Antecedents, implications, and professional development of teachers’ multiculturalism

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Having positive and meaningful social connections is one of the basic psychological needs of students. The satisfaction of this need is directly related to students’ engagement—a robust predictor of educational achievement. However, not all students’ needs are met to the same extent. Minoritized students not only report experiencing disproportionate levels of intergroup bias (e.g., prejudice), but their minoritized position is also emphasized by the mainstream curriculum and instruction that largely ignore their perspectives and experiences. Drawing upon Self-Determination Theory and Intergroup Contact Theory, the current study investigated the extent to which the use of multicultural practices can improve students’ engagement, and whether this relationship is mediated by positive student peer relationships. With data from 34 upper primary school classroom teachers and their 708 students, our multigroup analysis using structural equation modeling indicated that in classrooms with low (compared to high) minoritized student concentration, peer relationships can mediate the positive as well as negative effects of different dimensions of multicultural education on student engagement.

This chapter is based on:

CHAPTER 4

Effects of Multicultural Education on Student Engagement in Low and High Concentration Classrooms: The Mediating Role of Student Relationships
Having positive and meaningful social connections (i.e., *relatedness*) is one of the basic psychological needs of students. The satisfaction of this need is directly related to students’ intrinsic motivation and engagement (Deci & Ryan, 1985). However, in Dutch classrooms, minoritized students report experiencing disproportionate levels of prejudice, stereotyping, and discrimination compared to their majority group peers (OECD, 2014; Thijs et al., 2014), suggesting that not all students’ needs are met to the same extent. Moreover, students’ minoritized position is further emphasized by the mainstream curriculum and instruction that do not meet the academic needs of a diverse student population (Bingham & Okagaki, 2012).

A less responsive educational environment may result in lower levels of student engagement for students. As one of the important predictors of academic outcomes (Reschly & Christenson, 2012), the resulting lower levels of engagement may partially account for minoritized students’ lower ratings in academic indicators such as standardized test scores at the end of primary school and higher drop-out rates compared to that of their majority group peers (Gijsberts et al., 2012; Van De Werfhorst & Van Tubergen, 2007).

One potential way to tackle this problem is to incorporate more multicultural practices into education. These practices are designed to mitigate inequality of education opportunities, support equal peer interactions, and improve intergroup relationships (Klein, 2012). Drawing upon Self-Determination Theory (SDT; Deci & Ryan, 1985), the current study investigated the extent to which the use of these practices is related to students’ engagement, and the degree to which students’ peer relationships, as a proxy for *relatedness*, is a mediator to this relationship. In addition, we tested the proposed relationships in classrooms with low and high ethnic minoritized student concentrations to test whether the investigated relationships differ. To the best of our knowledge, the current study is a first to approach multicultural education with a SDT lens, and to examine multicultural education’s effect on peer relationships in different intergroup contexts.

**Student Engagement**

We概念ualize student engagement as the “outward manifestation of motivation” and define it as the extent to which a student is actively involved in learning activities and environments (Skinner et al., 2009; Skinner & Pitzer, 2012), which has been positively associated with favorable educational outcomes including advances in academic achievement (Reschly & Christenson, 2012). Student engagement is manifested in multiple dimensions (Skinner et al., 2009). First, the *behavioral dimension* of engagement includes students’ efforts in initiating learning activities, and attention, concentration, persistence, and involvement during these activities. Second, the *emotional dimension* of engagement includes enthusiasm, interest, enjoyment and satisfaction states during learning activities. Third, the *cognitive dimension* of engagement includes goal strivings, mastery orientation,
self-regulation, and the use of coping strategies preceding and during learning activities. In the current study, we focus on the emotional and behavioral dimensions of engagement\textsuperscript{11}.

School contexts feature conditions that facilitate motivation and engagement to the extent to which they satisfy students’ basic psychological needs, namely autonomy, competence, and feelings of relatedness (Connell & Wellborn, 1991; Deci & Ryan, 1985; Reeve, 2002; Ryan & Deci, 2000). The extent to which social contexts can be responsive to students’ needs, however, differs not only between but also within schools and classrooms, for example based on the cultural background of students (Skinner & Pitzer, 2012). More specifically, motivation and learning may be inhibited by experiences of discontinuity between the mainstream culture and students’ home culture, due to differences in language, values, norms, practices, and the quality of relationships with teachers and peers (Bingham & Okagaki, 2012).

In Europe, similar to other parts of the world, the teaching workforce is still fairly homogenous, middle class, and is dominated by teachers with the mainstream cultural background. The disparity between the diverse student population and the homogenous teaching body has been shown to have hidden costs for students (Reiter & Davis, 2011), such as less relatable educational content, pedagogical practices that do not support “alternative” ways of learning, low expectations of success, less positive and more negative feedback from teachers, or experiences of stereotype threat (Gay, 2000). Similarly, the discontinuity between the majority and the minoritized students’ cultures can have covert consequences such as difficulties taking into account the experiences and perspectives of the outgroup members (especially that of the non-dominant group members) (Dovidio et al., 2004) or rather overt negative consequences such as name-calling from peers and exclusion from peer groups because of one’s ethnic or cultural background (Thijs & Verkuyten, 2014; Vervoort et al., 2010). Indeed, for many students in the Western part of the world, including the Netherlands, interethnic tensions are a prominent part of minoritized students’ lives (Banks, 2016; Thijs & Verkuyten, 2014), starting within neighborhoods and continuing in the educational institutions and the labor market (Guiraudon et al., 2005). These overt and covert negative consequences of cultural discontinuity can hamper students’ peer relationships and thus relatedness.

**Peer Relationships and Engagement**

In educational institutions, the curriculum, materials, and instruction tend to be primarily from the perspective of the dominant group. As a result, minoritized groups’ histories and cultures are usually added as a mere side note to the regular curriculum and

\textsuperscript{11} To the best of our knowledge, there are no measures that assess all three facets of students’ engagement in the classroom, as opposed to the school in general, in primary school aged children. Therefore, we focused on the emotional and behavioral aspects of engagement.
mentioning of social biases are kept to a minimum, thereby perpetuating the acceptance of existing inequalities and not providing equitable opportunities for development.

These biases, in addition, are often mirrored in interpersonal interactions between students and teachers, and between peers (Thijs & Verkuyten, 2014). Previous research in Dutch schools indicates that even in culturally diverse schools with many different ethnic groups, children rarely have friendships and casual contacts with peers of a different ethnic background (Baerveldt et al., 2007; Fortuin et al., 2014; Vermeij et al., 2009). Intergroup Contact Theory suggests that intergroup contact in situations characterized by support from social and institutional figures, equal status, and a cooperative environment wherein people can rely on each other to reach shared goals can greatly help reduce intergroup bias and improve interpersonal interactions (Allport, 1954; Pettigrew & Tropp, 2006). Without meaningful contact that is supported by institutional authority figures such as teachers, organizing mixed classrooms seems to be inadequate for creating equal status between students from different ethnic backgrounds, and promoting interethnic attitudes that are positive enough to desegregate peer groups.

Students who perceive their ethnic groups to have negative societal evaluations and/or who experience social biases due to their ethnic backgrounds, in turn, report decreases in their positive self-evaluations and in the quality of their engagement, including their interest and determination (Chavous et al., 2003; Eccles et al., 2006). On the grounds that diversity in cultural backgrounds is an irrefutable part of Western societies, only teachers who respect and value the cultural characteristics of their students and their experiences, and support students in establishing positive contacts can successfully help to satisfy all of their students’ psychological needs. Teachers, therefore, need to adopt practices that are in line with the needs of the diverse student body that they teach (Banks, 2016).

**Multicultural Education**

Aiming for an equally responsive social context for all students, multicultural education offers practices that are in line with the needs of diverse student populations. Banks (2004) provides a detailed conceptualization of multicultural education that includes five distinct but highly interrelated dimensions. We used these dimensions to investigate the relationships between multicultural education, peer relationships, and engagement.

In his conceptualization of multicultural education (Banks, 2004), teachers should employ content integration from a variety of cultures in what they teach, reflecting and representing the diversity of their students through texts, histories, values, beliefs, and varying perspectives from different cultures (Koshy, 2017). Moreover, teachers should increase their students’ awareness of the knowledge construction process and help students to be critical about who the knowledge serves and from whose perspective it was constructed (e.g., cultural references, biases). Next, teachers should aim for prejudice reduction by modifying their students’ attitudes through teaching methods, materials, and dialogue to decrease
negative and improve positive intergroup relations by actively counteracting social biases (i.e., prejudice, stereotyping, discrimination). Further, teachers should aim for an empowering school culture and social structure, by examining disproportionality in attendance and achievement between groups in various aspects of school (e.g., to giftedness programs). Lastly, teachers should strive for equity pedagogy, i.e., equity in how they teach, by modifying their teaching to include various teaching and assessment styles to facilitate the learning and academic achievement of all students. This requires avoiding standardized, one-size-fits-all approaches to teaching and learning, relating content to students’ lives and creating opportunities for them to engage with learning in various forms (e.g., cooperative learning, problem-based learning, role-playing, simulations).

**Student Engagement Through Peer Relationships**

Practicing multicultural practices can contribute to the satisfaction of students’ needs for relatedness through increasing positive peer relationships and reducing negative ones. By tapping into students’ experiences, identities, and struggles (e.g., content integration), and critically examining mainstream narratives (e.g., knowledge (de)construction of history, mass media), teachers can help their students to develop awareness of and respect for different perspectives (Camicia, 2007). Accordingly, using multicultural practices, teachers can create the grounds for a safe environment in which dialogue can take place about issues related to prejudices, stereotypes, and discrimination. They can promote learning environments where equal status and cooperative goals are emphasized (in line with Intergroup Contact Theory), and where differences are appreciated and seen as a resource for social and academic development (e.g., prejudice reduction; Banks, 2004; Ponterotto et al., 1998).

For instance, in a study conducted with children between the age of 6 and 11 (Hughes, Bigler, & Levy, 2007), researchers compared pre- and post-test results of prejudiced attitudes towards African Americans in an experimental and in a control group. The experimental group learned about acclaimed African American leaders, during which examples of their experiences with discrimination were discussed. In contrast, the control group only received the biographical information about the leaders without any discussions on racism. The results revealed that, compared to the control group, European American children in the experimental group showed lower degrees of prejudice towards African Americans, and both African American and European American children displayed greater valuing of “interracial” fairness.

As suggested by the Intergroup Contact Theory, when interactions between peers from different groups happen under conditions that lay ground for fairness and equal status, prioritize cooperation and common goals, and that are supported by institutional authorities such as teachers, these peer interactions are suggested to improve affective ties and friendships, and reduce negative emotions such as intergroup anxiety. Yet, it has
been proposed that, under certain circumstances, multiculturalism can also lead to negative attitudes.

According to Ingroup Projection Model, we use ingroup standards to also judge outgroups members, and if they deviate from these standards, intergroup bias emerges. One way to alleviate this bias is to define the superordinate group that encompasses both our ingroup and the outgroup(s), by its diversity. In this way, diversity becomes the new standard with which we judge others (Mummendey & Wenzel, 1999; Wenzel et al., 2007). This is an approach similar to that of multiculturalism that explicitly acknowledges differences among groups, perspectives, and experiences as aspects of our identities that should be celebrated. Steffens and colleagues (2017), however, found that activating a superordinate group’s diversity characteristics can generate negative outgroup attitudes for the majority group members who see their ingroup as highly prototypical and therefore as an essential representation of the superordinate category. On the other hand, for those who believe their group to be just one among multiple groups, diversity activation generated positive attitudes.

The Current Study

As suggested by SDT, classroom practices can stimulate greater engagement to the extent that they are relevant to students’ experiences and concerns, are challenging, are responsive to their interests, needs, and goals (Niemiec & Ryan, 2009; Skinner & Pitzer, 2012), and reflect a caring and supportive alliance between teachers and their students (Skinner et al., 2008). Our hypothesized model depicted in Figure 1, therefore, presents both a direct relationship between multicultural practices and student engagement and an indirect relationship that is mediated by students’ peer relationships (relatedness). We focus our investigation on the basic psychological need for relatedness (and not also on autonomy and competence), as it represents a major challenge minoritized youth face in the Netherlands in relation to their outgroup.

A body of student- and teacher-level control variables were also incorporated in our models. Previous research has shown a normative steady decline in engagement throughout school years, more evidently so for male students and children from families with low socioeconomic status and from minoritized groups (Wigfield et al., 2006). Moreover, multicultural education has been suggested to have differing effects on students based on their migration histories (Abacioglu, Isvoranu, et al., 2019). Therefore, student-level control variables included students, age, gender, and ethnic background.

Moreover, teachers from minoritized backgrounds themselves have been suggested to relate to the cultural discontinuity students may be experiencing and thus practice multicultural education more effectively (Bingham & Okagaki, 2012). Similarly, female teachers have been found to be more sensitive to people’s distress (McCue & Gopoian, 2000) and hence might be more vigilant against challenges students experience and may be more likely to engage in practices as prejudice reduction (Banks, 2004). Additionally,
teachers may learn more about different cultures, value differences in backgrounds, and develop more positive interethnic and intercultural attitudes with increasing years of teaching experience and exposure to different cultures (Pettigrew & Tropp, 2006). Lastly, there is a distinction made between public and so-called ‘denominational’ schools in the Netherlands. Although both types of schools are publicly funded, the latter teach on the basis of religion, a specific philosophy or vision of education, and the former do not, which may affect the degree to which teachers employ multicultural practices. We therefore included teacher gender, ethnicity, and teaching experience, and whether they are appointed in public or denominational schools as teacher-level control variables in our models.

As the degree to which majority group members perceive themselves to be prototypical of the superordinate group may change based on the intergroup context and the numerical majority of the ethnic majority group in a given context (Steffens et al., 2017), the effect of multicultural education on peer relationships and engagement can also differ based on the ethnic composition of classrooms. We therefore tested our hypothesized model in classrooms with low and high minoritized student concentration (further information follows in Methods) based on the discussion in Wielzen and van Dijk-Groeneboer (2018) in relation to the school demographics in the Netherlands where this study was conducted.

**Methods**

**Participants**

Participants were recruited from schools that collaborate with the Primary Teacher Education Program of the University of Amsterdam (UvA). In total, data were gathered from 34 upper primary school classroom teachers and their 708 students. We removed one student for missing more than 75% of the responses. The remaining sample included teachers with a mean age of 38.87 (SD = 11.20), who were predominantly female (64%) and who primarily identified themselves as Dutch (82.7%). Teachers had an average of 12.20 years of teaching experience (SD = 9.36). Percentage of ethnic minoritized and majority students were similar with 50.42% ethnic minoritized students (SD = 36.18). Additionally, about half of the teachers were appointed in denominational schools (47.9%).

The participating students’ ages ranged from 7 to 13 and had a mean age of 10.66 (SD = 1.11). About half of the students were female (52.6%). Based on whether they identified either of their parents as having an ethnic background other than Dutch, 65% of students were identified as belonging to an ethnic group with migration history.
Measures

**Teacher-Level**

**Multicultural education.** Teachers responded to 13 statements, on a 5-point Likert-type scale, about their practices in student assessment, curriculum and instruction, classroom management, and cultural enrichment. The items were based on the Culturally Responsive Teaching Self-Efficacy Scale (CRTSES; Siwatu, 2007), but were shortened and adapted to measure practices in the classrooms. The scale has been successfully used in previous research (e.g., Abacioglu et al., 2020). It is referred to as the Culturally Responsive Teaching Scale from hereon. An example item from the survey is “I make use of examples that are relatable for students from culturally different backgrounds” (responses on a scale from 1: never to 5: always). Cronbach’s alpha was .81 for this scale.

Some items were excluded from the original 40-item scale before data collection because of the following reasons: they did not focus on cultural aspects of teaching and instruction (e.g., “I communicate with parents regarding the progress of their child’s education”), they were too subject specific (e.g., ‘I talk about the achievements of culturally different others in Math’), or they were too similar to other items. A previous study provided us with data from the full Culturally Responsive Teaching Scale that was adapted to measure teacher practices (Abacioglu et al., 2020). We could therefore check with a different sample whether excluding these items would have a big impact on the reliability of the scale. Cronbach’s alpha for that sample was .90 before and .88 after the item reduction. As such, we felt confident to exclude these items from the scale.

Based on the dimensions of multicultural education delineated by Banks (2004), we thus retained all items that fell in three categories: teachers’ content integration ($\alpha = .62$), prejudice reduction ($\alpha = .61$), and equity pedagogy ($\alpha = .76$). These categories were informed by exploratory factor analysis (see Supplementary Materials) and multicultural theory, and further validated by confirmatory factor analysis which is detailed in the Data Analysis section.

**Demographics.** Teachers reported on the proportion of ethnic minoritized students in their classrooms, whether or not their school is a denominational school, their own age, gender, ethnic background, and years of teaching experience in years.

**Student-Level**

**Peer relationships.** A revised version of ‘Well-being in Relation to Fellow Students’ questionnaire from Peetsma, Wagenaar, and Kat (2001) was used to assess students’ peer relations, previously used in a large-scale Dutch research mapping out school careers of students from primary until the end of secondary school (COOL5-18; Driessen, Mulder, Ledoux, Roeleveld, & Veen, 2009). The original scale included 6 items, which was combined with 4 items from the ‘Social Integration in the Class’ questionnaire from Van Damme, De Fraine, Van Landeghem, Opdenakker, and Onghena (2002). Students responded to 10 statements
about (not) getting along with their peers in the classroom (1 = ‘not correct at all’, 5 = ‘very correct’). Example items include “In my class, I sometimes feel alone” (see Appendix A for the items). Cronbach’s alpha for the combined scale was .86.

**Student Engagement.** Students responded to 12 statements, on a 5-point Likert-type scale (1 = ‘no, that is not true’, 5 = ‘yes, that is true’), about their engagement in the classroom. The items were based on the Engagement Versus Disaffection with Learning Scale (Skinner et al., 2008), and has been successfully used in previous research (e.g., Abacioglu, Zee, et al., 2019). Half of the statements measured students’ attention, effort, and persistence in initiating and participating in learning activities, reflecting their Behavioral Engagement. The other half measured students’ motivated participation during learning activities, reflecting their Emotional Engagement. Example items from the subscales are “I try hard to do well in school”, and “I enjoy learning new things in class”, respectively. Cronbach’s alphas were .77 for Behavior Engagement, .65 for Emotional Engagement, and .81 for the overall Student Engagement. While the reliability score of the Emotional Engagement subscale was below optimal, the construct showed good model fit when tested with confirmatory factor analysis (further explained in the Data Analysis section).

**Demographics.** Students reported on their age, gender, and ethnic backgrounds. Students were assigned to the ethnic minoritized group if they reported either of their parents as having a migration history; the rest of the students were categorized as the ethnic majority group.

**Data Analysis**

*Structural equation modeling* (SEM) has the advantage of testing complicated mediation models in a single analysis, simultaneously allowing for multiple independent and outcome variables (Gunzler et al., 2013). Therefore, we chose to use SEM to investigate our data. We first validated our latent constructs, namely multicultural education factors we suggested for the Culturally Responsive Teaching Scale items, and the peer relationships and student engagement factors, using *confirmatory factor analysis* (CFA). After CFA, we continued to define our *structural model* and examined its fit across two groups by looking at measurement invariance and conducting a multigroup analysis. For all of our analyses, we used the open-source statistical software R (RStudio Version 1.2.1335). Specifically, we used the R package *lavaan* version 0.6-5 (Rosseel, 2012) to specify, estimate, and analyze our models.

**Confirmatory Factor Analysis**

We specified reflective models (i.e., *measurement models*) for our latent constructs (i.e., multicultural education, peer relationships, and student engagement) and performed a confirmatory factor analysis (CFA) to validate the constructs. CFA tests a pre-specified model by imposing the model on data and evaluating how well the model fits the data. We chose maximum likelihood estimation to assess the model fit and handled missing data using full-
information maximum likelihood (FIML). The latent variables were restrained to have a mean of 0 and a variance of 1 (i.e., standardized) for scaling purposes, and were allowed to covary.

The fit indices indicated a good fit between the model and the observed data for the peer relations factor, with the Root Mean Square Error of Approximation (RMSEA) of .09, and Standardized Root Mean Square Residual (SRMR) of .05. The comparative fit index (CFI) was .94, the Tucker-Lewis fit index (TLI) was .91. Similarly, the student engagement factors showed good fit, with an RMSEA value of .06, SRMR value of .04, CFI value of .94, and TLI value of .93.

For the three multicultural education factors derived from the Culturally Responsive Teaching Scale, the CFA results indicated a poor fit, with an RMSEA value of .23, SRMR value of .18, CFI value of .56, and TLI value of .45. Based on these results, the assumption that latent factors underlie the multicultural education items is not a tenable one as the results point to item intercorrelations that are too weak to be accounted for by a common latent factor. Instead, Culturally Responsive Teaching Scale, in our study, was conceptualized as a set of activities that make up the extent to which teachers employ multicultural education, and it is a composite measure of content integration, prejudice reduction, and equity pedagogy practices (Coltman et al., 2008). Also supported by the CFA results, this conceptualization implies a formative model wherein changes in the indicator items causes changes in the constructs rather than a reflective model wherein the indicators reflect the variation in the underlying factors.

Accordingly, we defined the multicultural education factors as formative and fixed the factor loadings to be the same for each item (at $\Lambda = 1$), forming content integration, prejudice reduction, and equity pedagogy factors. The peer relationships and student engagement (emotional and behavioral) factors are defined as reflective because changes in these latent constructs would precede variation in their indicators (e.g., peer relationships reflected in students’ well-being in relation to their classmates) and because the latent construct exists independent of the measures used (i.e., motivation) (Coltman et al., 2008).

**Structural Equation Modeling**

Based on the CFA results, we expanded the measurement models by specifying the relationships between the latent variables (i.e., formed the structural model), by creating a non-saturated model, using sum scores for the multicultural education factors (content integration, prejudice reduction, and equity pedagogy) and reflective latent factors for the rest of the variables: student peer relationships, and behavioral and emotional engagement.

We initially planned on using multilevel structural equation modeling to account for the hierarchical nature of our data. In order to find support for a multilevel approach, we

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12 We initially fitted a measurement model where positive and negative peer relationships were represented with two separate latent variables. However, these variables showed a very high negative correlation ($r = -.77$), reflecting very similar constructs. Thus, we decided to combine them under one latent variable. Based on CFA modification indices, two sets of items of the combined factor were allowed to covary.
examined the proportion of variance in the student-level variables that is explained by the grouping variable (i.e., teacher). We calculated the ratio of group-level error variance over the total error variance (Intraclass Correlation Coefficients; ICC1) for each item of the latent student-level factors, using the residual data set, which ranged between 0 to .006. Given the small values, we decided to use a simpler non-multilevel approach, coupled with bootstrapped standard errors, that can give us more robust results due to increased power.

At this stage of our analyses, control variables should be included in the structural model as observed variables, and their relationships to our main variables should be defined. We identified the following variables: teachers’ years of teaching, their ethnic backgrounds, gender, and whether or not they are appointed in a denominational school; and students’ ethnic background, age, and gender. Note that student ethnic background could also be considered as a moderator between teacher multicultural education factors, peer relationships, and emotional and behavioral engagement. However, the correlations per ethnic background (using mean scores) indicated no outstanding differences in the strength of the relationships for students with and without a migration history. Therefore, this variable was not considered as a moderator.

Including all these variables in our analyses would lower our power drastically, especially because we would like to test our model in two independent samples (further detailed below). In order to overcome this limitation, we have imputed our data set one time to deal with missing data\textsuperscript{13}, and regressed out our control variables to create a new data set with residual values, in order to run our models. This process entails running separate regression analyses predicting the main variables of interest separately using control variables and taking the residuals from these predictions to overwrite our data with residual values. We used the resulting data set from here onwards.

**Identifying the Comparison Groups.** Scholars differ in their definitions of classrooms/schools with low, mixed, and high concentrations of ethnic minoritized students. In the current study, we chose to define classrooms with ethnic minoritized student concentration equal to or less than 30\% as \textit{low concentration} (46\% of the sample), 30-70\% as \textit{mixed} (13.8\% of the sample), and 70\% or higher as \textit{high concentration} classrooms (40.2\% of the sample) (Wielzen & van Dijk-Groeneboer, 2018). The ethnic concentration of the classrooms was defined based on student reports. However, because statistical procedures compare 2 groups at a time, and because the mixed group is comprised of only 13.8\% of the sample whereas the other two groups are about three times its size, we merged the \textit{mixed} and \textit{high concentration} classrooms in one group. The analyses should be interpreted in light of the fact that 74.5\% of the combined group has an ethnic minoritized student concentration of 70\% or higher. The groups we compare are referred to as \textit{Low Concentration} and \textit{High Concentration}.

\textsuperscript{13} This method replaces missing values with plausible values based on the information from other values in the dataset.
groups from here onwards. Correlation matrices of the Low and High Concentration groups that were used in SEM can be found in Supplementary Materials.

**Measurement Invariance.** Our specified baseline model is depicted in Figure 1 to be tested for measurement invariance between the low and high concentration groups. We followed the multistep approach during which we gradually introduced constraints to the baseline model for 1) factor loadings, 2) factor loadings and intercepts, 3) factor loadings, intercepts, and residuals respectively, to be equal across the two groups. Each model was compared to the previous one to decide on the best fitting model. Results of model comparisons are shown in Table 1. A significant $\chi^2_{\text{diff}}$ indicate that the models differ significantly, with smaller AIC, BIC, and $\chi^2$ values indicating a better fit, and a higher $df$ indicates fewer parameters in a model, hence a more parsimonious one. The latent variables were allowed to covary, the first item of each latent variable was constrained to have a factor loading of 1 for scaling purposes.

Model 1 was significantly different from the baseline model based on the significant $\chi^2_{\text{diff}}$ test statistic, more parsimonious based on the $df$, and a better fit based on BIC but not AIC. $\chi^2_{\text{diff}}$ between Model 1 and 2 was not significant. However, both AIC and BIC values indicated that Model 2 fits better than Model 1 and is more parsimonious based on the $df$. Model 3 was significantly different than Model 2 based on the significant $\chi^2_{\text{diff}}$ test statistic, more parsimonious based on the $df$, and a better fit based on BIC but not on AIC. We chose to further investigate the most constrained model, namely Model 3, as it featured the lowest BIC, comparable AIC to other models and was the most parsimonious. Our decision means that we constrained all model parameters to be equal between the low and high concentration groups, except for regression coefficients.

**Multigroup Analysis.** The multigroup analysis allows to test if groups show significant differences in their coefficient estimates. We used this analysis to test our proposition that the relationships between multicultural education, peer relationships, and student engagement can change as a function of classroom composition.

We specified a model, Model 4, that defined equal regression coefficients between the two groups, in addition to Model 3 constrains of factor loadings, intercepts, and residuals. The model without regression equality constrains (Model 3) fit the data significantly better than the model with constrains (Model 4) according to the Chi Square Test statistic, $\chi^2(11) = 32.823$, $p < .001$, and the AIC value, but not the BIC value (Table 1). Therefore, there is some evidence to suggest differences between groups. We thus investigated the differing relationships between our main variables.
Table 1
Measurement Invariance and Multigroup Analysis Model Comparison Results

<table>
<thead>
<tr>
<th>Model</th>
<th>df</th>
<th>AIC</th>
<th>BIC</th>
<th>$\chi^2$</th>
<th>$\chi^2_{\text{diff}}$</th>
<th>$P \chi^2_{\text{diff}}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline Model</td>
<td>470</td>
<td>39301</td>
<td>40093</td>
<td>862.58</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model 1</td>
<td>488</td>
<td>39315</td>
<td>40026</td>
<td>912.38</td>
<td>49.802</td>
<td>8.085e-05 **</td>
</tr>
<tr>
<td>Model 2</td>
<td>506</td>
<td>39299</td>
<td>39931</td>
<td>932.99</td>
<td>20.605</td>
<td>.299799</td>
</tr>
<tr>
<td>Model 3</td>
<td>527</td>
<td>39302</td>
<td>39840</td>
<td>977.37</td>
<td>44.378</td>
<td>.002089 **</td>
</tr>
<tr>
<td>Model 4</td>
<td>538</td>
<td>39213</td>
<td>39802</td>
<td>1010.19</td>
<td>32.823</td>
<td>.000562**</td>
</tr>
</tbody>
</table>

Note. * = $p < .05$, ** = $p < .01$

Results

Descriptive Statistics

Note that we used latent variables and sum scores in our structural models. For more comparable statistics, we calculated average mean scores per variable for descriptive statistics. The results are presented in Table 2 per concentration group and are reported separately for the majority and minoritized students when applicable.

Table 2
Average Mean Scores Per Concentration Group (SD)

<table>
<thead>
<tr>
<th></th>
<th>Low Concentration</th>
<th>High Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content Integration</td>
<td>3.38 (0.67)</td>
<td>3.51 (0.31)</td>
</tr>
<tr>
<td>Prejudice Reduction</td>
<td>3.60 (0.32)</td>
<td>3.64 (0.30)</td>
</tr>
<tr>
<td>Equity Pedagogy</td>
<td>2.52 (0.89)</td>
<td>2.93 (0.43)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Majority</th>
<th>Minoritized</th>
<th>Majority</th>
<th>Minoritized</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peer Relationships</td>
<td>4.37 (0.08)</td>
<td>4.37 (0.04)</td>
<td>4.52 (0.05)</td>
<td>4.45 (0.05)</td>
</tr>
<tr>
<td>Behavioral Engagement</td>
<td>4.10 (0.06)</td>
<td>4.10 (0.04)</td>
<td>4.31 (0.05) $^*$</td>
<td>4.17 (0.05)</td>
</tr>
<tr>
<td>Emotional Engagement</td>
<td>3.85 (0.07)</td>
<td>3.81 (0.05)</td>
<td>4.07 (0.06)</td>
<td>3.93 (0.05)</td>
</tr>
</tbody>
</table>

Note. T-test significance levels: $^* = p < .05$, $^*^* = p < .01$. All measures were on a 5-point Likert-type scale. Majority = Majority students. Minoritized = Minoritized students.

Teachers’ mean Content Integration ($t(19.443) = -1.14, p > .05$), mean Prejudice Reduction ($t(31) = -0.09, p > .05$), and mean Equity Pedagogy ($t(19.601) = -0.35, p > .05$) did not significantly differ between Low and High Concentration groups. The majority student’s Behavioral Engagement was significantly higher than that of the minoritized students in the High Concentration group, $t(256.377) = 2.141, p < .05$. 

Finally, compared to the Low Concentration group, students in the High Concentration group in general had significantly better Peer Relationships ($t(608) = -2.224, p < .05$), Behavioral Engagement ($t(604.620) = -2.466, p < .01$), and Emotional Engagement ($t(605.833) = -2.905 p < .01$).

**Structural Equation Models**

Following up on the multigroup analysis results that indicated that regression coefficients are not equal across Low and High Concentration classrooms, we have visualized the structural models for further interpretation in Figure 1. The significant relationships are indicated with non-dashed lines. The thicker the lines, the stronger the relationships between two variables are. The standardized regression coefficients of the significant edges are shown on the Figure 1, for the rest of the parameter values see Appendix Table B1.

In both groups, Peer Relationships are significantly related to students' Engagement. In the Low Concentration group, the relationships are stronger, which is especially the case for Emotional Engagement. Figure 1 illustrates that for the Low Concentration group, the relationship between Content Integration and Emotional and Behavioral Engagement, and Equity Pedagogy with only Emotional Engagement were mediated by students' Peer Relationships. The standardized indirect effect of Content Integration on Emotional Engagement ($\beta = -.20, p < .01$), and on Behavioral Engagement ($\beta = .15, p < .05$) were statistically significant. Additionally, the standardized indirect effect of Equity Pedagogy on Emotional Engagement was significant ($\beta = .11, p < .05$), and on Behavioral Engagement was marginally significant ($\beta = .09, p = .07$). In addition, Equity Pedagogy showed a weak but significant relationship with Prejudice Reduction and a strong relationship with Content Integration. Expectedly, Emotional and Behavioral Engagement showed a strong significant positive correlation.

In the High Concentration group, the direct effect of Equity Pedagogy on Emotional Engagement ($\beta = .24, p < .05$), and the direct effects of Peer Relationships on Emotional ($\beta = .23, p < .05$), and Behavioral Engagement ($\beta = .27, p < .05$), were significant. The results of the fitted model yielded no significant indirect effects in this group, as none of the relationships between the Multicultural Education factors and Peer Relationships reached statistical significance. In addition, all three Multicultural Education factors showed moderate to high positive correlations with each other. Similarly, Emotional and Behavioral Engagement were very strongly correlated.
Figure 1

Structural Equation Models

Note. The standardized regression coefficients of the significant relationships are indicated on the figures. The observed indicators for the latent student variables are omitted from the graph for clarity. * = p < .05, ** = p < .01.
Discussion

Self-Determination Theory postulates that contexts that support students’ basic needs for autonomy, competence, and relatedness can positively affect their motivation to learn (for an overview see Reeve, 2012). We argued that multicultural education can especially help to fulfil the needs of relatedness for students, by stimulating meaningful contact (see also Intergroup Contact Theory), and therefore improve students’ engagement. Previous findings found support for the positive effect of multicultural education on student engagement but, to the best of our knowledge, the mediating role of students’ relatedness has never been tested.

In classrooms with low minoritized student concentration, we found support for this mediation hypothesis such that equity pedagogy had a positive effect and content integration had a negative effect on emotional and behavioral engagement, which was mediated by students’ peer relationships—as a proxy to relatedness. In the high concentration classrooms, however, only a direct effect of equity pedagogy on emotional engagement was found.

The Low Concentration Group

The positive influence of equity pedagogy and the negative influence of content integration on peer relationships could be due to the minoritized group individuals perceiving multiculturalism as identity supporting and status improving, while majority group individuals perceiving it to be identity and status threatening (Deaux et al., 2006).

The low minoritized student concentration emphasizes the existing inequalities in society (Leonardelli & Brewer, 2001), by putting minoritized students also in numerical minority. This does not naturally create an equal status for intergroup contact. On the contrary, it creates the basis for the majority group members to perceive themselves as highly prototypical and representative of the superordinate group, be it the classroom, school, or the Netherlands. Expanding on the Ingroup Projection Model, Steffens and colleagues (2017) previously showed that multicultural education can backfire in such intergroup contexts. Content integration requires explicit acknowledgement of different cultures and their characteristics and contributions. This can directly challenge majority group members’ perceived prototypicality of their group for the superordinate category, in an intergroup context where they are likely to perceive themselves to be highly prototypical. This has been shown to increase negative attitudes towards the outgroup (Steffens et al., 2017). Supporting their findings, our results also showed that content integration negatively influences peer relationships directly and student engagement indirectly. While prejudice reduction practices may have been able to prevent this, our results indicated that teachers who engaged in content integration did not necessarily engage in prejudice reduction (see Figure 1 or Table B1 for correlations between factors).
Equity pedagogy, on the other hand, is a subtler way of facilitating equal status in contacting parties that can be employed without activating group differences. It disrupts existing structures that perpetuate inequality by expecting all students to learn according to the way the instruction is delivered, and instead requires tapping into students’ strengths and using tailoring teaching approaches to teach the way students learn (Banks, 1997). Therefore, it fulfills conditions of Intergroup Contact Theory under which contact can increase positive attitudes and hence can improve peer relationships, namely equal status between contact groups and support by authority figures (Allport, 1954; Pettigrew & Tropp, 2006).

We, however, can expect a larger negative effect size of content integration on peer relationships compared to the positive effect of equity pedagogy by looking at the path coefficients. Based on these effects, we would have expected the majority group members’ reported peer relationships to be more positive compared to the minoritized group students if content integration ignited intergroup bias only in the majority group. Yet, majority and minoritized students have reported to have similar average peer relationship qualities (see Table 2). This may signal to other social identity processes activated by content integration.

An explanation could be the higher ingroup favoritism and outgroup discrimination that is consistently found in numerically smaller groups (as reported in Leonardelli & Brewer, 2001), suggested to reflect the greater salience and distinctiveness associated with their small group size (Mullen et al., 1992). Informed by the same social categorization and social identity perspectives as the Ingroup Projection Model, members of such distinctive groups have been shown to be more satisfied about their ingroup compared to non-distinctive groups. This is because a distinctive group is a source of positively valued social identity as it provides sufficient inclusiveness within the ingroup and sufficient differentiation from the outgroup, fulfilling both the need to belong and the need to be unique (see Optimal Distinctiveness Theory; Bettencourt et al., 1999). Thus, activating distinctiveness of groups and providing further validation for the minoritized group through content integration might have not only led to heightened intergroup bias in the majority group but also in the minoritized group.

The High Concentration Group

Contrary to the low concentration group, in the high concentration group, the multicultural education factors did not have a significant effect on peer relationships. Nevertheless, students in this group reported to have better relationships and higher engagement compared to the students in the low concentration group. These findings may stem from more balanced intergroup interactions due to the demographic landscape of these classrooms. As such, we may no longer see the significant negative effect of content integration on peer relationships: Majority group students may no longer perceive their group to be highly prototypical of the superordinate category of classroom or school because they are in numerical minority and are thus just another ethnic group within their classrooms. Similarly, the minoritized students may no longer experience an optimal distinctiveness from
the outgroup as they are no longer in numerical minority. In turn, peer relationships in this group are not as strongly related to student engagement, especially emotional engagement, as they were in the low concentration group. This may signal that when relationships are less harmonious, they may become a more central factor in students’ educational lives.

Interestingly, the reported quality of peer relationships was higher for the majority group students compared to the minoritized group students in this group. Although this difference was not significant, it may provide some support for the explanation based on Optimal Distinctiveness Theory that we proposed above for the low concentration group. Since the majority group members are mostly in numerical minority in the high concentration classrooms, they may be experiencing more ingroup favoritism compared to the minoritized students who are now in numerical majority. Yet, this may be to a lesser extent for the majority group members in the high concentration group than for the minoritized students in the low concentration group, as majority group members are still in numerical majority outside of their classrooms and schools.

Moreover, as the contact status is likely to be more equal in this group due to minoritized students being in the numerical majority, the positive effect of equity on peer relationships may not be too salient. Yet, equity pedagogy was still directly related to students’ emotional engagement. When teaching strategies and classroom environments support student functioning equitably, regardless of their backgrounds, students seem to enjoy and show more enthusiasm for learning. This, in turn, is highly related to behavioral engagement, indicating that children who enjoy learning also put more effort in learning. However, also in this group, the majority group members reported to have, on average, a significantly higher behavioral engagement compared to their minoritized counterparts. This is in line with previous research that points to the effects of factors such as low teacher expectations (Gershenson et al., 2016) or more challenging social environments in and out of school (Randolph et al., 2004) for the minoritized students, which we did not cover within the scope of this study.

Lastly, in the high concentration group, teachers who engaged in one aspect of multicultural education seem to have engaged also in others. In line with previous research that found multicultural education to be more prevalent in high concentration classrooms (Agirdag et al., 2016), teachers in this group also engaged on average, more in multicultural education than teachers in the low concentration group (see Table 2). Attention to multicultural education in these classrooms may simply be a natural outcome of the classroom demographics.

**Both Groups**

In both concentration groups, our results supported the propositions of Self-Determination Theory in that peer relationships, as a proxy to relatedness, were positively related to both emotional and behavioral student engagement. However, multicultural
education factors would have been expected to also have direct effects on student engagement due to their possible influence on other basic psychological needs than relatedness, namely \textit{autonomy} and \textit{competence}. Previous research showed that teachers’ own attitudes can moderate the effect of multicultural practices on student engagement such that only teachers who lead by being an example themselves and practice what they preach are thought to be able to have a positive effect on students (Abacioglu, Zee, et al., 2019). This may explain the lack of significant relationships in our case. Content integration and prejudice reduction necessitate teachers to explicitly talk about issues around diversity and engage in dialogue that may expose their own stance in these topics, which may not seem authentic to students in certain cases such as employing these practices due to school policy without necessarily having the important insights into the realities of their students (Kreber, 2010).

\textbf{Limitations and Future Research}

While not the primary goal of this study, our results signaled varying effects of multicultural education on peer relationships and engagement, based on the intergroup context where, most probably, different social identity processes in majority and minoritized students were activated. It seems that minoritized students in low concentration classrooms may benefit more from multicultural education, but at the same time, it may also be met with resistance by majority group members. However, in order to further validate the interpretation of our results, important variables such as ingroup identification and satisfaction, as well as classroom diversity (i.e., how many different groups there are) and ingroup size should be considered in relation to peer relationships (Leonardelli & Brewer, 2001). Moreover, status of the outgroup and its relationship to the ingroup has been suggested to be relevant for such research (Steffens et al., 2017). Furthermore, how multicultural education affects peer relationships may not only depend on how responsive students are to multiculturalism, but also on teachers’ knowledge, attitudes, and skills through which they implement multicultural practices (Gay, 2002). For instance, the most popular ways in which content integration is implemented are through a ‘contributions approach’ or an ‘additive approach’. These entail either insertion of isolated facts about or special units on minoritized groups to the curriculum, without the meaningful transformation of the curriculum that requires viewing information from different perspectives (i.e., ‘transformation approach’), reinforcing the notion that minoritized groups are not integral parts of the mainstream (Banks, 1997).

Additionally, it is important to gain deeper insights into the mechanisms underlying the effect of multicultural education on student engagement through peer relationships by comparing mixed concentration classrooms (30-70% minoritized student concentration) to classrooms with low (equal to or below 30%) and high minoritized student concentrations (equal to or above 70%). However, our sample size was not big enough to compare three different groups with each other, which was especially the case for the mixed concentration
classrooms. We urge future researchers to conduct more detailed investigations of the suggested psychological processes behind our results.

If multiculturalism backfires for the majority group members in intergroup contexts in which minoritized individuals might need it the most, how can we prevent resistance to multicultural practices? This is a relevant question especially for teachers, as content integration tends to be the most widely implemented aspect of multicultural education (Zirkel, 2008). Studies around organizational diversity have previously suggested that by explicitly including majority group in the organization’s diversity approach with all-inclusive multiculturalism (Stevens et al., 2008), majority members’ perceived lack of inclusion and resistance to their organization’s diversity efforts can be mitigated (Jansen et al., 2015). Notwithstanding its preventive effects on majority groups, its effects however have not been tested with minoritized groups (for an exception on the effects of all-inclusive versus women-targeted gender practices on women and men, see Cundiff et al., 2018), and may be perceived as diverting the attention from the real issue of under- or misrepresentation of the latter group as in the case of, for instance, the divergent “all lives matter” discourse (Brannon et al., 2018).

An alternative could be to implement citizenship education and multicultural education in combination. Previous research that found negative effects of activating the diversity of the superordinate category on the majority group members tested this against the effects of activating the unity of the superordinate category (Ehrke & Steffens, 2015; Steffens et al., 2017; Waldzus et al., 2003, 2005). These two conditions, however, do not need to compete with each other. Multicultural policies and practices, not as an alternative but in conjunction with citizenship education that centers around shared values such as democracy, equality, and human integrity (Mattei & Broeks, 2018), can be an essential tool to expedite “unity in diversity” (Bokhorst-Heng, 2007). It would be fruitful to investigate the combined effect of these practices on peer relationships and motivation.

Moreover, the above-mentioned research looked at the effect of mere priming messages that reflected unity or diversity and the current research used cross-sectional data. The effects of educational practice for an extended period of time, however, can yield different results that need to be unwrapped by using a longitudinal design.

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14 This refers to the Black Lives Matter social movement that started in 2012 and gained worldwide attention in 2020. In the context of present and historical inequalities, chanting “Black lives matter” distinguishes minoritized individuals from the rest in order to stress that not “all lives” mattered until this day, and particular attention needs to be paid to the inequalities experienced by these individuals (Brannon et al., 2018).
Conclusion

The current study uses insights from Intergroup Contact Theory and Self-Determination Theory (SDT) to explain how multicultural education can improve student motivation and engagement through peer relationships. We also used insights from the Ingroup Projection Model to investigate how the effects of multicultural practices can change, depending on the intergroup context. Insights from this research can further our understanding of how we can mitigate challenges of outgroup peer inclusion and academic achievement of minoritized students. Moreover, we contribute to the SDT literature by focusing on the relatively understudied relationship between relatedness and engagement in primary school aged children, compared to the other two basic needs put forward by the SDT (i.e., autonomy and competence; for exceptions see Hughes et al., 2014; Madill et al., 2014).

Our findings indicate that some types of multicultural education can improve, and other types can impede student engagement through peer relationships, depending on the intergroup context. Our results are a good reminder that while representation of minoritized perspectives and lives are important, challenging the structures that perpetuate inequality (through equity pedagogy) may make the most difference by creating equal opportunities for individuals to thrive.
## Appendix A

### Table A1

*Culturally Responsive Teaching (CRT) Scale*

<table>
<thead>
<tr>
<th>CRT Scale Items</th>
<th>Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRT1. Adjust instructions to cater to the needs of my students.</td>
<td>CI</td>
</tr>
<tr>
<td>CRT3. Assess whether my students rather work alone or in a group.</td>
<td>PR</td>
</tr>
<tr>
<td>CRT5. Identify aspects in which the school culture (for example, values, norms, and practices) differs from the home culture of my students.</td>
<td>EP</td>
</tr>
<tr>
<td>CRT12. Establish community between students when my class exists of students from various backgrounds.</td>
<td>PR</td>
</tr>
<tr>
<td>CRT13. Use the cultural background of my students to make learning meaningful.</td>
<td>CI</td>
</tr>
<tr>
<td>CRT16. Obtain information regarding the cultural background of my students.</td>
<td>CI</td>
</tr>
<tr>
<td>CRT19. Design a classroom environment with attributes that represent a variety of cultures.</td>
<td>CI</td>
</tr>
<tr>
<td>CRT26. Help students establish positive relationships with their classmates.</td>
<td>PR</td>
</tr>
<tr>
<td>CRT27. Revise educational materials to improve its' representation of cultural groups.</td>
<td>CI</td>
</tr>
<tr>
<td>CRT30. Design tasks in the classroom in a way which helps improve the understanding of students studying Dutch.</td>
<td>EP</td>
</tr>
<tr>
<td>CRT32. Help students feel like an important member of the classroom.</td>
<td>PR</td>
</tr>
<tr>
<td>CRT33. Identify ways in which standardized tests can be prejudiced against culturally different students.</td>
<td>EP</td>
</tr>
<tr>
<td>CRT35. Make use of examples that are relatable for students from culturally different backgrounds.</td>
<td>EP</td>
</tr>
</tbody>
</table>

*Note.* CI = Content Integration, PR = Prejudice Reduction, EP = Equity Pedagogy
## Appendix B

**Table B1**  
*Standardized Path Coefficients from the Structural Equation Models*

<table>
<thead>
<tr>
<th>Path</th>
<th>Low Concentration</th>
<th>High Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>β</td>
<td>p</td>
</tr>
<tr>
<td>Content Integration to Emotional Engagement</td>
<td>-.08</td>
<td>&gt; .05</td>
</tr>
<tr>
<td>Prejudice Reduction to Emotional Engagement</td>
<td>-.02</td>
<td>&gt; .05</td>
</tr>
<tr>
<td>Equity Pedagogy to Emotional Engagement</td>
<td>-.03</td>
<td>&gt; .05</td>
</tr>
<tr>
<td>Peer Relationships to Emotional Engagement</td>
<td>.43</td>
<td>&lt; .01</td>
</tr>
<tr>
<td>Content Integration to Behavioral Engagement</td>
<td>-.05</td>
<td>&gt; .05</td>
</tr>
<tr>
<td>Prejudice Reduction to Behavioral Engagement</td>
<td>-.11</td>
<td>&gt; .05</td>
</tr>
<tr>
<td>Equity Pedagogy to Behavioral Engagement</td>
<td>.03</td>
<td>&gt; .05</td>
</tr>
<tr>
<td>Peer Relationships to Behavioral Engagement</td>
<td>.33</td>
<td>&lt; .01</td>
</tr>
<tr>
<td>Content Integration to Peer Relationships</td>
<td>-.46</td>
<td>&lt; .01</td>
</tr>
<tr>
<td>Prejudice Reduction to Peer Relationships</td>
<td>.01</td>
<td>&gt; .05</td>
</tr>
<tr>
<td>Equity Pedagogy to Peer Relationships</td>
<td>.25</td>
<td>&lt; .05</td>
</tr>
<tr>
<td>Between Emotional and Behavioral Engagement</td>
<td>.72</td>
<td>&lt; .01</td>
</tr>
<tr>
<td>Content Integration to Peer Relationships to Emotional Engagement</td>
<td>-.20</td>
<td>&lt; .01</td>
</tr>
<tr>
<td>Prejudice Reduction to Peer Relationships to Emotional Engagement</td>
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<tr>
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<td>&gt; .05</td>
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