Klieme, E., Neubrand, M., & Weiß, M. (2002). *PISA 2000: Dokumentation der Erhebungsinstrumente*. [PISA 2000: Documentation of Scales]. Berlin: Heenemann GmbH & Co.

Liepmann, D., Beauducel, A., Brocke, B., & Amthauer, R. (2007). *Intelligenz-Struktur-Test 2000 R (I-S-T 2000 R). Manual*. Göttingen: Hogrefe.

Martiny, S. E., & Götz, T. (2011). Stereotype Threat in Lern- und Leistungssituationen: Theoretische Ansätze, empirische Befunde und praktische Implikationen. [Stereotype Threat in Learning and Performance Situations: Theory, empirical results and practical implications]. In M. Dresel & L. Lämmle (Eds.), *Talentförderung - Expertiseentwicklung - Leistungsexzellenz: Vol. 9. Motivation, Selbstregulation und Leistungsexzellenz* (pp.153–177). Münster: LIT.

Martiny, S. E., Götz, T., & Keller, M. (2013). Emotionsregulation im Kontext von Stereotype Threat: Die Reduzierung der Effekte negativer Stereotype bei ethnischen Minderheiten. *Handbuch Stress und Kultur* (pp. 397-415). Wiesbaden: Springer.

Martiny, S. E., Mok, S. Y., Deaux, K., & Froehlich, L. (2015). Effects of activating negative stereotypes about Turkish-origin students on performance and identity management in German high schools. *Revue Internationale de Psychologie Sociale, 3*, 205-225.

Miller, J. G. (1994). Cultural diversity in the morality of caring: Individually oriented versus duty-based interpersonal moral codes. *Cross-Cultural Research, 28*, 3-39. doi: 10.1177/106939719402800101.

Mok, S. Y., Martiny, S. E., Gleibs, I. H., Keller, M. M., & Froehlich, L. (2016). The relationship between ethnic classroom composition and Turkish-Origin and German students' reading performance and sense of belonging. *Frontiers in Psychology, 7.* doi: 10.3389/fpsyg.2016.01071

Mrazek, M. D., Chin, J. M., Schmader, T. Hartson, K. A., Smallwood, J., & Schooler, J. W. (2011). Threatened to distraction: Mind-wandering as a consequence of stereotype

threat. *Journal of Experimental Social Psychology*, *47*, 1243-1248. doi: 10.1016/j.jesp.2011.05.011.

Nguyen, H.-H. D., & Ryan, A. M. (2008). Does stereotype threat affect test performance of minorities and women? A meta-analysis of experimental evidence. *Journal of Applied Psychology*, *93*, 1314-1334. doi: 10.1037/a0012702

OECD. (2014). Education at a Glance 2014: OECD Indicators, OECD Publishing. doi: http://dx.doi.org/10.1787/eag-2014-en

Oyserman, D., Bybee, D., Terry, K., & Hart-Johnson, T. (2004). Possible selves as roadmaps. *Journal of Research in Personality, 38*(2), 130-149. doi: http://dx.doi.org/10.1016/S0092-6566(03)00057-6

Pettigrew, T. F., Christ, O., Wagner, U., & Stellmacher, J. (2007). Direct and indirect intergroup contact effects on prejudice: A normative interpretation. *International Journal of Intercultural Relations, 31*, 411-425. doi: 10.1016/j.ijintrel.2006.11.003

Pettigrew, T. F., & Tropp, L. R. (2006). A meta-analytic test of intergroup contact theory. *Journal of personality and social psychology, 90*(5), 751-783. doi: http://dx.doi.org/10.1037/0022-3514.90.5.751

Phalet, K., & Claeys, W. (1993). A comparative study of Turkish and Belgian youth. *Journal of Cross-Cultural Psychology, 24*, 319-343. doi: 10.1177/0022022193243004

Rydell, R. J., McConnell, A. R., & Beilock, S. L. (2009). Multiple social identities and stereotype threat: imbalance, accessibility, and working memory. *Journal of Personality and Social Psychology*, *96*, 949-966. doi: 0.1037/a0014846

Schauenburg, B. (2011). Stereotype und Erwartungseffekte: Beiträge der Sozialpsychologie zur Bildungsdebatte. In U. Neumann & J. Schneider (Eds.), *Schule mit Migrationshintergrund* (pp.169–180). Münster: Waxmann.

Schmader, T. (2002). Gender identification moderates stereotype threat effects on women's math performance. *Journal of Experimental Social Psychology*, *38*, 194-201. doi: 10.1006/jesp.2001.1500.

Schmader, T., & Johns, M. (2003). Converging evidence that stereotype threat reduces working memory capacity. *Journal of Personality and Social Psychology*, *85*, 440-452. doi: 10.1037/0022-3514.85.3.440

Schmader, T., Johns, M., & Forbes, C. (2008). An integrated process model of stereotype threat effects on performance. *Psychological Review, 115*, 336-356. doi: 10.1037/0033-295x.115.2.336

Schmader, T., Major, B., & Gramzow, R.H. (2001). Coping with ethnic stereotypes in the academic domain: Perceived injustice and psychological disengagement. *Journal of Social Issues*, *57*, 93-111. doi: 10.1111/0022-4537.00203.

Schofield, J. W. (2006). Migration background, minority-group membership and academic achievement. Research evidence from social, educational and developmental psychology. Berlin: Wissenschaftszentrum Berlin für Sozialforschung.

Schwartz, S. H. (2006). A theory of cultural value orientations: Explication and applications. *Comparative Sociology*, *5*, 137-182. doi: 10.1163/156913306778667357

Shete, A. N., Kausar, A., Lakhkar, K., & Khan, S. T. (2015). Item analysis: An evaluation of multiple choice questions in Physiology examination. *Journal of Contemporary Medical Education*, *3*, 106-109. doi: 10.5455/jcme.20151011041414

Shih, M., Pittinsky, T. L., & Ambady, N. (1999). Stereotype susceptibility: Identity salience and shifts in quantitative performance. *Psychological Science, 10*, 80-83. doi: 10.1111/1467-9280.00111

Shih, M., Pittinsky, T. L., & Trahan, A. (2006). Domain-specific effects of stereotypes on performance. *Self & Identity, 5*, 1-14. doi: 10.1080/15298860500338534

Singelis, T. M., Triandis, H. C., Bhawuk, D. P. S., & Gelfand, M. J. (1995). Horizontal and vertical dimensions of individualism and collectivism: A theoretical and measurement refinement. *Cross-Cultural Research, 29,* 240-275. doi: 10.1177/106939719502900302

Statistisches Bundesamt (2012). *Bevölkerung und Erwerbstätigkeit. Bevölkerung mit Migrationshintergrund – Ergebnisse des Mikrozensus 2012. [Federal Statistical Office (2012). Population and employment. Population with migration background – Results of the microcensus 2012]*. Fachserie 1 Reihe 2.2. Wiesbaden: Statistisches Bundesamt.

Steele, C. M., & Aronson, J. (1995). Stereotype threat and the intellectual test performance of African Americans. *Journal of Personality and Social Psychology, 69,* 797-811. doi: 10.1037/0003-066X.59.1.47

Steele, C. M., Spencer, S. J., & Aronson, J. (2002). Contending with group image: The psychology of stereotype and social identity threat. *Advances in Experimental Social Psychology, 34,* 379-440. doi: 10.1016/s0065-2601(02)80009-0

Strasser, J. (2012). Kulturelle Stereotype und ihre Bedeutung für das Verstehen in Schule und Unterricht. Verstehen und Kultur, pp. 191-215. Wiesbaden: VS Verlag für Sozialwissenschaften

Tajfel, H., & Turner, J. C. (1979). An integrative theory of intergroup conflict. In W. G. Austin & S. Worchel (Eds.), *The Social Psychology of Intergroup Relations* (pp. 33-47). Monterey, CA: Brooks/Cole.

Tajfel, H., & Turner, J. C. (1986). The social identity theory of intergroup behavior. In S. Worchel & W. G. Austin (Eds.), *The Psychology of Intergroup Relations* (pp. 7-24). New York, NY, US: Psychology Press.

Turner, R. N., Crisp, R. J., & Lambert, E. (2007). Imagining intergroup contact can improve intergroup attitudes. *Group Processes & Intergroup Relations, 10,* 427-441. doi: 10.1177/1368430207081533

Van Laar, C., Bleeker, D., Ellemers, N., & Meijer, E. (2014). Ingroup and outgroup support for upward mobility: Divergent responses to ingroup identification in low status groups. *European Journal of Social Psychology, 44*, 563-577. doi: 10.1002/ejsp.2046

Van Laar, C., Derks, B., & Ellemers, N. (2013). Motivation for education and work in young Muslim women: The importance of value for ingroup domains. *Basic and Applied Social Psychology, 35*, 64-74. doi: 10.1080/01973533.2012.746609

Varnum, M. E. W., Grossmann, I., Kitayama, S., & Nisbett, R. E. (2010). The origin of cultural differences in cognition: Evidence for the social orientation hypothesis. *Current Directions in Psychological Science, 19*, 9-13. doi: 10.1177/0963721409359301

Verkuyten, M., Thijs, J., & Canatan, K. (2001). Achievement motivation and academic performance among Turkish early and young adolescents in the Netherlands. *Genetic, Social, and General Psychology Monographs, 127*, 378–408.

Walter, O., & Stanat, P. (2008). Der Zusammenhang des Migrantenanteils in Schulen mit der Lesekompetenz: Differenzierte Analysen der erweiterten Migrantenstichprobe von PISA 2003. *Zeitschrift für Erziehungswissenschaft, 11*, 84-105. doi: 10.1007/s11618-008-0005-7

Worbs, S. (2003). The second generation in Germany: Between school and labor market. *The International Migration Review, 37*, 1011-1038. doi: 10.1111/j.1747-7379.2003.tb00168.x

Yzerbyt, V. Y., Muller, D., & Judd, C. M. (2004). Adjusting researchers' approach to adjustment: On the use of covariates when testing interactions. *Journal of Experimental Social Psychology, 40*, 424–431. doi:10.1016/j.jesp.2003.10.001

Footnotes

[1] We conducted a regression analysis with experimental condition and vertical collectivism as independent variables and reading comprehension performance as a dependent variable. In line with earlier work (e.g., Keller, 2007) showing that stereotype threat effects are not present for easy tasks, the regression model was not significant, $F(3,90) = .16$, $p = .93$, $R^2 = .005$. Neither the simple effects nor the two-way interaction between experimental condition and vertical collectivism were significant (all ps $\geq .57$).

[2] We also assessed the group (i.e., Germans, or Turks, or girls, or boys) that participants wanted to represent the most for the imagined test in the scenario. However, we did not include this variable in our analysis.

[3] We additionally assessed domain specific self-concept, domain identification, test difficulty, ethnic group identification, independent self-construal, interdependent self-construal evaluation of the ethnic in- and outgroup's performance, meta-evaluation of the Germans, language abilities, the socio-economic status, achievement expectations of the family, disidentification, and evaluation of the cooperation with Turks in the scenario situation. However, we did not use these variables in our regression analyses because they were not relevant to our hypotheses.

[4] As we conducted our study with students of two different schools at different time points of the school year, we also controlled for school in our preliminary regression analyses on both dependent variables to pretest whether the school was independent from our experimental factor. Following the suggestion by Yzerbyt, Muller, and Judd (2004), we tested in our preliminary regression analysis on performance whether school as covariate was independent from our experimental factor in the regression model. In doing so, we included the two-way interactions of both covariates (i.e., school and math grade) with our experimental factor and vertical collectivism with our experimental factor in the regression models on verbal

performance. The regression model was marginally significant, $F(7,86) = 2.09$, $p = .053$, $R^2 = .145$. Neither the simple effects (including the simple effect of school; $p = .32$) nor the two-way interactions between both covariates and the experimental condition were not significant (all $ps \geq .095$). Only the simple effect of vertical collectivism ($b = -.39$, $t(86) = -.2.66$, $SE = .15$, $p = .009$) and the two-way interaction between the experimental factor and vertical collectivism were significant ($b = -.69$, $t(86) = -.2.37$, $SE = .29$, $p = .020$). Because the results showed that the school was independent from the experimental factor, we did not include the two-way interaction between school and experimental factor in the final regression model.

[5] As earlier findings showed that the identification with one's group or domain are important variables moderating stereotype threat effects (Aronson, 1999; Schmader, 2002), we tested the relationship between vertical collectivism and domain and group identification. In contrast to vertical collectivism that had been assessed several weeks before the experimental procedure, group and domain identification were assessed in the post-questionnaire at the end of the experimental session. Bivariate correlational analyses showed that domain identification and vertical collectivism were moderately correlated, $r(92) = .29$, $p = .002$. Group identification and vertical collectivism did not correlate significantly, $r(90) = .19$, $p = .080$. These relatively low correlations indicate that vertical collectivism can be differentiated from group and domain identification. In addition, to ensure that the effects of vertical collectivism hold true also when controlling for group and domain identification, we conducted two further regression analyses. The interaction effect on performance remained significant after controlling either for domain ($b = -.66$, $SE = .29$, $t(88) = -2.30$, $p = .024$) or group identification ($b = -.60$, $SE = .29$, $t(86) = -2.04$, $p = .044$) indicating that the observed effect was indeed driven by vertical collectivism.

[6] In the preliminary analysis on temporary individual mobility motivation, we examined whether school as covariate was independent from our experimental factor in the regression model (Yzerbyt et al., 2004). We included the two-way interactions of school with our experimental factor and vertical collectivism with our experimental factor in the regression model. The regression model was significant, $F(5,88) = 2.83$, $p = .021$, $R^2 = .14$. Neither the simple effects (including the simple effect of school; $p = .27$) nor the two-way interaction between school and the experimental factor were not significant (all $ps \geq .06$). The two-way interaction between the experimental factor and vertical collectivism was significant ($b = .80$, $t(88) = 2.74$, $SE = .29$, $p = .007$). Because school was independent from our experimental factor, we did not include the two-way interaction between school and experimental factor in the final regression model.