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Promoting children's social reasoning about immigration-based exclusion and bystander behavior through literary discussions

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Introduction: The current study is the first to investigate the effect of an argument-based intervention about children's literature on social reasoning about immigrant-based exclusion.

Methods: With a one-year intervention study, we examined social reasoning regarding inclusion decisions, moral judgments, and various bystander behaviors. A sample of 758 children ($M = 10.33$ years, $SD = 0.68$, 48.5% female) from 41 fourth and fifth grade classes participated in the study. The intervention was based on a cluster-randomized control group design and social reasoning was assessed by a social exclusion task with hypothetical intergroup scenarios.

Results and discussion: Multi-level analyses revealed intervention effects on reducing positive ratings of negatively reinforcing bystander behavior and passive bystander behaviors (i.e., agree with or ignore exclusive group behavior). However, no significant effects were observed for inclusion decisions, moral judgments, and moral justifications. The study thus highlights the potentials and limitations of argument-based intervention through narrative fiction regarding social reasoning about immigrant-based exclusion.

KEYWORDS

argument-based intervention, children's literature, immigrant-based exclusion, social reasoning, bystander behavior

1 Introduction

As societies become increasingly diverse due to migration, it is important that children and adolescents acquire skills for positive intergroup contact with peers with different national and linguistic backgrounds. This is particularly relevant because immigrant children are at high risk of experiencing immigrant-based exclusion (Beißert et al., 2020; Plenty and Jonsson, 2017). The current study focusses on immigrant-based exclusion, which represents a serious issue in Switzerland. 30% of Swiss residents report that they experienced discrimination in the last 5 years, with the majority (12.9%) presenting nationality as the main reason (Federal Statistic Office, 2024).

As discriminatory behavior has a strong negative impact on the targeted children in terms of their wellbeing and academic performance (Walton, 2018; Xu et al., 2020), reducing intergroup exclusion is a critical priority. To reduce intergroup exclusion, it is particularly effective to target children's social-cognitive skills, which underlie intergroup exclusion, such as their social reasoning (e.g., inclusion decisions, moral judgments,

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moral justifications; Brenick et al., 2019). To enhance social reasoning argument-based discussions show great promise (Lin et al., 2019; Walker et al., 2013). Additionally, reading high-quality narrative fiction proves to be particularly effective in reducing intergroup prejudices (Vezzali et al., 2015). To date, however, no intervention studies have combined argument-based discussions with high-quality narrative fiction to promote social reasoning about immigrant-based exclusion (Brenick et al., 2019; Killen et al., 2022; Lin et al., 2019; Walker et al., 2013). The aim of the present study is to investigate the effects of a one-year, school-based intervention in fourth and fifth grade students from intervention and treatment-as-usual control classrooms. The intervention effects on social reasoning about immigrant-based exclusion were examined within a pre- and post-test design (August/September 2022 and May/June 2023) using a social exclusion task (cf. Beißert et al., 2020).

1.1 Social reasoning about immigration-based exclusion

Children's and adolescent's social reasoning plays a crucial role in understanding immigrant-based exclusion. Research based on the Social Reasoning Developmental (SRD) model indicates that children's decisions to either support their excluding ingroup or defend minorities in intergroup contexts depend on how they weigh and prioritize social-conventional and moral concerns (Killen, 2018). In early adolescence, social-conventional concerns about group identity, group relations, and group norms become increasingly important compared to childhood (Tanti et al., 2011; Teichman et al., 2007). Simultaneously, older children and adolescents develop an increasing sensitivity toward the harming consequences of stereotypes and discriminatory behavior (Park and Killen, 2010; Palmer et al., 2023) and start to challenge exclusive group norms (Mulvey et al., 2018). With age, children's ability to coordinate competing interests of their social groups with moral concerns matures and becomes more sophisticated (Killen and Dahl, 2021). Children, as active agents in the construction of their social worlds, can change exclusive group norms through critical social reasoning that questions the status quo (Brenick et al., 2019; Killen et al., 2022; Nucci and Ilten-Gee, 2021).

Accordingly, children's and adolescents' inclusion decisions and judgments are not the result of a general and fixed attitude but of a reflective process that takes the particularities of the specific exclusion context into account (Brenick and Killen, 2014; Ruck et al., 2015). Previous studies showed that exclusion of the outgroup member is much more likely in contexts, where inclusion would threaten ingroup norms or would have negative implications for effective group functioning. For example, children are more likely to exclude a child with an intellectual disability from a math group activity than they would exclude the same child from athletic or social group activity (Gasser et al., 2014). It is therefore important to study children's inclusion decisions, judgments, and reasoning about different types of group activities.

The current study targets immigrant-based exclusion, as nationality is a key factor in social reasoning and decisions regarding intergroup exclusion in Switzerland. A Swiss study by Malti et al. (2012) revealed that adolescents are more likely to condemn exclusion based on nationality than based on gender or personality characteristics (e.g., shyness). Therefore, Swiss adolescents seem to be highly sensitive to the harming consequences of immigrant-based exclusion. However, the study also showed that older and Swiss adolescents compared to younger and non-Swiss adolescents are more likely to view exclusion of a member from a national outgroup as acceptable. A study from Germany further showed that adolescents were more willing to include a hypothetical Syrian target with good German skills into peer groups than a Syrian target with low German skills (Beißert et al., 2020). Thus, familiarity with the language of the majority group seems to represent an important aspect in explaining children's and adolescents' immigrant-based exclusion.

Researchers on intergroup exclusion further studied how adolescents assess bystander reactions in situations involving immigrant-based bullying, which often includes exclusive behaviors. For example, Gönültaş and Mulvey (2021) showed that adolescents engaged more in discriminatory behavior when the victim was immigrant-origin than non-immigrant-origin. Bystanders play a crucial role in reducing intergroup exclusion: they can either uphold the actions of perpetrators through passive and negatively reinforcing bystander actions, or help reduce it through comforting and proactive bystander behavior (i.e., supporting the victim; Gotdiner and Gumpel, 2024). Therefore, an important goal of intervention research should be to enhance civil courage in adolescents concerning situations of immigrant-based exclusion. Besides the aim of promoting social inclusion (i.e., inclusion decisions, moral judgments, and moral reasoning), our intervention aims to enhance inclusive bystander behavior (i.e., enhance the positive assessment of comforting and proactive bystander behavior and reduce the positive assessment of passive and negatively reinforcing bystander behavior).

1.2 Intervention programs to promote social reasoning

Intervention programs to promote social reasoning often focus on children's peer interactions (Brenick et al., 2019; Killen et al., 2022; Lin et al., 2019). Piaget (1932) already emphasized the significance of peers for children's moral development. In discussions with peers, children can explore moral norms from their social groups and collaboratively work toward more balanced perspectives on moral issues such as intergroup conflicts. Compared to discussions with adults, peer discussions are more likely to prompt children to disagree with their partners and provide stronger and more spontaneous justifications for their opinions (Kruger, 1992; Mammen et al., 2019). This leads to a higher level and more sophisticated moral reasoning in children (Mammen et al., 2019). Damon and Killen (1982) suggest that such changes in reasoning are accompanied by imminent changes in children's conception of justice. This, in turn, could influence behavior regarding immigrant-based exclusion.

Developmentally oriented intervention programs typically use argument-based peer discussions about intergroup exclusion to reduce prejudices in children (Brenick et al., 2019; Killen

et al., 2022). These programs often combine peer discussions with indirect intergroup contact based on the contact theory. Contact theory posits that indirect contact with outgroup members (e.g., via media) plays a key role in promoting acceptance and positive attitudes toward outgroup members. For instance, Killen and Smetana (2022) involved children in indirect intergroup interactions using a web-based curriculum tool. This tool presented eight scenarios of social exclusion and inclusion featuring hypothetical characters from outgroups. In discussions with peers, children shared their personal experiences of intergroup exclusion and reasoned through the moral and social-conventional complexities of intergroup conflicts. Such child-centered intervention programs effectively reduce stereotypes and enhance children's social inclusion and reasoning about intergroup conflicts (Brenick et al., 2019; Killen et al., 2022). Drawing on these findings, we aimed to promote social reasoning concerning social inclusion and inclusive bystander behavior by combining argument-based peer discussions with opportunities for indirect intergroup contact through narrative fiction.

1.3 Promoting social reasoning about intergroup exclusion through narrative fiction

Narrative fiction can provide positive indirect intergroup contact by allowing access to the lived experiences and perspectives of fictional outgroup members. By imagining the social worlds presented in the narrative fiction, young readers can take the perspective of fictional outgroup characters and develop a more nuanced perception of outgroup members beyond stereotypes (Black and Barnes, 2015; Mar, 2018; Vezzali et al., 2015). Furthermore, by providing positive indirect intergroup contact, reading narrative fiction can increase positive outgroup attitudes (Gasser et al., 2022). Additionally, reading high-quality narrative fiction is linked to the positive development of social-cognitive skills, prosocial behavior and the reduction of peer problems (Koopman, 2015; Lenhart et al., 2023; Vezzali et al., 2015).

Although reading can be an individually performed activity, reading in childhood is often embedded in an interpersonal context where peers, teachers or parents collaboratively discuss the narrative fiction with the child. Literary discussions represent a privileged context for developing social-cognitive skills because they require children to reason for their claims, to listen to each other, to build on each other's arguments and to respectfully disagree (Aram et al., 2017; Lin et al., 2019). Thereby children can collaboratively explore highly contextualized and complex social issues from multiple perspectives. Despite this promise, few evidence-based approaches have been developed for schools with the explicit aim of promoting social reasoning through argument-based discussions about children's literature.

1.4 The literary intervention of the present study

We developed an intervention program to enhance social reasoning about intergroup exclusion by building on the text-based discussion approach Quality Talk (QT; Murphy et al., 2018). While other intervention programs on social reasoning and stereotype reduction (e.g., Brenick et al., 2019; Killen et al., 2022) are mostly conducted extracurricular, our program based on QT integrates social learning into the language arts curriculum.

QT focusses on the argumentative quality of discussions and therefore differs from text-based discussion approaches that primarily address children's basic text comprehension (e.g., vocabulary comprehension) or children's spontaneous responses to the text (e.g., sharing personal experiences related to stories). In argumentative discussions children provide reasons and evidence for their claims, critically analyze the text, and collaboratively explore various perspectives on the text (Murphy et al., 2009). Although argumentative discussions about texts are promising for promoting social-moral development such as perspective-taking (Wen et al., 2023) and prosocial behavior (Lin et al., 2021), no studies so far investigated effects on children's social reasoning about intergroup exclusion.

In QT, the teacher has an essential role as facilitator by encouraging equal participation and supporting cognitive depth during the discussions. While the teacher decides on the text of the discussion, the students take interpretative authority over form and content of the discussion, e.g., by controlling taking turns and asking their own questions about the text. Teachers first explicitly introduce children into different types of open-ended questions about the text (e.g., affective questions that ask for personal connections to the text) and into elements of effective answers (e.g., how to support claims with reasons and evidence). In the present study, children apply this knowledge as they read and discuss four children's books over one school year, focusing on themes of intergroup inclusion and exclusion. The discussions take place in small groups. Teachers facilitate the small-group discussions with discourse moves such as prompting (e.g., Can you justify your claim?), modeling (e.g., I would like to formulate a counterargument to this: I disagree with you that... because....) or challenging (e.g., Perhaps we must consider another point . . .).

To prepare and support teachers for this role, they received a professional training and they were further mentored by a collaborative discourse coach during the implementation.

1.5 The current study

The current study is part of a larger research project investigating the effectiveness of a literary intervention on social and language skills of children in fourth and fifth grade in Switzerland (cf. Gasser et al., 2025). The intervention classes were compared with wait-list control classes that received treatment as usual. The main goal of this study was to investigate the intervention effect on children's social reasoning about immigration-based exclusion and on the ratings of bystander behavior.

To assess social reasoning, children were presented with a social exclusion task (cf. Beißert and Mulvey, 2022) adapted to the Swiss context, featuring two intergroup exclusion scenarios that focused on different types of group activities (social vs. academic). In these two scenarios, students were told that two children—one with and the other without immigration origin—wanted to be included into

the group activity (recess activity vs. math group activity). However, the group can only include one additional member (cf. Beißert and Mulvey, 2022). The immigrant targets had Arab names, a slightly darker skin color and darker hair than the ingroup targets (Swiss children) and were described as coming from foreign country and speaking German poorly. The study focuses on children of Arab origin because discrimination against them has been increasing and is a major issue in Switzerland (Swissinfo, 2024).

Children were first asked which of two targets (Swiss/Arab) they would like to include into the group activity (*inclusion decision*) and to justify their decision (*Reasoning about the inclusion decision).* Children next evaluated how good or bad it is if their ingroup decides against the target with immigration origin (*moral judgment*) and justified their evaluation (*reasoning about the judgment*). Finally, children rated four different types of bystander reactions to the ingroup's social exclusion (i.e., negatively reinforcing, passive, comforting the excluded child, and proactive).

In the current study, we examined two main hypotheses concerning the intervention effects on social reasoning. Firstly, we predicted children in the intervention classes to show more social inclusion (i.e., H1a: more inclusion decisions toward immigrant children, H1b: less positive judgments concerning the exclusive group-norm, H1c: more moral reasoning, and H1d: less social-conventional reasoning) after the intervention program compared to the wait-list control classes. Second, we hypothesized that children in the intervention classes would rate negatively reinforcing and passive bystander behavior (i.e., H2a: negatively reinforcing: "agree with your friends that otherwise there will be a mess," H2b: passive: "stay out of it and say nothing") more negatively and comforting and proactive bystander behaviors (H2c: comforting: "comfort the excluded child afterwards," H2d: proactive: "convince your friends to include the child") more positively after the intervention program than children in the wait-list control classes.

In addition to these main hypotheses, we conducted exploratory analyses to further investigate potential interaction effects. Specifically, we examined whether children's grade level (fourth/fifth grade) moderated the intervention effects as previous research reported stronger intervention effects on children's social reasoning for younger than for older students (Killen et al., 2022). These analyses aimed to provide deeper insights into how different grades might influence the outcomes of the intervention. Additionally, we conducted exploratory analyses to assess potential differences in social reasoning and ratings of bystander behaviors across two contexts: social and academic.

2 Materials and methods

2.1 Sample and design

2.1.1 Participants

The study comprised two data collection points (timepoint 1 [t1]: pretest before the intervention in September 2022 and timepoint 2 [t2]: posttest after the intervention in June 2023). A total of 758 children took part in the research project (48.5% female, M_{age} = 10.33, SD = 0.68, 28.3% did speak German as a second language). The children attended a total of 41 classes (M_{class} = 19 students; SD = 2.86, range = 13–24, 18 classes in the fourth grade, 23 classes in the fifth grade). Within their classes, the children were further assigned to small groups for the group discussions (a total of 159 small groups, M = 4.53 children, SD = 0.83, range = 2–7). Due to missing declarations of consent, illness, other commitments, relocation or failure to meet the test criteria (see Section 2.2.2), data were missing for 54 children at t1 (n = 704) and for 57 children at t2 (n = 701). The entire sample, with missing data accounted for, was used in the analyses.

2.1.2 Control group design

The classes were randomly assigned to the intervention and wait-list control condition. Two stratification criteria were considered when allocating to the conditions: (1) the grade level of the classes and (2) the proportion of non-Swiss residents in the schools' communities. It was ensured that the fourth and fifth grades were equally represented and that classes from high and low non-Swiss resident communities were evenly distributed between the intervention and control conditions.

2.1.3 Intervention design

The intervention comprised 3 components: (1) professional training for teachers prior to the implementation of the school-based intervention, (2) implementation of the school-based intervention, and (3) video-based coaching for teachers during the implementation of the school-based intervention (see Figure 1).

2.1.4 Professional training

In a two-day training (10 h) conducted by the research team, the teachers learned how to implement and facilitate argument-based discussions in their class according to the QT approach by means of inputs and reflections on videotaped discussions. They also learned how to pursue social goals with their class (e.g., promoting social reasoning about intergroup exclusion) by reading selected books and reflecting on these topics. The teachers received manuals and all teaching materials for the intervention. Detailed information can be found in Appendix A.

2.1.5 Implementation of the school-based intervention

As an introduction, children received a series of teacher-led mini-lessons on the QT approach. Children thereby received explicit instructions on various discourse elements such as types of effective questions, answers, and discussion rules. For example, they learned about how to ask different types of open-ended so-called authentic questions such as affective questions that invite reflections on relations between the story and personal experiences (e.g., "Would you decide to include this child in this situation if you were the protagonist?"). The learned discourse elements were modeled using animated short films. Afterwards, children could practice the learned discourse elements.

In a subsequent step, children read a total of four children's books on topics such as stereotypes, intergroup exclusion, and bystander behavior. Each book was read in two to three sections,

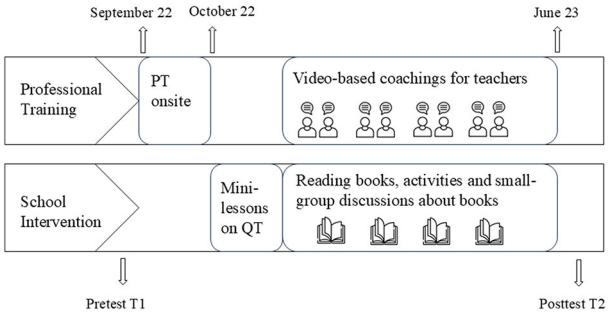

FIGURE 1
Intervention design. PT = Professional Training; QT = Quality Talk.

with activities conducted before, during and after reading (for more details on the books and activities, see Appendix A). Before children read a specific book, they engaged in social lessons to develop an understanding of the social concepts relevant to the book, they learned the appropriate vocabulary and made references to personal experiences. This was realized with the help of prepared short films and exercises provided by the research team. Before, during and after the reading, the children worked on a literacy journal, where they had the opportunity to engage with the content, solve quizzes, set and evaluate goals, and prepare authentic questions.

This was followed by small group discussions of 15 min each, in which the teacher was always present as a facilitator. The rest of the class read books or worked silently on the literacy journal. After the discussions, the teacher led a reflection session.

The teachers provided information about the implementation of the intervention. In a survey, teachers reported on a four-point scale (0 = *never*, 4 = *frequently*) that they rarely deviated from the lesson plans (M = 1.05, SD = 0.19). During the intervention, they conducted on average 9.11 discussions with the small groups and read 3–4 books (13 classes = 3 books, 7 classes = 4 books). They invested 33.03 h (SD = 6.27 h, range = 12.58 h to 42.00 h), with 22.97% for the mini lessons on QT, 17.47% for the social lessons, and 59.56% for the book reading and group discussions. The large variability in the range of hours spent on the intervention is due to one teacher implementing <30% of the intervention (i.e., mini-lessons and one children's book without coaching). Based on the intention-to-treat approach, we decided not to exclude this teacher from the analyses.

2.1.6 Video-based coaching sessions

After the mini-lessons and the reading of a book, the teachers received a video-based online coaching session (in total 3–4 coaching sessions, one per book) in which they reflected on the literary discussions in their classrooms. An observational tool was provided by the research team to reflect on specific criteria of interaction quality during the discussions (for more details on the coaching sessions, see Appendix A).

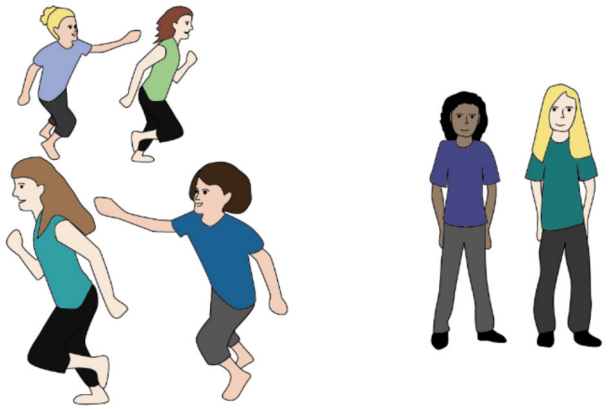

FIGURE 2
Study stimuli: inclusion decision during a recess activity in an intergroup context. This illustration presents the female version of a decision-making scenario within the context of playing tag during school recess. The participant is required to select one of the two children standing next to the group playing tag. On the left is a non-native speaking immigrant child, while the child on the right appears to have a visual resemblance to the ingroup.

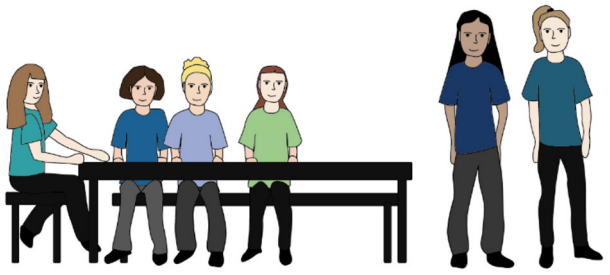

FIGURE 3
Study stimuli: inclusion decision during a math group activity in an intergroup context. This illustration presents the female version of a decision-making scenario within the context of mathematics group work. Like in Figure 2, the participant is required to select one of two standing children depicted besides the seated ingroup: one non-native speaking immigrant child and one child resembling the ingroup.

2.2 Materials and procedure

The study was approved by the ethics committee of the Bern University of Teacher Education, Switzerland. The parents or legal guardians and the participants were asked prior to their involvement in the study for their consent to the child's participation (rejection rate 2.97%). Participants could withdraw from the study at any time.

The participants were given a tablet and headphones and were placed separately with physical barriers erected between desks to ensure anonymity. Trained research assistants helped the children to set up the tablets and introduced the task to be solved. The participants were informed that the answers were anonymous and that there were no rights or wrong answers. The assessment took about 15 to 20 min in total (cf. Malti et al., 2012; Palmer et al., 2023).

2.2.1 Group assignment

All participants listened to the same introduction on the tablet via headphones. At the beginning a Group Identification Task was conducted to help the children identify with the ingroup (cf. Hitti and Killen, 2015). The participants were told that they belong to a group of same-aged and same-sex friends who have a lot of fun together ("This is your group"; Hitti and Killen, 2015). This ingroup was illustrated with a picture of four drawn Swiss children with white skin and common Swiss names (see Figures 2, 3). To strengthen the group identity, the participants chose a symbol (e.g., "lion," "rabbit"), a name (e.g., "sporties," "jokers"), and a hobby for the group (e.g., music, sport).

2.2.2 The hypothetical scenarios

Children were first introduced to a situation where their ingroup competed with the outgroup for limited resources. More specifically, children were told that they and their group would be taking part in a project week at school. Their group is eager to engage in a particular project during this week. However, the group cannot participate in this project, because two Arabic immigrant children with low German language skills (outgroup members: Azra/Fatima or Hasan/Tarek; female and male version) registered first. The ingroup members are very disappointed. We used this framing because a competitive context can additionally trigger hostility toward members of outgroups (Chang et al., 2016; Richardson et al., 2014). To ensure that participants understood the story, they were asked a test question ("Who are Azra/Hasan and Fatima/Tarek?") which they answered in a multiple-choice format (e.g., "Azra and Fatima are from France and speak French"). Children who were unable to answer the test question correctly were considered missing for the respective time point (22 children at t1 and 10 children at t2).

Children were next introduced to two different types of group activity scenarios: (1) In the *social group activity* scenario, participants were told that one child was missing to complete the group for playing tag. Azra (outgroup: non-native speaking immigrant child) and Nina (ingroup: child who visually corresponds to the ingroup) both asked if they could join the group (see Figure 2). (2) In the *academic group activity* scenario, one child was missing to complete a group of five for solving a math task (see Figure 3). Fatima (outgroup: non-native speaking immigrant child) and Lisa (ingroup: child who visually corresponds to the ingroup) both want to participate.

2.2.3 Dependent measures

In a forced choice task, the participants were asked which of two children they would select if they were the protagonist (*inclusion decision*). Afterwards, they had to provide a written answer to the question why they decided to select this child ("why?"; *moral reasoning about the inclusion decision*; paper pencil). Further, it was said that the ingroup would exclude the non-native speaking immigrant child (e.g., Azra) because otherwise there would be a mess due to the children's limited language skills. The participants then had to indicate on a 6-point Likert scale how right or wrong they thought the behavior of the ingroup was (1 = *very wrong* to 6 = *very right*; *moral judgment*) and to justify the judgment in writing ("why?"; *moral reasoning about the judgment*; paper pencil).

For both scenarios (recess activity vs. math group activity), the participants used a 4-point Likert scale (Likert type: 1 = *does not apply at all* to 4 = *applies*) for the *rating of bystander behavior*. They indicated the extent to which they would engage in negatively reinforcing bystander behavior (i.e., "agree with your friends that otherwise there will be a mess"), passive bystander behavior (i.e., "stay out of it and say nothing"), comforting bystander behavior (i.e., "comfort the child afterwards") and proactive bystander behavior (i.e., "convince your friends to include the child").

2.2.4 Coding categories for justifications

Based on the social domain theory (Killen and Smetana, 2022), a coding system was developed to categorize children's justifications of inclusion decisions and moral judgments. The categories comprise the three broad domains of *moral, social-conventional* and *psychological*. Subcategories were developed for each domain. The moral domain includes the subcategories of fairness (e.g., "It is unfair to exclude someone just because they do not speak German well"), welfare (e.g., "I choose the child who does not speak German well so that they have someone to play with and learn German") and civil courage (e.g., "It is not true what the group says, there will be no mess"). The social-conventional domain refers to group functioning (e.g., "There might be arguments if they don't get on so well") and group identity (e.g., "He doesn't fit into our group, he's not Swiss"). The psychological domain includes the subcategories of autonomy (e.g., "I freely chose to do this") and attributes (e.g., "because black children are very nice" or "foreigners are aggressive"). In addition to these domains, the categories of *personal similarity to the character* (*e.g.*, "Because my brother has the same name as him/her"), *avoiding the dilemma* (e.g., "Actually, I would take both") and *rest category* (e.g., "For no particular reason") were also subdivided. For the analysis, only categories above 15% were analyzed and all other subcategories were excluded (civil courage: 2.5%, autonomy: 0.7%, personal similarity to the character: 1.9%, avoiding the dilemma: 3.5%, attributes: 13.9%). The subcategories fairness and welfare were combined into one category labeled as moral domain (50.2%) and the group functioning and group identity into one category defined as social-conventional domain (19.8%). Accordingly, only subcategories of the two broad categories of moral and social-conventional reasoning were examined in the analyses. Reasons were coded as 1 (use of the category) and 0 (no use of the category; cf. Bottema-Beutel and Li, 2015). If the participant did not give a written answer, this was counted as missing (range of four tasks: 7.8%—8.4 %). Overall, 100% of the data were coded. To evaluate interrater reliability, 25% of the data were coded by two trained researchers, resulting in a Cohen's $\kappa = 0.81$. Double coding accounted for only 5%, so interrater reliability for the use of multiple codes was not assessed (Hitti et al., 2014; Killen et al., 2013).

2.3 Data analytic plan

We conducted analyses to test the hypotheses on the intervention effects regarding *moral inclusion* (H1a–H1d) and *rating of bystander behavior* (H2a–H2d). To test the intervention effects, we specified multilevel models using MPLUS 8.1 to account for the nested data structure (Muthén and Muthén, 2017). With the MPLUS software, missings can be handled well by using the full information maximum likelihood (FIML) and Bayes estimators to utilize the full information from all observations for the model parameters (Muthén, 2020). Our models included three levels: situational context (recess activity vs. math group activity, level 1), individual children (level 2) and classrooms (level 3). This allows for the analysis of level-specific covariates and predictors. The intraclass correlations (ICCs) for the dependent variables varied between 0.01 and 0.05. Despite these low ICCs, we conducted multilevel analyses to prevent bias in the results by considering the dependence of the multi-level data (Geiser, 2011).

For each hypothesis test, we predicted the behavior at t2 by the behavior at t1 (Newsom, 2021). In contrast to latent growth models, this procedure is particularly suitable for longitudinal data with two time points (Duncan and Duncan, 2009). We then added the situational context as covariate (binary: recess/math group activity) to each hypothesis test at level 1 (vignette), the children's gender (binary: female/male) and first language (binary: High German or Swiss German/other language) as covariates on level 2, and the condition (binary: intervention/wait-list control condition) and grade (binary: fourth/fifth grade) as predictors at level 3 (class). At level 1 and level 2, the variables were group mean centered and at level 3 the variables were grand mean centered (Yaremych et al., 2023). We also included the interaction between intervention and grade to investigate if intervention effects depend on the grade level (fourth/fifth grade).

To simplify the already complex three-level models, all models were specified with random intercepts but without random slopes (cf. Geiser, 2011). The FIML was used for the metric dependent variable (i.e., *moral judgment*). However, it struggles with convergence in three-level models with categorical dependent variables. Given that the Bayesian estimator is very powerful, flexible, and is the sole estimation option available in MPLUS for three-level models with categorical outcome variables, the Bayes estimator with non-informative priors was used for categorical dependent variables (i.e., *inclusion decision, moral* and *social-conventional reasoning*) as well as for analyses involving dependent variables measured on a four-point Likert scale (i.e., *ratings of bystander behavior*). Bayes analyses were accomplished using Markov Chain Monte Carlo (MCMC) simulations. To ensure that the models converged properly and achieved a Potential Scale Reduction Factor close to 1, the number of iterations was set to 20,000. Trace plots of parameters across iterations were generated and reviewed. To assess the uncertainty of our parameter estimates, we computed 95% credible intervals from the posterior distributions. This means that we expect there is a 95% probability that the true parameter values lie within these intervals. To facilitate data interpretation, we provide both credible intervals and *p-values*, as MPLUS calculates *p-values* in addition to credible intervals for the Bayes estimator as well. A threshold of 0.05 was defined for the *p-values* of all analyses. One-tailed *p-values* are reported for the directed hypotheses.

3 Results

3.1 Moral inclusion: inclusion decision, moral judgment, reasoning

3.1.1 Inclusion decision

We did not find a significant effect of the situational context on children's inclusion decisions. Consequently, the inclusion decisions did not significantly differ between the recess activity and the math group activity situations. Girls were significantly more likely to include the non-native speaking immigrant children than boys, $B = 0.29$, $SD = 0.12$, $p = .014$, and native speaking children were less likely to include the outgroup child than children with German as a second language, $B = -0.40$, $SD = 0.15$; $p = 0.006$. We found no significant intervention effect on the inclusion decision (see Table 1).

3.1.2 Reasoning about the inclusion decision

We run two different analyses for the justification types (moral, social-conventional). Children showed significantly less moral reasoning about their inclusion decision during the math group activity than during the recess activity, $B = -0.38$, $SD = 0.09$ $p < 0.001$ (see Table 1). In contrast, children showed marginally significant more social-conventional reasoning during the math group activity than during the recess activity, $B = 0.19$, $SD = 0.10$, $p = 0.056$. Moreover, boys were significantly less likely than girls to refer to moral reasons to justify the inclusion decision, $B = -0.44$, $SD = 0.13$, $p < 0.001$. We found no significant gender difference in social-conventional reasoning. Children with German as a second language did not significantly differ in their moral reasoning but they showed significantly less social-conventional reasoning for justifying their inclusion decision than children with German as a first language, $B = -0.50$, $SD = 0.20$, $p = 0.008$. In contrast to our hypotheses, we found no significant intervention effects on moral reasoning and social-conventional reasoning.

3.1.3 Moral judgment

Children did not significantly differ in their moral judgments about immigrant-based exclusion between recess activity and math group activity. Boys were significantly more likely than girls to judge the exclusion based on immigrant status as right, $B = 0.23$, $SE = 0.09$, $p = 0.01$. Children with German as a second language did not significantly differ in their moral judgment compared to children with German as the first language. Finally, we found no significant intervention effect on the moral judgment (see Table 2).

3.1.4 Reasoning about the moral judgment

We conducted two different analyses for the justification types (moral, social-conventional). Children used significantly less moral reasoning during the math group activity compared to the recess

10.3389/fdpys.2025.1549126

TABLE 1 Three-level regression analysis: intervention effect on inclusion decision and decision-making reasoning.

	Inclusion decision (ID)		Moral reasoning ID		Social-conventional reasoning ID	
	Est.	**95% CI**	**Est.**	**95% CI**	**Est.**	**95% CI**
Level 1: experimental vignettes						
Measurement t1	0.15 (0.13)	[−0.11, 0.41]	0.18 (0.16)	[−0.13, 0.50]	0.34† (0.19)	[−0.04, 0.71]
Situational context	−0.07 (0.08)	[−0.23, 0.09]	−0.38*** (0.09)	[−0.55, −0.22]	0.19† (0.10)	[−0.01, 0.39]
Level 2: individual children						
First language[a]	−0.40** (0.15)	[−0.69, −0.12]	0.03 (0.15)	[−0.28, 0.33]	−0.50** (0.20)	[−0.90, −0.13]
Gender[b]	0.29* (0.12)	[0.06, 0.54]	−0.44*** (0.13)	[−0.70, −0.19]	−0.13 (0.15)	[−0.43, 0.17]
Level 3: classrooms						
Intervention condition[c]	**−0.01** (0.14)	[−0.29, 0.27]	**−0.08** (0.16)	[−0.39, 0.25]	**−0.17** (0.16)	[−0.49, 0.15]
Grade[d]	−0.10 (0.14)	[−0.38,0.16]	0.10 (0.16)	[−0.22, 0.41]	0.07 (0.17)	[−0.26, 0.41]
Variances						
Level 1 Measurement t1	0.10 (0.00)	[0.09, 0.11]	0.07 (0.00)	[0.07, 0.08]	0.07 (0.00)	[0.06, 0.07]
Level 1 Situational context	0.25 (0.01)	[0.23, 0.27]	0.25 (0.01)	[0.23, 0.27]	0.25 (0.01)	[0.23, 0.27]
Level 2 First language	0.17 (0.01)	[0.16, 0.19]	0.17 (0.01)	[0.15, 0.19]	0.17 (0.01)	[0.16, 0.19]
Level 2 Gender	0.25 (0.01)	[0.22, 0.27]	0.25 (0.01)	[0.22, 0.27]	0.25 (0.01)	[0.22, 0.27]
Level 3 Intervention condition	0.27 (0.07)	[0.18, 0.45]	0.28 (0.07)	[0.18, 0.45]	0.27 (0.07)	[0.18, 0.44]
Level 3 Grade	0.27 (0.07)	[0.18, 0.44]	0.27 (0.07)	[0.18, 0.44]	0.27 (0.07)	[0.18, 0.44]
Level 3 Residual variances	0.04 (0.04)	[0.00, 0.16]	0.09 (0.06)	[0.02, 0.26]	0.03 (0.04)	[0.00, 0.14]

Two-tailed p-values are reported except for intervention condition, where one-tailed p-values are reported. No p-values are reported for variances. Posterior standard deviations are shown in brackets for fixed effects. For variances standard deviations are shown in brackets. 95% CI: Range from lower 2.5% to upper 2.5%. **Bold:** Effect of hypothesis test. The estimate for the fixed effects refers to an unstandardized coefficient (B). Reference categories: [a]Children with German as first language, [b]girls, [c]Wait-list control classes, [d]fourth grade. †$p < 0.10$; *$p < 0.05$; **$p < 0.01$; *** $p < 0.001$.

activity, $B = -0.37$, $SD = 0.10$, $p < 0.001$. Contrary, children showed significantly more social-conventional reasoning during the math group activity than during the recess activity, $B = 0.37$, $SD = 0.12$, $p = 0.002$. Boys showed marginally significant less moral reasoning than girls $B = -0.30$, $SD = 0.16$, $p = 0.054$. We found no significant gender differences in social-conventional reasoning. Children with German as a second language showed marginally significant less social-conventional reasoning than children with German as their first language $B = -0.47$, $SD = 0.25$, $p = 0.050$, but showed no significant differences in moral reasoning. Again, we found no significant intervention effects on moral reasoning and social-conventional reasoning (see Table 2).

3.2 Ratings of bystander behavior

Children evaluated negatively reinforcing bystander behavior significantly more positively during the math group activity than during the recess activity, $B = 0.16$, $SD = 0.07$, $p = 0.030$ (see Table 3). In contrast, children rated proactive bystander behavior significantly more positively during the recess activity than during the math group activity, $B = -0.25$, $SD = 0.08$, $p < 0.001$. No significant effects of situational context were found for the ratings of passive and comforting bystander behavior. Boys rated negatively reinforcing bystander behavior significantly more positively than girls, $B = 0.57$, $SD = 0.18$, $p = 0.002$. Conversely, boys rated comforting bystander behavior significantly less positively, $B = -0.84$, $SD = 0.23$, $p < 0.001$, and proactive bystander behavior marginally significantly less positively compared to girls, $B = -0.38$, $SD = 0.20$, $p = 0.056$. No significant gender differences were found in rating passive bystander behavior. In addition, no significant difference in the rating of negatively reinforcing, passive, comforting, and proactive bystander behavior were found between children with German as a second language and native speaking children.

In line with H2a, we found a significant intervention effect on the rating of negatively reinforcing bystander behavior, $B = -0.35$, $SD = 0.21$, one-tailed $p = 0.048$ (see Table 3, Figures 4, 5). In other words, children in the intervention classes rated negatively reinforcing bystander behavior at t2 (and controlling for t1 and the covariates) less positive than children in the wait-list control classes. The effect size was moderate, $\beta = -0.49$ (Cohen, 1988). Consistent with H2b, children in den intervention classes evaluated passive bystander behavior at t2 (and controlling for t1 and the covariates) less positive than children in the wait-list control classes with a medium effect size, $\beta = -0.75$, $B = -0.63$, $SD = 0.21$, $p = 0.002$ (Cohen, 1988). Further, we found no significant intervention effect for the ratings of comforting bystander behavior (H2c) and proactive bystander behavior (H2d; see Table 3).

In summary, only H2a and H2b concerning the rating of negatively reinforcing and passive bystander behavior could be maintained. In exploratory analyses, we examined whether the grade level of the children moderated the intervention effects. These

10.3389/fdpys.2025.1549126

TABLE 2 Three-level regression analysis: intervention effect on moral judgment and judgment reasoning.

	Moral judgment	Moral reasoning judgment		Social-conventional reasoning judgment	
	Est.	Est.	95% CI	Est.	95% CI
Level 1: experimental vignettes					
Measurement t1	0.03 (0.04)	−0.09 (0.19)	[−0.47, 0.28]	0.28 (0.26)	[−0.22, 0.80]
Situational context	0.07† (0.04)	−0.37*** (0.10)	[−0.56, −0.18]	0.37** (0.12)	[0.14, 0.60]
Level 2: individual children					
First language[a]	−0.16 (0.12)	−0.16 (0.19)	[−0.53, 0.21]	−0.47† (0.25)	[−0.98, 0.00]
Gender[b]	0.23* (0.09)	−0.30† (0.16)	[−0.62, 0.01]	0.28 (0.20)	[−0.11, 0.69]
Level 3: classrooms					
Intervention condition[c]	**−0.08** (0.08)	**−0.09** (0.18)	[−0.44, 0.27]	**−0.19** (0.23)	[−0.64, 0.26]
Grade[d]	−0.00 (0.07)	0.22 (0.19)	[0.15, 0.59]	0.14 (0.22)	[−0.29, 0.56]
Variances					
Level 1 Measurement t1	0.34 (0.03)	0.07 (0.00)	[0.06, 0.07]	0.05 (0.00)	[0.04, 0.05]
Level 1 Situational context	0.25 (0.00)	0.25 (0.01)	[0.23, 0.27]	0.25 (0.01)	[0.23, 0.27]
Level 2 First language	0.17 (0.01)	0.17 (0.01)	[0.16, 0.19]	0.17 (0.01)	[0.16, 0.19]
Level 2 Gender	0.24 (0.00)	0.25 (0.01)	[0.22, 0.27]	0.25 (0.01)	[0.22, 0.27]
Level 3 Intervention condition	0.25 (0.00)	0.27 (0.07)	[0.18, 0.45]	0.27 (0.07)	[0.18, 0.45]
Level 3 Grade	0.25 (0.01)	0.27 (0.07)	[0.18, 0.44]	0.27 (0.07)	[0.18, 0.44]
Level 3 Residual variances	0.00 (0.03)	0.06 (0.07)	[0.01, 0.26]	0.07 (0.09)	[0.01, 0.32]

Two-tailed p-values are reported except for intervention condition, where one-tailed p-values are reported. No p-values are reported for variances. Standard errors are reported in brackets for fixed effects on moral judgement. Posterior standard deviations are shown in brackets for fixed effects on moral reasoning judgement and social-conventional reasoning judgement. For variances standard deviations are shown in brackets. 95% CI: Range from lower 2.5% to upper 2.5%. **Bold:** Effect of hypothesis test. The estimate for the fixed effects refers to an unstandardized coefficient (B).

Reference categories: [a]Children with German as first language, [b]girls, [c]Wait-list control classes, [d]fourth grade. †$p < 0.10$; *$p < 0.05$; **$p < 0.01$; *** $p < 0.001$.

analyses aimed to provide deeper insights into how different grades might influence the outcomes of the intervention.

3.3 Exploratory analyses: moderating effect of grade on intervention effects

We found that grade significantly moderated the intervention effect on the rating of negatively reinforcing bystander behavior with a medium effect size, $\beta = 0.55$, $B = 0.95$, $SD = 0.42$, $p = 0.026$, 95% *C.I.* = [0.12, 1.79] (Cohen, 1988). A simple slope test showed a tendency for fourth grade students to benefit significantly more from the intervention regarding the rating of negatively reinforcing bystander behavior than fifth grade students, $B = -0.34$, $SD = 0.20$, one-tailed $p = 0.046$.

We found no further significant moderation effects of grade on intervention concerning inclusion decision, moral judgment, reasoning, and ratings of bystander behavior. Accordingly, for passive bystander behavior children from both grades benefited comparably from the intervention.

4 Discussion

We explored the effects of an argument-based intervention on social reasoning about immigrant-based exclusion in fourth and fifth graders in Switzerland. Although argument-based discussions about narrative fiction have great potential to promote social reasoning about social exclusion, the present study is the first to examine such intervention effects. The new findings revealed intervention effects on reducing positive ratings of passive bystander behaviors and negatively reinforcing bystander behaviors that support an exclusive group-norm in immigrant-based exclusion situations. However, no significant effects were observed for inclusion decisions, moral judgments, and the rating of bystander behaviors that include comforting or proactive defending of the victim. To investigate the intervention effects, we administered a social exclusion task adapted to the Swiss context (Malti et al., 2012; Palmer et al., 2023).

One of the main findings of this study relates to the intervention effects on ratings of negatively reinforcing and passive bystander behavior. In hypothetical immigrant-based exclusion contexts, children in the intervention classes rated negatively reinforcing and passive bystander behavior less positively at the end of the intervention program than children in the wait-list control classes, with a moderate effect size. While negatively reinforcing bystander behavior explicitly endorse the exclusive behavior (i.e., agreeing with the group regarding a discriminatory group norm), passive bystander behavior (i.e., ignoring the group behavior and saying nothing) is often perceived as implicit approval of the exclusion. Reducing positive ratings of negatively reinforcing and passive bystander behavior is of particular importance, as such bystander

10.3389/fdpys.2025.1549126

TABLE 3 Three-level regression analysis: intervention effect on ratings of bystander behavior (BB).

	Negatively reinforcing BB		Passive BB		Comforting BB		Proactive BB	
	Est.	95% CI	Est.	95% CI	Est.	95% CI	Est.	95% CI
Level 1: experimental vignettes								
Bystander behavior t1	0.06 (0.09)	[−0.11, 0.23]	0.06 (0.09)	[−0.12, 0.23]	0.02 (0.12)	[−0.21, 0.26]	0.18† (0.10)	[−0.01, 0.37]
Situational context	0.16* (0.07)	[0.02, 0.30]	−0.06 (0.07)	[−0.20, −0.08]	−0.12 (0.08)	[−0.27, 0.04]	−0.25*** (0.08)	[−0.40,−0.11]
Level 2: individual children								
First language[a]	−0.02 (0.22)	[−0.44, 0.41]	−0.06 (0.23)	[−0.51, 0.38]	0.46† (0.28)	[−0.08, 1.00]	0.43† (0.24)	[−0.05, 0.90]
Gender[b]	0.57** (0.18)	[0.22, 0.94]	0.14 (0.19)	[−0.24, −0.51]	−0.84*** (0.23)	[−1.30,−0.38]	−0.38† (0.20)	[−0.77, −0.01]
Level 3: classrooms								
Intervention condition[c]	**−0.35*** (0.21)	[−0.76, 0.07]	**−0.63**** (0.21)	[−1.02, −0.22]	**0.19** (0.28)	[−0.35, 0.75]	**0.21** (0.24)	[−0.26, 0.71]
Grade[d]	−0.03 (0.21)	[−0.44, 0.38]	0.24 (0.21)	[−0.16, 0.64]	−0.22 (0.28)	[−0.77, 0.34]	0.06 (0.25)	[−0.42, 0.55]
Variances								
Level 1 Measurement t1	0.17 (0.01)	[0.16, 0.19]	0.18 (0.01)	[0.16, 0.19]	0.11 (0.00)	[0.11, 0.12]	0.16 (0.01)	[0.15, 0.18]
Level 1 Situational context	0.25 (0.01)	[0.23, 0.27]	0.25 (0.01)	[0.23, 0.27]	0.25 (0.01)	[0.23, 0.27]	0.25 (0.01)	[0.23, 0.27]
Level 2 First language	0.17 (0.01)	[0.16, 0.19]	0.17 (0.01)	[0.16, 0.19]	0.17 (0.01)	[0.16, 0.19]	0.17 (0.01)	[0.16, 0.19]
Level 2 Gender	0.24 (0.01)	[0.22, 0.27]	0.24 (0.01)	[0.22, 0.27]	0.24 (0.01)	[0.22, 0.27]	0.24 (0.01)	[0.22, 0.27]
Level 3 Intervention condition	0.28 (0.07)	[0.18, 0.45]	0.28 (0.07)	[0.18, 0.45]	0.28 (0.07)	[0.18, 0.45]	0.28 (0.07)	[0.18, 0.45]
Level 3 Grade	0.27 (0.07)	[0.18, 0.44]	0.27 (0.07)	[0.18, 0.44]	0.27 (0.07)	[0.18, 0.44]	0.27 (0.07)	[0.18, 0.44]
Level 3 Residual variances	0.10 (0.10)	[0.00, 0.36]	0.05 (0.07)	[0.00, 0.26]	0.26 (0.20)	[0.03, 0.79]	0.20 (0.15)	[0.02, 0.59]

Two-tailed p-values are reported except for intervention condition, where one-tailed p-values are reported. No p-values for variances are reported. Posterior standard deviations are shown in brackets for fixed effects. For variances standard deviations are shown in brackets. 95% CI: Range from lower 2.5% to upper 2.5%. **Bold:** Effect of hypothesis test. The estimate for the fixed effects refers to an unstandardized coefficient (B).

Reference categories: [a]Children with German as first language, [b]girls, [c]Wait-list control classes, [d]fourth grade. †$p < 0.10$; *$p < 0.05$; **$p < 0.01$; *** $p < 0.001$.

behavior often encourages bullies in harming the victim (Gotdiner and Gumpel, 2024).

Further, grade significantly moderated the intervention effect on the rating of negatively reinforcing bystander behavior. In line with findings of Killen et al. (2022), the result indicates a tendency toward a stronger intervention effect among younger children (fourth grade vs. fifth grade). Consequently, the intervention may have been more effective in increasing younger children's awareness of the negative impacts of negatively reinforcing bystander behavior compared to older children. Contrary, in older children group norms may already play a more important role (Brown et al., 2008). Therefore, it may be more challenging to reduce the positive ratings of negatively reinforcing bystander behavior in older children through indirect measures such as argument-based interventions, in which opposing norms are not explicitly conveyed. Accordingly, promoting social reasoning about group norms through argument-based interventions might be particularly effective in younger children (Killen et al., 2022).

The study did not identify any additional intervention effects on the ratings of other bystander behaviors (i.e., comforting bystander behavior, proactive bystander behavior). These varying effects on the ratings may be explained by challenges in promoting certain types of ratings, especially those involving higher social risks. For example, positive ratings of comforting and proactive bystander behavior go along with comforting the excluded child and speaking out against one's own hypothetical ingroup's opinion in favor of outgroup members, which is associated with higher social risks (e.g., potential exclusion from one's own ingroup). Achieving an intervention effect through argument-based discussions may be more challenging in such contexts compared to bystander behavior involving lower social risks (i.e., negatively rating the passive bystander behavior). Hence, it is particularly important to differentiate between different types of bystander behaviors in research when investigating argument-based intervention effects.

Contrary to our hypotheses, we found no intervention effects on social reasoning concerning social inclusion. Our findings

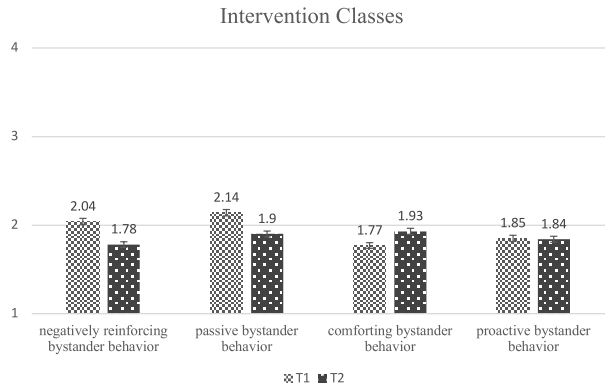

FIGURE 4
Ratings of bystander behavior in intervention classes. Mean values of reported ratings of bystander behavior with their standard errors measured on a 4-point likert scale.

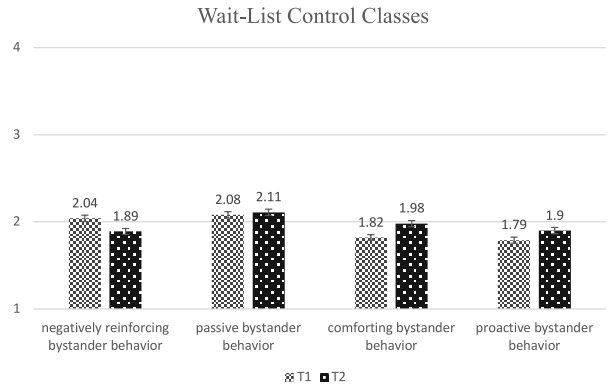

FIGURE 5
Ratings of bystander behavior in wait-list control classes. Mean values of reported ratings of bystander behavior with their standard errors measured on a 4-point Likert scale.

contrast with the intervention results reported by Killen and Smetana (2022). These differences can be attributed to the present intervention study's use of an indirect approach through argument-based discussions about narrative fiction addressing social topics, without specifying whether children's arguments should focus on social inclusion or exclusion. Instead, the children learned to justify their claims, critically reflect on the content of children's literature, and explore different perspectives during the discussions (cf. Murphy et al., 2018). Moreover, the books utilized did not specifically concentrate on immigrant-based exclusion. Instead, they addressed social exclusion in a broader context. In contrast, the intervention by Killen et al. (2022) introduced an anti-racism curriculum that addressed prejudicial attitudes and exclusionary behavior. Moreover, a social norm toward social inclusion and the dismantling of racism was clearly promoted. Additionally, the current study differs from Killen et al. (2022) in its measurement of social reasoning about peer exclusion, potentially leading to different outcomes. While Killen et al. (2022) focused on inclusion decisions involving a single individual, this study employs a person selection scenario where choosing one person inherently results in the exclusion of another.

Although the current study found only limited intervention effects on social reasoning about specific bystander behaviors, the effects that were achieved are noteworthy. This is particularly significant because our indirect intervention approach closely mirrors the typical discussions about social issues that children engage during their leisure time. In these contexts, children form their own judgments based on the arguments of their peers, often without the imposition of social norms by schools and teachers. Consequently, the children did not merely learn an inclusive norm. Instead, they reached their prosocial conclusion concerning the group-supporting and passive bystander behavior through their own reasoning during the discussions.

One notable strength of the present study is its comprehensive examination of judgments and social reasoning about immigrant-based exclusion across different contexts, specifically during hypothetical recess and math group activities. For example, we found that for the context of the hypothetical recess activity children rated negatively reinforcing bystander behavior toward social exclusion more negatively and proactive bystander behavior toward social inclusion more positively than for the context of the hypothetical math group activity. These findings align with previous studies, which suggest that decisions toward social exclusion are more likely in academic than in social contexts (Gasser et al., 2014). Consequently, this study indicates that non-native speaking immigrant children may be at a higher risk of social exclusion during academic group activities than during social activities.

Other influences, such as socialization and sociocultural factors, may also play a significant role in shaping social reasoning about intergroup exclusion. In the present study, this assumption is supported by the observed effects of language background of children on their social reasoning regarding intergroup exclusion. Consistent with previous research, children who speak German as a second language demonstrated more positive evaluations of comforting and proactive bystander behaviors toward non-native speaking immigrant children. They also made more inclusive decisions and relied less on reasoning related to group functioning and identity (i.e., social-conventional reasoning) compared to native-speaking children. This could be explained by the assumption that non-native speaking children may have experienced more positive intergroup interactions with other non-native speakers, potentially leading to more favorable attitudes toward them (Servidio et al., 2021). Additionally, these children may exhibit heightened sensitivity to dynamics within linguistically diverse intergroup contexts, such as being targets of bias-based bullying (Campbell et al., 2023). Moreover, non-native speaking children may have identified less with their hypothetical ingroup, represented as Swiss children, which could lead to a diminished ingroup bias. Future studies should therefore assess the degree to which non-native speaking children identify with this hypothetical ingroup to gain deeper insights into this aspect.

Limitations and implications

In addition to its strengths, the present study also has some limitations. The absence of intervention effects on several outcomes could be attributed to the selection of

more distal outcome measures, which may have been only indirectly influenced by the argumentative intervention through children's literature.

The social exclusion task was applied to measure social reasoning using hypothetical immigrant-based exclusion situations. These hypothetical scenarios offer the advantage of creating specific intergroup situations, varying these situations across different contexts (e.g., social and academic), and testing specific types of social reasoning within these contexts. While the internal validity of such measurement instruments is high, the ecological validity is unclear. Although studies suggest that behavior in hypothetical scenarios corresponds to behavior in authentic situations (Mulvey et al., 2018; Beißert et al., 2020), future studies with hypothetical scenarios could be supplemented by observations in the field.

Our study has only two measurement points (pretest and posttest). This has the advantage of allowing children in the same class to participate in the study throughout the school year without the results being influenced by changes in teachers or class composition between school years. At the same time, effects beyond the school year were not measured. In order to measure longer-term intervention effects, future intervention studies should include a follow-up measurement.

The present study also provides practical implications. For the first time, the effect of the theoretically and empirically well-supported Quality Talk approach (Murphy et al., 2018) was investigated concerning inclusion decisions, judgments, and social reasoning about intergroup exclusion. As the Quality Talk approach is suitable for promoting social and academic learning and incorporates the school curriculum, the assessment of this school-based intervention is of practical importance. The present study demonstrates that this approach is especially promising for the reduction of the positive evaluation of negatively reinforcing and passive bystander behavior. Because the discussion approach promoted in the intervention is sophisticated, studies indicate that many teachers continue to rely on persistent discourse structures, such as initiation, response, and evaluation (IRE) (Mehan, 1979). Research has shown that while workshops can modify the nature of initiations, teachers often retain a high level of control, which limits children's opportunities for social reasoning. In this context, coaching is crucial for developing discourse practices that genuinely enhance children's reasoning abilities (Correnti et al., 2021). However, since coaching requires significant time investment, incorporating our intervention into the regular school routine may prove challenging.

Overall, the present study highlights both the potential and the limitations of an argument-based intervention about narrative fiction for promoting social reasoning about immigrant-based exclusion among fourth and fifth graders. While we demonstrated intervention effects on the ratings of negatively reinforcing and passive bystander behavior, we did not find evidence for other significant intervention effects. Implications for research and practice were highlighted.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The studies involving humans were approved by Ethics Committee of Bern University of Teacher Education. The studies were conducted in accordance with the local legislation and institutional requirements. Written informed consent for participation in this study was provided by the participants' legal guardians/next of kin.

Author contributions

SE: Conceptualization, Data curation, Formal analysis, Investigation, Project administration, Writing – original draft, Writing – review & editing. LG: Conceptualization, Data curation, Funding acquisition, Project administration, Software, Writing – review & editing. AF: Investigation, Writing – review & editing. DP: Investigation, Writing – review & editing. HB: Writing – review & editing. YD: Conceptualization, Project administration, Resources, Writing – review & editing.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Generative AI statement

The author(s) declare that no Gen AI was used in the creation of this manuscript.

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Supplementary material

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fdpys.2025.1549126/full#supplementary-material

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