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***“Fostering Ethnocultural Empathy in Childhood: Assessment,
Intervention, and Moral Reasoning in Multicultural Contexts”***

Ph.D Candidate
Alessandra Colella

Supervisor:
Prof. Dario Bacchini

Co-Supervisor:
Dr. Concetta Esposito

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*To Lorenzo,
who still lives in silence but already fills every word of mine.
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Chapter 1: Ethnocultural empathy: definition, measurements, interventions

Introduction

In recent years, societies around the world have been experiencing rapid demographic and cultural changes due to increasing migration and globalization. According to ISTAT data from 2020, in Italy alone, over one million minors have a family background of migration. This phenomenon is not limited to the Italian context: globally, the number of people living in a country different from their birthplace reached 281 million in 2020, accounting for 3.6% of the world's population—that is, approximately one in every thirty people (World Migration Report, 2020). These demographic shifts are profoundly reflected in school systems, where the presence of students with foreign origins has become a structural characteristic across all levels of education (MIUR, 2020). In particular, primary schools in Italy report the highest proportion, with foreign students making up approximately 12% of the total student body.

Such transformations are reshaping educational environments and call for urgent reflection and action from the entire educational community. Schools are increasingly multicultural spaces, where children from diverse linguistic, cultural, and ethnic backgrounds interact daily. This reality underscores the necessity of developing educational pathways that actively promote social inclusion and reduce inequalities and marginalization. Within this context, studying ethnocultural empathy in children becomes not only relevant but essential. Understanding how empathy toward culturally different others develops and manifests in childhood is crucial for fostering respectful and inclusive communities.

This research contributes to the growing field of intercultural studies by focusing on children, a population that has traditionally received less attention in this area, despite their central role in shaping the attitudes and values of future societies.

The Concept of Ethnocultural Empathy: A Multidimensional Framework

Empathy has been conceptualized in various ways across different academic disciplines. Broadly, it is defined as the capacity to comprehend and share the emotions or perspectives of others, often involving an affective resonance with their emotional states. Building on the work of Hoffman (2000) and Batson (1991), Eisenberg and colleagues (Eisenberg et al., 2006; 1991) define empathy as an emotional response that closely mirrors or corresponds to another individual's feelings, deriving from an awareness of their affective experience within a given context.

According to Devis (1994) empathy represents a crucial element in social interactions. It has been shown to counteract hostile attitudes and behaviors, thereby fostering improved relationships among individuals from diverse ethnic and cultural backgrounds (Litvack-Miller, MacDougall, & Romney, 1997). Furthermore, empathy has been found to promote social cohesion by reducing prejudice, conflict, and discriminatory tendencies while simultaneously enhancing mutual understanding, respect, and tolerance among individuals of both similar and differing cultural and ethnic identities (Wang et al., 2003). On the contrary, lack of empathy has been associated with increased hostility toward ethnic outgroups (Stephan & Finlay, 1999). Moreover, Hoffman (2000) suggested that empathic abilities tend to be stronger when individuals share similarities in ethnicity, gender, age, or background. This implies that the more culturally distant two individuals are, the greater the effort required to develop empathy.

Even though the existing literature on general empathy offers well-established definitions and frameworks for the construct, in light of cultural differences between groups, it is essential to expand these definitions to incorporate cultural and ethnic dimensions.

Ridley and Lingle (1996) were among the first to formally introduce and define the concept of *cultural empathy*, distinguishing it from general empathy.

According to their definition, cultural empathy extends beyond the basic ability to understand and share another person's emotions; it also involves recognizing, accepting, and appreciating the cultural frameworks that shape an individual's experiences and worldview. Ridley and Lingle conceptualized cultural empathy as a learned skill rather than an innate trait. Their model is particularly influential because it presents cultural empathy as both multidimensional and interpersonal, meaning that it involves distinct cognitive, affective, and communicative processes that collectively enable individuals to engage in meaningful cross-cultural interactions.

1. *Cognitive Dimension*: It involves *cultural perspective-taking*—the ability to understand another person's cultural background and experiences from their point of view. This process also includes *self–other differentiation*, where individuals recognize how their own cultural biases and assumptions shape their perceptions of others.

2. *Affective Dimension*: It encompasses *vicarious affect*—the ability to emotionally resonate with another person's experiences within a cultural context. It also includes *expressive concern*, which refers to demonstrating genuine emotional investment in another person's well-being and cultural perspective.

3. *Communicative Dimension*: It involves both the ability to actively seeking to understand cultural differences through dialogue and the capacity to expressing empathy in a way that is sensitive and respectful to the cultural context of the individual.

Researchers have subsequently used a variety of terms to describe empathy in intercultural contexts. For instance, *empathetic multicultural awareness* (Junn, Morton, & Yee, 1995) that emphasizes an individual's sensitivity to cultural diversity, while *cultural role-taking* (Scott & Borodovsky, 1990) and *ethnic perspective-taking* (Quintana, Ybarra, Gonzalez-Doupe, & Baessa, 2000)

highlight the cognitive process of adopting another's cultural viewpoint. Regardless of the specific terminology, the common central idea is that ethnocultural empathy is a critical skill for fostering positive cross-cultural interactions, reducing prejudice, and improving communication in multicultural environments.

To provide a more cohesive framework, researchers have consolidated these various constructs under the term *ethnocultural empathy* (Wang et al., 2003). This construct refers to the individual's capacity to identify, comprehend, and respond to the emotions of individuals from diverse cultural and ethnic backgrounds.

According to Wang et al. (2003), ethnocultural empathy differs from general empathy in several key ways:

- a) It requires recognizing and interpreting an individual's experiences within their specific cultural framework. Rather than viewing an individual as separate from their cultural background, their emotions and perspectives must be understood in the context of the social and cultural environment that shapes them;
- b) it requires the ability to regulating one's own subjective biases and preconceived notions about individuals or groups from different cultural and ethnic backgrounds. This self-regulation helps prevent prejudices from influencing interactions and ensures a more objective and respectful engagement with cultural differences.
- c) Unlike general empathy, which can be based on theoretical knowledge alone, ethnocultural empathy is significantly enhanced through direct exposure to other cultures.

Wang et al. (2003) identified four core components that constitute ethnocultural empathy:

1. *Intellectual Empathy (Empathic Perspective Taking)*: The ability to cognitively understand the thoughts, emotions, and point of view of individuals from different ethnic backgrounds.

2. *Communicative Empathy (Empathic Feeling and Expressions)*:

The verbal and non-verbal expression of ethnocultural empathy toward individuals from different ethnic groups. It encompasses the capacity to emotionally connect with and express understanding of the experiences of individuals from diverse cultural backgrounds.

3. *Ethnocultural Empathy Consciousness (Empathic Awareness)*:

Awareness of how various societal structures, including the media, education and economy system, shape the experiences and treatment of ethnic minorities.

4. *Acceptance of Cultural Differences (Acceptance of Cultural Differences)*: The ability to recognize and respect cultural practices that may differ from one's own, such as traditional clothing, language, or social customs, without judgment or bias.

The authors propose that ethnocultural empathy, both as an acquired skill and an inherent personal trait, can be measured. To operationalize this construct, they developed the *Scale of Ethnocultural Empathy* (SEE), designed for use with both adults and adolescents. The resulting 31-items are divided into the four subdimensions above mentioned, i.e Empathic Feeling and Expression (EFE), Empathic Perspective-Taking (EPT), Acceptance of Cultural Differences (AC) and Empathic Awareness (EA).

Intergroup and Interethnic Relations in Childhood and Adolescence

Understanding how children and adolescents perceive and respond to peers from different ethnic or cultural groups is crucial in the context of increasingly multicultural societies. The Social Identity Theory (SIT; Tajfel, 1978) offers a foundational framework for analyzing how individuals, including children, develop a sense of group membership and derive part of their self-concept from group affiliation. According to SIT, individuals tend to adopt the norms, values,

and behaviors of their in-group and may, as a result, display biases or discriminatory attitudes toward out-group members.

Building on this, Nesdale (2004) proposed the Social Identity Development Theory (SIDT), which outlines four developmental stages in children's ethnic identity formation and prejudice development. Initially, children show little awareness of group differences (Stage 1), followed by the recognition of external characteristics (Stage 2), in-group preference (Stage 3), and, finally, the emergence of out-group bias and prejudice, typically by age seven (Stage 4). These developmental patterns suggest that from early school age, children may be more prone to exhibit group-based biases and differential empathy responses toward peers based on perceived group membership (Eisenberg et al., 2015; Peplak & Malti, 2021).

Importantly, these group-based emotional responses can be influenced by contextual and relational factors. The Social Reasoning Developmental model (SRD; Rutland et al., 2010) posits that children weigh moral concerns (e.g., fairness, inclusion) against group-related concerns (e.g., loyalty, cohesion) when reasoning about intergroup relationships. Research shows that while children and adolescents may initially reject exclusion based on ethnicity as unfair, their reliance on group norms and stereotypes increases with age (Elenbaas et al., 2016; McGuire et al., 2019).

In this regard, peer norms play a central role. As children grow, their social judgments and intergroup behaviors become increasingly shaped by the expectations of peers, families, and schools (Pehar et al., 2020). For instance, perceiving negative peer norms around intergroup contact has been linked to increased out-group bias (De Tezanos-Pinto et al., 2010), while perceiving inclusive norms is associated with greater intergroup empathy and reduced social distance (Capozza et al., 2013).

Empathy itself has been identified as a critical emotional mechanism in reducing intergroup bias. Studies have shown that interventions aimed at enhancing empathy—particularly when including concrete examples of exclusion and

discrimination—can be highly effective in countering prejudice in children (Aboud & Spears Brown, 2013). Moreover, adolescents who experience strong emotional reactions to social injustice, such as sympathy or anger, are more likely to engage in prosocial or activist behaviors (Banales et al., 2021; Hazelbaker et al., 2022). Schools, therefore, play a vital role not only in providing knowledge about diversity but also in shaping students' values, motivations, and capacities for empathy. In diverse educational settings, intercultural learning occurs informally through daily interactions, as well as formally through curricula, discussions, and inclusive pedagogical approaches (Solhaug & Osler, 2017).

Studies conducted in Italy have shown that fostering inclusive norms and promoting cooperative learning can reduce intergroup bias and enhance empathy toward peers from different ethnic backgrounds (Capozza et al., 2013; Benetton et al., 2021). For example, Pezzi et al. (2018) found that structured classroom activities promoting moral reasoning about fairness and diversity were effective in improving interethnic attitudes among Italian students. Similarly, a study by Patti and Zani (2014) demonstrated that the presence of interethnic friendships in school-aged children was significantly associated with lower levels of ethnic prejudice and more positive attitudes toward immigrant peers. Their research highlighted the role of daily intergroup contact and peer relationships in shaping social inclusivity.

In a large-scale project on intercultural education in Italian primary and lower secondary schools, Giovannini and colleagues (2020) found that when teachers intentionally integrated intercultural themes into the curriculum, students reported greater acceptance of cultural differences and demonstrated higher levels of perspective-taking and social responsibility. Furthermore, research by D'Odorico and Livi (2013) observed that even short-term peer-led workshops addressing topics like discrimination, migration, and coexistence led to measurable improvements in students' empathic awareness and openness to dialogue with peers from minority backgrounds.

Evidence also points to the importance of teacher attitudes and institutional climate. A study by De Amicis and Pavone (2019) found that schools promoting democratic participation, cooperative activities, and open dialogue were more effective in supporting the inclusion of foreign-background students, reducing perceived social distance and fostering empathy across ethnic lines. These effects were particularly strong in schools that implemented structured anti-bias programs and encouraged shared projects among students of diverse backgrounds.

Measuring Empathy and Empathy-Related Responding in the Context of Ethnic Diversity

As emerges from the literature, ethnocultural empathy is a multifaceted and complex construct, making its assessment particularly challenging, especially in children. Young children often have limited linguistic and cognitive abilities, which can make it difficult for them to reflect on and articulate their internal emotional states or social reasoning. In the case of ethnocultural empathy, the challenge is even greater: the construct involves not only affective and cognitive understanding of others, but also an awareness of cultural and ethnic differences—dimensions that may not yet be fully developed or consciously accessible in early childhood.

While self-report measures are among the most frequently employed methods for evaluating empathy and related responses, there is currently no validated self-report questionnaire specifically designed to measure ethnocultural empathy in children. The development of a specific scale for ethnocultural empathy in children offers both significant opportunities and limitations. On one hand, such a scale would allow for a more targeted and nuanced assessment of children's ability to understand and emotionally engage with culturally diverse others, providing valuable insights for researchers. On the other hand, scale

construction must be approached with caution: it requires developmental sensitivity in language, format, and content.

Currently, however, there are other types of self-report measures to assess this construct with children: self report on picture-stories and in stimulated experimental situations. Finally, other types of assessment frequently used are behavioral tasks.

Self-Report on Picture-Stories

Multicultural FRIC (Albiero et al., 2022)

The Multicultural FRIC is an adaptation of the Feshbach and Roe Affective Test for Empathy (FRIC, Feshbach et al., 1968) to multicultural contexts, developed by Albiero and colleagues (2022). Originally designed to assess general empathy in children aged 6 to 10 years, this modified version introduces culturally diverse scenarios to evaluate children's empathic responses toward individuals from different ethnic backgrounds. This assessment employs a semi-structured interview format, during which children are presented with emotionally evocative stimuli in the form of images accompanied by simple narrative descriptions. Each story features a main character from a distinct ethnic background (Caucasian, Chinese, Black African, Asian Indian) who experiences an emotion in response to a particular event.

Participants are then asked a series of questions designed to explore both cognitive and affective components of empathy. Cognitive empathy is assessed through questions that evaluate the child's ability to comprehend and interpret the psychological states and social cues (e.g., facial expressions) of the character, while affective empathy is examined through the affect match component, measuring the child's emotional responsiveness when witnessing an emotional event involving another person. The questions are shown in table 1.

Table 1. Description of Albiero's Multicultural FRIC adaptation questions

Social comprehension
1. How does the main character feel?” (R1)
2. How strongly does the character feel (R1), a little, quite a lot, a lot?” (R2)
Affect match
3. If you witnessed a situation like this, how would you feel?” (R3)
4. ‘How strongly would you feel (R3), a little, quite lot, a lot?’
Cognitive processes underlying empathic responsiveness
5. Why do you feel this way (R3)?

The scoring for the affect match between the character portrayed in the story and the emotion experienced by the child and the social comprehension assessment is shown in the table 2. The higher the score, the more complex cognitive attribution was referred by the child during the evaluation.

Table 2. Description of social comprehension and affect match assessment

Score level of cognitive attribution
0 inaccurate identification of the character’s emotion
1 accurate identification of the character’s emotion, but no affect match
2 no or irrelevant attributions for affect match
3 attributions based on events alone
4 attributions mentioning the character in a specific event
5 attributions associating the character’s experience with the child’s own
6 attributions mentioning the character’s inner state or viewpoint
7 explicit role-taking
Score level of affect match
0 the child felt no emotion
1 the child’s emotion was similar in valence (euphoric vs. dysphoric) to the one he/she reported identifying in the character

2 the child's emotion was the same as the character's, but with a different intensity

3 the child's emotion and its intensity were the same as the character's

By combining the two scores, according to the instructions in the Empathy Continuum Scoring System (ECSS, Strayer et al., 1992), a single empathy score is obtained.

Self-Report Stimulated in Experimental Situations

Film Stimuli (Spinrad et al., 2023)

One of the methods used to assess children's empathic responses in experimental settings involves exposing them to emotionally charged film stimuli. A series of short films depicting bullying scenarios are shown to child participants. Each film presents a perpetrator and a victim, with both characters being similar in age and gender to the participating child. The key manipulation in these films is racial identity, ensuring a balanced representation of White and Black victims across different conditions (White victim boys, White victim girls, Black victim boys, Black victim girls). This design allows researchers to examine whether racial factors influence children's empathic responses.

Following each film, children's empathy is assessed through two primary measures: self-reported empathic concern and facial expression analysis.

- *Self-Reported Empathic Concern:* Immediately after viewing a film, children are presented with an image of the victim and asked to rate their emotional response on a four-point scale (0 = *not at all* to 3 = *a whole lot*). They are asked to indicate how much they felt sadness, compassion, nervousness, distress, or fear in response to the victim's experience. This measure is adapted from Eisenberg et al. (1991).
- *Facial Expression Analysis:* Throughout the film presentation, children's facial expressions are recorded and coded using a standardized

observational coding system. The coding follows a four-point scale (0 = *no emotional display* to 3 = *strong emotional display*), assessing three key dimensions: a) concerned attention (indicators of attentiveness toward the victim's experience); b) anger (expressive reactions of frustration or indignation in response to the bullying scene); c) sadness (observable emotional distress elicited by the victim's suffering)

Behavioral Tasks

Sharing Tasks (Spinrad et al., 2023)

Chocolate Sharing Task (adapted from Böhm & Buttelmann, 2017; Fehr et al., 2008)

The Chocolate Sharing Task is a resource allocation paradigm designed to examine children's prosocial decision-making and generosity toward peers of different racial backgrounds. Participants are presented with images of 10 same-sex peers, consisting of five White and five Black children. The task consists of a series of forced-choice dilemmas, each requiring participants to allocate chocolates between themselves and a peer, with choices varying in levels of self-benefit and generosity toward others. Participants are presented with five different decision scenarios:

1. Selfish vs. Altruistic Choice: The child may choose to keep one chocolate for themselves while giving zero chocolates to the peer (selfish choice) or allocate two chocolates to the peer while keeping zero chocolates for themselves (altruistic choice).
2. Selfish vs. Equitable Choice: The child may choose to keep two chocolates for themselves while giving zero chocolates to the peer (selfish choice) or distribute one chocolate each (equitable choice).
3. Selfish vs. Equitable Choice (Alternative Variant): The child may keep one chocolate for themselves while giving zero chocolates to the peer (selfish choice) or share one chocolate each (equitable choice).

4. Altruistic vs. Selfish Choice: The child may opt to give one chocolate to the peer while keeping zero chocolates (altruistic choice) or keep one chocolate for themselves while giving none to the peer (selfish choice).

5. Equitable vs. Selfish Choice: The child may choose to share two chocolates equally (one for self, one for peer) or keep three chocolates for themselves while giving zero chocolates to the peer (selfish choice).

At the conclusion of the task, participants are informed that they can retain all chocolates accumulated throughout the trials. The experiment is counterbalanced across racial conditions, with each choice set presented for both Black and White peers, resulting in a total of 10 trials per participant.

Star-Sharing Task (adapted from Ongley & Malti, 2014)

The Star-Sharing Task is an alternative resource allocation task that examines children's willingness to donate personal resources to an unfamiliar peer. In this task, participants are given 10 glow-in-the-dark star stickers. The experimenter then presents an image of a same-sex peer (either Black or White) and explains that there are insufficient stickers for the children arriving at the laboratory the following day.

Participants are given the opportunity to donate none, some, or all of their stickers to the depicted peer. To ensure privacy and minimize social desirability bias, the child places the selected number of stickers into an envelope and seals it. The experimenter then leaves the room to allow the child to complete the task independently, returning only after the child has finalized their decision.

This paradigm provides insight into spontaneous prosocial behavior, allowing researchers to assess how children allocate resources when no explicit reciprocity or immediate consequences are involved.

Money Sharing Task

This task evaluates charitable giving and fairness in economic decision-making. Participants are provided with a monetary endowment and then shown a short video featuring two children—one Black and one White—who express disappointment and sadness due to their inability to afford a school trip.

Following the video, the experimenter explains that if enough participants choose to donate, the children in the video might be able to attend the trip. Participants are then given the choice to donate none, some, or all of their money to either or both children. To ensure autonomy in decision-making, participants place their donation into a secure pouch while the experimenter temporarily exits the room. This method reduces experimenter influence and allows for a more authentic measurement of children's generosity and social fairness.

Collaborative game-based tools and intervention using technology to promote empathy and empathy-related responding

In recent years, there has been a growing interest in examining the potential of games and technology-driven interventions in enhancing mental health, emotional intelligence, and prosocial behavior (Carissoli & Villani, 2019; Harrington & O'Connell, 2016; Villani et al., 2018). Digital technologies, particularly serious games and educational applications, have shown significant promise in fostering emotional and cognitive development. Among younger individuals, interactive digital environments act as powerful engagement tools, effectively facilitating the development of prosocial skills through immersive and interactive learning experiences.

A key factor driving this shift is the emergence of the Positive Technology Movement, which seeks to harness digital tools to enhance well-being and promote human development (Gaggioli et al., 2019). This approach integrates game-based learning methodologies, virtual environments, and digital applications to create interventions that go beyond entertainment. These interventions are specifically designed to educate, nurture emotional intelligence,

and foster empathy, providing structured experiences that encourage social and emotional growth.

However, the influence of technology on social interactions is complex. Turkle (2015) argues that technology significantly shapes how individuals communicate, thereby impacting interpersonal relationships. While some studies suggest that excessive reliance on digital communication may hinder the ability to recognize facial expressions and interpret emotional cues (Uhls et al., 2014), other research suggests a more nuanced relationship. For instance, Carrier et al. (2015) introduced the concept of “virtual empathy”, highlighting that empathetic responses generated within virtual environments can extend to real-life interactions. Their findings indicate that individuals who engage in virtual empathy, particularly through social networking and instant messaging, demonstrate enhanced face-to-face empathy over time.

In the context of digital games, Belman and Flanagan (2010) emphasize that games provide a uniquely immersive platform for fostering empathy, allowing players to adopt different perspectives and inhabit roles that encourage deeper emotional engagement. Supporting this perspective, a study by Bachen et al. (2012) examined the impact of digital simulation games on high school students, revealing that those who participated in simulation-based learning reported increased global empathy and a heightened interest in learning about diverse cultures and global issues.

These findings collectively suggest that while technology-mediated interactions present both opportunities and challenges, carefully designed digital interventions—particularly those incorporating serious games, simulations, and interactive storytelling—can effectively contribute to the development of empathy and prosocial behavior.

An overview of game-based tools and technology-based intervention fostering empathy and empathy related responding for children and adolescents is presented as follow.

Game-based intervention

The Chase (Modafferi et al., 2016)

The Chase was developed as a cooperative game aimed at fostering teamwork and strategic decision-making in children. The game is grounded in public goods theory (Cornes & Sandler, 1996), requiring players to balance personal sacrifices with collective benefits. In this multiplayer game, four participants take turns moving their team's pieces along a pathway while attempting to escape the "Giggle Monster", whose goal is to chase them down. Each turn, a randomized allocation of movement points determines whether the player or the monster can advance.

Each player carries balloons, and the team must collectively accumulate at least 60 balloons by the end of the game to succeed. If the monster lands on a player, five balloons are distributed to the group. Players can collaborate by moving a teammate's piece to avoid capture, but this action costs them one personal balloon per move. This mechanic compels players to evaluate when to prioritize individual versus team success, reinforcing cooperative decision-making and social negotiation skills.

REAL LIVES (Bachen et al., 2012)

REAL LIVES is a simulation game designed to immerse players in the life of an individual from a different country. The game assigns players a randomized identity, allowing them to experience various socio-economic, cultural, and environmental challenges as they navigate life events such as education, employment, marriage, health crises, and natural disasters.

Upon the character's "birth," the player observes how they would appear at age 15 and progresses through key milestones determined by real-world demographic and statistical data. As the game advances, contextual historical, cultural, and economic information is provided, enriching players' understanding of global disparities. Players make decisions that influence their educational,

professional, and personal trajectories, with opportunities to engage in human rights activism and socio-economic development.

This game is particularly effective in fostering global empathy, as players emotionally engage with the struggles of their assigned character, experiencing the realities of life in different socio-political contexts.

Zoo U (Craig et al., 2016)

Zoo U is an intelligent social tutoring system (ISTS) designed for children aged 7 to 12 years. The game assesses and develops six core social competencies: impulse control, communication, cooperation, social initiation, empathy, and emotion regulation.

Within the game, players interact with virtual teachers and classmates while learning to care for animals. As they progress, personalized feedback is provided, reinforcing key social and emotional learning (SEL) skills in an interactive and engaging format.

Hall of Heroes (DeRosier & Thomas, 2019)

Hall of Heroes is an online adventure game aimed at adolescents, designed to facilitate social problem-solving. The game is set in a virtual school environment, simulating real-world social challenges commonly faced in middle school.

Players navigate the school setting and interact with non-playable characters (NPCs) who serve as mentors, teachers, peers, and learning companions. The game introduces challenging social dilemmas, such as dealing with bullying, allowing players to practice problem-solving skills in a structured, low-risk environment. By immersing adolescents in these realistic, interactive scenarios, Hall of Heroes helps reduce anxiety related to social navigation and peer interactions.

Quandary (Hilliard et al., 2018)

Quandary is an ethics-based decision-making game aimed at youth players. Through engaging narrative-driven gameplay, players must navigate moral dilemmas by considering multiple perspectives. The game's primary objective is to develop players' ethical reasoning, perspective-taking, and critical thinking skills.

In Quandary, players assume the role of a space colony captain and must resolve complex societal problems. Every scenario presents four possible solutions, each with two alternative outcomes: one that positively impacts the colony's morale and another that, while functional, results in unintended consequences. Each episode lasts approximately 20 minutes, ensuring focused, high-impact decision-making exercises.

S.S. GRIN (Thomas & DeRosier, 2010)

S.S. GRIN is an intelligent social tutoring system (ISTS) designed for children, providing a narrative-driven, interactive platform for social training. Players first customize their avatar, enabling them to engage with the game through a personalized digital representation. This customization fosters greater identification and emotional engagement.

Players interact with in-game characters using a menu-based dialogue system, selecting responses that shape their social interactions and learning trajectory. The avatar's facial expressions dynamically change to reflect the emotional intent behind different dialogue choices, teaching children to recognize non-verbal communication cues.

A key component of S.S. GRIN is social problem-solving training. For example, in one scenario, the player's avatar is bullied and must choose between:

1. Withdrawing (passive response)
2. Escalating the conflict (aggressive response)
3. Managing the situation assertively (assertive response)

The game tracks responses over multiple interactions, providing feedback and scoring based on assertiveness, emotional regulation, and conflict resolution strategies. One of the primary objectives of S.S. GRIN is to enhance impulse control, a fundamental skill linked to cooperation, communication, and emotional self-regulation.

Gypsy Maze (Simonovits et al., 2017)

Gypsy Maze is an online perspective-taking game developed to reduce prejudice against marginalized ethnic groups. The game is rooted in perspective-taking theory, which suggests that empathy and attitudinal shifts occur when individuals immerse themselves in the lived experiences of others.

In Gypsy Maze, players adopt the perspective of an 18-year-old Roma adolescent who moves to Budapest, Hungary, seeking a new life. The narrative is presented in second-person perspective, reinforcing the embodiment of the character's experiences. Throughout the game, players encounter various challenges related to discrimination, cultural adaptation, and socio-economic barriers.

The gameplay consists of vignette-based decision-making, where players choose how the protagonist navigates daily life struggles. Each choice influences the narrative's progression, allowing players to witness the direct impact of discrimination and bias on an individual's life.

Intervention using technology

E-Contact Interventions

The concept of E-contact was introduced by White and Abu-Rayya (2012) as "computer-mediated contact involving an engagement of self in the intergroup relationship". This approach enables interaction between ingroup and outgroup members without physical meetings, relying instead on synchronous, text-based online communication. E-contact interventions are typically developed within the framework of Allport's Contact Hypothesis (1954), which posits that

intergroup contact under optimal conditions can reduce prejudice and foster positive social relationships. These strategies are categorized as forms of indirect contact, which do not require face-to-face interaction but can meaningfully influence how young people perceive and respond to outgroup members (Stathi et al., 2014). Indirect contact plays a preparatory role by reducing intergroup anxiety and establishing social norms that support positive cross-group relations (Vezzali, 2017; Turner & Cameron, 2016). For example, exposure to media content such as videos, stories, or broadcasts depicting cooperative or friendly interactions between in-group and out-group members has been shown to enhance empathy, increase interest in intergroup contact, and reduce prejudice (Cameron & Rutland, 2006; Vittrup & Holden, 2011; Joyce & Harwood, 2014).

Research indicates that children and adolescents often infer social norms through observation, learning about the acceptability of intergroup relationships by witnessing peers or same-group members engage with outgroup individuals (Skinner & Meltzoff, 2019; Capozza et al., 2014). Simply knowing that their peers have cross-group friendships can influence youth's openness to intergroup contact (Gómez et al., 2011; Vezzali et al., 2017). These experiences not only lower affective barriers but also help youth develop cognitive scripts and expectations that make future direct contact seem less threatening (Turner & Cameron, 2016).

Moreover, indirect contact strategies have been found effective across diverse national and cultural contexts. They have contributed to reduced intergroup hostility in settings such as Germany (Pettigrew et al., 2007), Northern Ireland (Paolini et al., 2004), and Australia (White et al., 2015), while promoting more inclusive attitudes in Italy (Vezzali et al., 2017), Spain (Gómez et al., 2011), Norway (De Tezanos-Pinto et al., 2010), and the UK (Turner & Cameron, 2006). These positive effects are often mediated by enhanced perceptions of inclusive group norms and reduced anxiety regarding intergroup interaction (Turner et al., 2008; Gómez et al., 2011). Some examples of E-contact interventions are illustrated below.

Dissolving Boundaries Project (Austin, 2006)

One of the most well-documented E-contact programs is the Dissolving Boundaries Project, initiated in 1999 to facilitate interactions between schools in Northern Ireland and the Republic of Ireland. This initiative integrates Allport's Contact Hypothesis and Gaertner & Dovidio's (2000) Common Ingroup Identity Model, which emphasizes creating a shared identity to enhance intergroup cohesion. Small groups of primary and high school students, along with their teachers, engaged in online videoconferencing and collaborative tasks.

Online Collaborative Learning in Israel (Hoter et al., 2009)

Hoter et al. (2009) developed a digital intergroup learning program for Secular Jews, Orthodox Jews, and Arabs in Israel, a society often marked by historical conflict and social divisions. Students participated in collaborative multimedia tasks, including the creation of video clips and educational games focused on academic subjects. Although no pre-post evaluations measured attitudinal changes, qualitative feedback indicated greater intergroup empathy and increased perceptions of commonality.

Bystander Video Interventions

The prosocial bystander intervention model, as proposed by Latané & Darley (1970), describes a five-step process that individuals undergo before intervening in a problematic social situation:

1. Recognizing an event as problematic;
2. Interpreting the situation as requiring intervention;
3. Feeling personally responsible to act;
4. Determining an appropriate response;

5. Executing the chosen intervention strategy.

This model has been adapted into various bystander intervention programs, addressing issues such as bullying, discrimination, and harassment.

Intervene – Cornell University’s Bystander Intervention Video (Skorton Center for Health Initiatives, Cornell Health)

Building on existing bystander intervention programs, Cornell University developed “Intervene”, a 20-minute instructional video demonstrating effective bystander intervention strategies in diverse real-life scenarios (Santacrose et al., 2020). The intervention is primarily designed for undergraduate and graduate students, with secondary audiences including high school students

The theoretical foundation of Intervene is Bandura’s Social Learning Theory (1969), which emphasizes the role of observational learning and social modeling in behavior acquisition. According to Bandura, individuals can learn prosocial behaviors by observing modeled actions and subsequently imitating them. Each scenario reflects the prosocial bystander intervention model by portraying individuals going through a common set of steps when determining if and how to intervene for any type of situation (Latané & Darley, 1970). For example, In the racial bias scenario, a group of four female friends are waiting in line to a party. When the group reaches the front door, the white women in the group are invited inside and the black woman of the group is denied access. The group of friends address the white man at the front door and the women decide to leave the party together.

GATE-BULL intervention

The GATE-BULL intervention (Gaining Awareness Through Empathy—Bullying), presented by Willems et al. (2024), is a school-based educational program developed to reduce prejudice and bullying behaviors while fostering empathy and positive intergroup relations among children.

The program incorporates indirect intergroup contact strategies (e.g., reading stories about intergroup encounters), which have been shown to improve attitudes by offering vicarious experiences that reduce anxiety and promote inclusive social norms (Vezzali et al., 2015; Turner & Cameron, 2016).

GATE-BULL also targets bullying prevention through social-emotional learning (SEL), addressing both individual-level empathy and group-level dynamics (e.g., bystander behavior, group norms). The intervention recognizes that empathy plays a protective role in discouraging aggressive behavior and promoting prosocial responses in situations of intergroup conflict or marginalization.

The program was implemented over six weeks in Italian elementary schools and involved weekly sessions (about one hour each), delivered by trained teachers or educators within the regular school curriculum. Each session integrated storytelling, guided discussions, role-playing, and cooperative group activities.

- Session 1–2: Introduction to emotions, self-awareness, and empathy (focusing on recognizing one’s own and others’ emotions).
- Session 3–4: Deepening perspective-taking, with a focus on understanding the emotional experiences of others, particularly those who may be marginalized.
- Session 5–6: Addressing bullying dynamics and promoting inclusive behavior, including concrete actions that children can take when witnessing exclusion or unfair treatment.

Special emphasis was placed on outgroup-related scenarios, such as those involving ethnic or immigrant peers, to foster ethnocultural empathy and reduce bias.

General Aims and Outline of the Present Dissertation

Starting from the considerations discussed above, this dissertation aims to contribute to a growing body of developmental research concerned with how

children make sense of social inequalities, particularly those rooted in ethnic group membership. While developmental psychology has long examined how children develop concepts of fairness, justice, and prosociality, less is known about how these moral frameworks operate in real-world contexts marked by systemic and intergroup disparities. This thesis seeks to fill this gap by investigating how children evaluate ethnic-based inequality, how they respond behaviorally through acts of inclusion or exclusion, and how individual factors—such as empathy and prosocial dispositions—inform these moral decisions. Across three empirical studies, the dissertation adopts a multi-method and multi-informant approach to explore children's reasoning about fairness, their empathic engagement with diverse others, and their distribution of resources in contexts characterized by ethnic diversity and social asymmetry.

The overarching theme of this work is ethnocultural empathy, which represents the core focus throughout the various sections. The different interventions and methodologies presented are interconnected by their shared aim of exploring this construct from multiple perspectives. Given the limited development of ethnocultural empathy in young children and the inherent methodological biases in assessing such socio-emotional processes at early ages, a multimethod approach was necessary. Each study contributes to this aim, thereby offering a comprehensive and developmentally sensitive understanding of how ethnocultural empathy can be studied and nurtured in childhood.

Study I addresses the current lack of developmentally appropriate tools for assessing children's empathy in ethnically diverse contexts. Building upon Wang et al.'s Scale of Ethnocultural Empathy (SEE, 2003), the study aimed to create and validate a child-friendly version of the scale for primary school-aged children. The original SEE, while widely used in adult and adolescent populations, required significant adaptation to suit children's cognitive and linguistic capacities. Through expert item selection and pilot testing, an 8-item version was developed and administered to a sample of 241 children aged 8–11 from multicultural school contexts in Naples and Rome. The study tested the

factorial structure of the adapted scale and confirmed a three-factor model comprising: Empathic Feeling and Expression (EFE), Empathic Perspective Taking (EP), and Acceptance of Cultural Differences (AC).

Model fit indices were acceptable, and the scale demonstrated measurement invariance across gender. Furthermore, convergent validity was supported through significant associations between EFE and both teacher-rated prosociality and cognitive empathy, as well as between EP and cognitive empathy. These findings validate the adapted scale's potential as a reliable and ecologically sound tool for assessing children's ethnocultural empathy and offer a foundation for future research and interventions aimed at fostering inclusive attitudes and intergroup understanding in childhood.

Study II explores the implementation, and evaluation of a digital intervention aimed at fostering empathy and social inclusion in multicultural primary school settings. The study centers on JOINclusion, a mobile serious game developed within a Social and Emotional Learning (SEL) framework and designed to enhance children's empathic understanding and prosocial behavior toward peers from diverse ethnic backgrounds.

This mixed-method study investigates both the usability of the game and its effectiveness as an educational tool. Conducted within the broader Erasmus+ JOINclusion project, the study included two pilot phases with Italian primary school students aged 8 to 11. In the first phase, the beta version of the game was evaluated for user engagement and educational relevance. In the second phase, a structured pre-post design assessed the game's impact on key socio-emotional variables: ethnocultural empathy, cognitive empathy, sympathy, and prosociality toward diverse others.

JOINclusion features two core components: an individual Story Mode, in which players engage with emotionally charged, school-based scenarios involving ethnic exclusion; and a Multiplayer Mode, where children collaboratively resolve social dilemmas. Throughout the game, players are

encouraged to identify others' emotions, engage in perspective-taking, and reflect on the consequences of exclusion and discrimination.

Results revealed that the game significantly improved empathic perspective-taking and cognitive empathy, suggesting its potential to enhance children's understanding of others' experiences. Although increases in other measures—such as empathic expression, sympathy, and prosociality—did not reach statistical significance, high levels of reported enjoyment and engagement confirm the game's acceptability and immersive potential. The absence of gender differences further supports the game's inclusive applicability across groups.

This study contributes to the growing field of Positive Technology by demonstrating how digital tools can promote inclusive values and emotional intelligence in educational contexts. It also reinforces the value of SEL-based interventions in reducing ethnic bias and fostering social cohesion from an early age.

Study III investigates how children morally evaluate and respond to ethnic-based inequalities in resource distribution, with a specific focus on distinguishing between individually- and structurally-based disparities. Grounded in the Social Reasoning Developmental (SRD) model (Killen & Rutland, 2011) and drawing from research on distributive justice, the study explores how children reason about fairness in contexts where one ethnic group is consistently advantaged over another.

Central to the investigation is how children navigate between equality and equity when allocating resources, particularly in light of the perceived origin of inequality, and the type of resource involved.

Using a narrative-based, computerized experimental task, children were presented with scenarios depicting unequal distributions of both necessary (educational materials) and luxury (sweets) resources between two ethnically diverse groups. Participants were asked to judge the fairness of these situations and to actively redistribute resources, allowing for the assessment of their moral reasoning and allocation strategies. The study further distinguishes between

inequalities rooted in personal effort (individual) and those reflecting historical or systemic bias (structural), and examines how children's responses vary accordingly.

Findings revealed that children judged structural and general inequalities as significantly more unfair than individual inequalities, suggesting an emerging sensitivity to systemic injustice. Most children adopted equity-based allocation strategies, particularly when addressing existing disparities in both necessary and luxury resources. Moreover, children who chose equity over equality or inequality exhibited higher levels of teacher-rated prosociality, as well as greater ethnocultural empathy, particularly in terms of empathic expression and concern and openness to cultural diversity.

This study provides evidence that by middle childhood, children are capable of making nuanced moral evaluations about intergroup inequality and are often motivated to correct it—especially when such efforts align with their empathic dispositions. These findings contribute to the broader understanding of how moral development intersects with intergroup relations and reinforce the importance of empathy-oriented educational approaches that promote fairness and social inclusion in diverse classroom settings.

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Chapter 2: Study I. Development of a Children version of the Scale of Ethnocultural Empathy for Adults.

Introduction

Empathy constitutes a foundational element in human interaction, essential for fostering both social cohesion and emotional intelligence. It is broadly defined across disciplines as the capacity to comprehend and share the emotional states or perspectives of others, often involving an affective resonance with their experiences. According to Hoffman's (2000) model, empathy includes both a cognitive component, which refers to the ability to understand the internal mental states of others (e.g., thoughts, beliefs, and intentions), and an affective component, which entails sharing or mirroring others' emotional experiences.

Expanding on this foundational work, Eisenberg and colleagues (1991; 2006) further conceptualized empathy as an emotional response derived from the awareness of another's emotional experience, a process grounded in contextual cues and social understanding. Davis (1994) emphasized empathy's centrality in social interaction, arguing that it plays a key role in mitigating hostility and promoting harmonious interpersonal and intergroup relationships. Empirical findings corroborate these claims, showing that empathy reduces prejudice, facilitates prosocial behavior, and enhances mutual understanding across diverse cultural and ethnic groups (Litvack-Miller, MacDougall, & Romney, 1997; Wang et al., 2003). Conversely, a deficit in empathic capacity has been associated with increased antagonism and discriminatory attitudes toward ethnic outgroups (Stephan & Finlay, 1999).

While empathy is widely considered a crucial foundation for moral behavior and prosocial action, it does not inherently guarantee ethically sound responses. As Hoffman (2000) argues, empathy is subject to significant limitations, particularly in intercultural contexts. Two major constraints he identifies are *empathic over-arousal* and *empathic bias*. Over-arousal refers to instances in which the observer's empathic distress becomes so intense that it leads to self-focused

avoidance, rather than helping behavior (Hoffman, 1978, 2000). This occurs especially when the observer is personally affected by the same type of suffering experienced by the victim, resulting in an egoistic withdrawal aimed at reducing one's own discomfort (Gibbs, 2003).

Empathic biases constitute another major limitation. These biases involve a greater readiness to empathize with individuals who are genetically, socially, or culturally similar to oneself, while showing less emotional resonance with outgroup members (Hoffman, 2000). For example, people are generally more inclined to feel and act empathically toward those they perceive as part of their own group (ingroup), and less toward culturally distant others such as foreigners or ethnic minorities. This bias is not only rooted in evolutionary mechanisms of kin selection (Maccoby, 1980), but also reinforced by contextual and perceptual factors such as the "here-and-now" effect—the tendency to empathize more with those who are physically or temporally proximate (Bandura, 1991).

To address these limitations, *cognitive correctives* play a fundamental role in redirecting empathic responses toward genuinely moral outcomes. Mechanisms such as *perspective-taking*, *self–other differentiation*, and *theory of mind* are essential for shifting from an automatic emotional reaction to a more reflective moral evaluation (Hoffman, 2000). In this context, *causal attribution* processes are particularly relevant: observers are more likely to feel sympathy and act prosocially when a victim's suffering is perceived as caused by external, uncontrollable factors (e.g., social injustice or systemic discrimination), rather than by the victim's own behavior (Bandura, 1991; Hoffman, 2000). Conversely, when the suffering is attributed to internal and controllable causes, empathic engagement tends to diminish, and the perceived moral obligation to help may disappear.

These cognitive processes are especially important in the context of intergroup relations and attitudes toward foreigners. Stereotypes and implicit biases often lead to blaming marginalized individuals or groups for their own misfortunes, thereby weakening empathic concern and reducing support for prosocial action

(Stephan & Finlay, 1999). However, *generalization mechanisms*—such as extending the empathic concern experienced toward a single individual to an entire group—and the activation of *moral principles* such as universalism or human solidarity (Schwartz, 1992, 2011) can counteract these tendencies. Although moral principles are often affectively “cold,” when they are emotionally integrated with empathic concern, they can function as powerful motivational regulators, enhancing both the scope and intensity of moral responsiveness (Hoffman, 2000).

In sum, the cultivation of empathy toward culturally diverse others—particularly foreigners or members of ethnic outgroups—requires more than spontaneous emotional resonance. It depends critically on the modulation of empathic biases, the implementation of cognitive correctives, and the adoption of inclusive moral principles that promote equity and justice across group boundaries. While several authors have emphasized the need for a culturally situated understanding of empathy, Ridley and Lingle (1996) were among the first to formally introduce the concept of *cultural empathy*, distinguishing it from general empathy by highlighting the role of cultural frameworks in shaping emotional understanding and interpersonal connection. However, it was Wang et al. (2003) who took a decisive step forward by unifying and operationalizing these theoretical insights into the construct of *ethnocultural empathy*. Defined as the capacity to identify, understand, and respond to the emotional experiences of individuals from different cultural and ethnic backgrounds.

The Scale of Ethnocultural Empathy (SEE, Wang et al., 2003) has been employed in numerous studies and is widely recognized as a key reference tool for research exploring the cultural dimensions of empathy. It’s a 31-item instrument designed for both adolescents and adults. The items are distributed across four interrelated dimensions: a) Empathic Feeling and Expression, that involves the ability to emotionally resonate with and express understanding of the experiences of people from diverse cultural backgrounds; b) Empathic

Perspective-Taking, that involves the cognitive understanding the cultural context and viewpoints of individuals from different backgrounds; c) Acceptance of Cultural Differences, as the capacity to recognizing, appreciating, and valuing cultural diversity, and d) The Empathic Awareness, as the degree of awareness of discriminatory events concerning different ethnic groups.

The Scale of Ethnocultural Empathy was later validated in Italian by Albiero and Matricardi (2013). The Italian validation aimed to assess the psychometric properties and factorial structure of the instrument within an Italian university population. A sample of 610 undergraduate students (aged 18–33) completed the SEE along with other measures of empathy, cultural attitudes, and prejudice. Confirmatory factor analyses supported the original four-factor model—Empathic Feeling and Expression (EFE), Empathic Perspective Taking (EP), Acceptance of Cultural Differences (AC), and Empathic Awareness (EA)—and confirmed its structural invariance across gender at both the configural and metric levels. Internal consistency for all subscales was satisfactory, and convergent validity was supported through moderate positive correlations with the Interpersonal Reactivity Index (IRI; Davis, 1980; Italian validation: Albiero, Ingoglia, & Lo Coco, 2006). Divergent validity was evidenced by strong negative associations with Blatant and Subtle Prejudice Scale, as measured by the Italian adaptation (Manganelli & Volpato, 2003) of Pettigrew and Meertens' (1995) prejudice scales.

As highlighted in the first chapter, the development of empathy—particularly in its ethnocultural dimensions—is a key factor in promoting positive intergroup attitudes and reducing social exclusion in multicultural settings. Despite this, empirical research on children's interethnic relations has long been limited by the lack of tools suited to younger age groups, especially those that take cultural diversity explicitly into account.

The adaptation of a scale specifically designed to measure ethnocultural empathy in children represents an effort to bridge this gap. While still exploratory, this tool may help to better capture children's social-emotional understanding of difference and provide a structured way to assess how they perceive and respond to peers from diverse backgrounds. In this sense, it may serve as a useful complement to qualitative and behavioral approaches already in use, allowing for more systematic investigation into how empathy operates in the context of interethnic dynamics.

The Present Study

Despite the strong interest in the ethnocultural dimension of empathy, to date there is no scale capable of evaluating the construct in children. An attempt was made by William-Sanchez and Demeo Cook (2023). In this study, parents evaluated their children empathy using items adapted from Wang et al.'s (2003) SEE. The authors assessed the total internal reliability (Cronbach's alpha 0.44) of the four-factor model: (1) acceptance of cultural differences, (2) empathic awareness, (3) empathic feeling and expression, and (4) empathic perspective-taking. Survey questions were answered using a five-point scale of responses ranging from definitely true, probably true, neither true nor false, probably false, through to definitely false; meanwhile, the attempt to assess empathy through children's self-reports (aged 6-8 years) did not work, suggesting trying to validate the scale with older children. Also, as Stanley and Edwards (2016) argue, the concept of reliability and model fit are distinct and complementary concepts that provide different information and Cronbach's alpha measure does not provide the specifics of model fit.

As highlighted previously and in the first chapter, the development of empathy—particularly in its ethnocultural dimensions—is a key factor in

promoting positive intergroup attitudes and reducing social exclusion in multicultural settings. Despite this, empirical research on children's interethnic relations has long been limited by the lack of tools suited to younger age groups, especially those that take cultural diversity explicitly into account. To address these limitations in the existing research, building upon the extended adult version of Wang et al.'s (2003) Scale of Ethnocultural Empathy, the present study aims to develop an age-appropriate instrument for assessing ethnocultural empathy in children. While still exploratory, this tool may help to better capture children's social-emotional understanding of difference and provide a structured way to assess how they perceive and respond to peers from diverse backgrounds. In this sense, it may serve as a useful complement to qualitative and behavioral approaches already in use, allowing for more systematic investigation into how empathy operates in the context of interethnic dynamics.

This process involved the careful adaptation and selection of items from the original scale to ensure developmental suitability for a younger population. In addition to constructing the child version of the scale, we examined its psychometric properties and underlying factorial structure. Convergent validity was assessed by examining associations with related constructs, specifically general empathy—measured using the Basic Empathy Scale (BES; Jolliffe & Farrington, 2006; Italian adaptation by Albiero et al., 2010) —and prosocial behavior in school settings, as evaluated by teachers using the Child Behavior Scale (CBS; Ladd & Profilet, 1996; Italian validation by Marcone & Costanzo, 2013). In order to give more incisiveness and strength, we adopt a multi-informant research design. This approach integrated both self-report data from students and teacher-report data, allowing for a more comprehensive assessment of children's empathic and prosocial dispositions. This methodology aimed to enrich construct validity by cross-referencing internal (self-perceived) and external (observed) indicators of empathic functioning. The inclusion of teacher

reports, often considered reliable observers of social behavior in peer contexts, also strengthens the ecological validity of the findings.

Methods

Participants

The sample consisted of 241 primary school children from Naples and Rome aged from 8 to 11 (mean = 9.39 SD = .75). The schools were chosen because they are located in neighborhoods inhabited by numerous people with a migrant background. The sample is distributed fairly evenly between girls and boys (51,5% males; 48.5% females). 143 children have a migrant background, specifically, 130 children have one parent born abroad and 13 children have both foreign parents.

The data were collected as part of the JOINclusion Erasmus+ project. Prior to data collection, the questionnaires were approved by the Ethical Committee of Psychological Research at the department of Humanities, University of Naples Federico II (n° prot. 16/2023).

Measures

Dependent Variable

Ethnocultural empathy was measured by adapting the Italian version of the SEE scale by Albiero and Matricardi (2023) to be usable for a primary school child. The original scale is composed of 31 total items rated on a 6-point scale (1 = strongly disagree that it describes me; 6 = strongly agree that it describes me).

Given that the extended adult version of the scale was not developmentally appropriate for children—due to the length, complexity, relevance and the abstract nature of certain items—a set of 10 items was selected by experts from the research team, including PhD candidate Alessandra Colella and researcher Concetta Esposito. The selection process prioritized items that were conceptually accessible and relevant to children’s everyday experiences,

while excluding those that relied on abstract reasoning or referenced situations typical of adult life. Particular attention was paid to minimizing the inclusion of reverse-scored items, which are often difficult for younger respondents. The retained items were those deemed simpler and more amenable to concrete thinking, in order to enhance clarity and comprehensibility for the target age group.

Subsequently, these 10 items were tested in a face-to-face pilot administration involving 10 children aged between 8 and 10 years. At this stage, participants were invited to verbally report any difficulties they encountered while completing the questionnaire and to identify any items they found unclear or difficult to understand. After this pilot phase, the items that were too difficult to understand were eliminated. The final questionnaire consists of 8 questions. in Table 1, the comparison between the original items and the simplified items for children.

Table 1. Comparison between original items (SEE, Albiero and Matricardi, 2023) and items adapted for children

Empathic Feeling and Expression – EFE	
3. I am touched by movies or books about discrimination issues faced by racial or ethnic groups other than my own.	
9. I seek opportunities to speak with individuals of other racial or ethnic backgrounds about their experiences.	
11. When I know my friends are treated unfairly because of their racial or ethnic backgrounds, I speak up for them.	3. I like helping people of a different ethnicity than mine if I see that someone is fooling on them.

	3. Mi piace aiutare persone di etnia diversa dalla mia se vedo che qualcuno li sta imbrogliando.
12. I share the anger of those who face injustice because of their racial and ethnic backgrounds.	
13. When I interact with people from other racial or ethnic backgrounds, I show my appreciation of their cultural norms.	
14. I feel supportive of people of other racial and ethnic groups, if I think they are being taken advantage of.	
15. I get disturbed when other people experience misfortunes due to their racial or ethnic backgrounds.	
16. I rarely think about the impact of a racist or ethnic joke on the feelings of people who are targeted. (R)	
17. I am not likely to participate in events that promote equal rights for people of all racial and ethnic backgrounds. (R)	
18. I express my concern about discrimination to people from other racial or ethnic groups.	1. I feel very bad when I see someone being treated badly because of their ethnicity. 1. Mi dispiace molto quando vedo che qualcuno viene trattato male a causa della sua etnia.

21. I don't care if people make racist statements against other racial or ethnic groups. (R)

22. When I see people who come from a different racial or ethnic background succeed in the public arena, I share their pride.

23. When other people struggle with racial or ethnic oppression, I share their frustration.

26. I share the anger of people who are victims of hate crimes (e.g., intentional violence because of race or ethnicity).

30. When I hear people make racist jokes, I tell them I am offended even though they are not referring to my racial or ethnic group.

2. If I see someone laughing at someone else's origins, I ask them to stop, even if it doesn't directly affect me.

2. Se vedo qualcuno ridere delle origini di qualcun altro, chiedo di smettere, anche se la cosa non mi riguarda direttamente.

Empathic Perspective Taking – EP

2. I don't know a lot of information about important social and political events of racial and ethnic groups other than my own. (R)

4. I know what it feels like to be the only person of a certain race or ethnicity in a group of people.

6. I can relate to the frustration that some people feel about having fewer opportunities due to their racial or ethnic backgrounds.	4. I can imagine how some people might feel angry that they don't have the same opportunities because of the color of their skin or the country they are from. 4. Posso immaginare come alcune persone possano sentirsi arrabbiate perché non hanno le stesse opportunità a causa del colore della loro pelle o del paese da cui provengono.
19. It is easy for me to understand what it would feel like to be a person of another racial or ethnic background other than my own.	5. I can easily imagine how it feels to be a foreign child. 5. Posso facilmente immaginare come ci si sente ad essere un bambino straniero.
28. It is difficult for me to put myself in the shoes of someone who is racially and/or ethnically different from me. (R)	
29. I feel uncomfortable when I am around a significant number of people who are racially/ethnically different than me.	
31. It is difficult for me to relate to stories in which people talk about racial or ethnic discrimination they experience in their day to day life (R)	6. It's easy for me to imagine myself in the life stories of people who come from countries other than mine.

6. Mi viene facile immaginare me stesso nelle storie di vita di persone che vengono da paesi diversi dal mio.

Acceptance of Cultural Differences – AC

1. I feel annoyed when people do not speak standard Italian. (R)

7. It bothers me to talk to someone from a different country than mine, even if they speak my language well. (R)

7. Mi infastidisce parlare con qualcuno proveniente da un paese diverso dal mio, anche se sa parlare bene la mia lingua. (R)

5. I get impatient when communicating with people from other racial or ethnic backgrounds, regardless of how well they speak Italian. (R)

8. I don't understand why people of different racial or ethnic background enjoy wearing traditional clothing. (R)

8. I don't like that people from other countries or with different origins prefer their traditional clothes over those of my country. (R)

8. Non mi piace che le persone di altri paesi o con origini diverse preferiscano i loro abiti tradizionali rispetto a quelli del mio paese. (R)

10. I feel irritated when people of different racial or ethnic backgrounds speak their language around me (R)

27. I do not understand why people want to keep their indigenous racial or ethnic cultural traditions instead of trying to fit the mainstream (R)

Empathic Awareness – EA

7. I am aware of institutional barriers (e.g., restricted opportunities for job promotion) that discriminate against racial or ethnic groups other than my own.

20. I can see how other racial or ethnic groups are systematically oppressed in our society.

24. I recognize that the media often portrays people based on racial or ethnic stereotypes.

9. I believe that in the news, in films or on the internet, people from other countries are often shown wrongly.

9. Credo che nei telegiornali, nei film o su internet le persone di altri paesi vengano rappresentate male ingiustamente

25. I am aware of how society differentially treats racial or ethnic groups other than my own.

10. I think that many people treat people from other countries differently than people from their own country.

10. Penso che molte persone trattino diversamente chi viene da altri paesi rispetto a chi è del proprio paese.

Note. Deleted items in bold

For each item, children were asked to rate how accurately each statement described themselves or their experience on a 3-point scale (1=" No", 2="so-so", 3=" Yes"). Before starting to fill out the questionnaire, participants were asked to read the definition of ethnicity reported on the first page of the questionnaire:" Ethnicity is like a big family of people that share things in common, such as their language, traditions, religions, food and, sometimes, their physical appearance (like skin color or eye shape). To talk about ethnicity, we can also use other words, for example "origins". When someone goes to a country different from the one in which they are born, we call them "foreigner" or say that they are "from another country". It's a bit like when you go visit your relatives who live in a town different from yours but, in this case, the person goes to live in a completely new country."

Convergent validity (or predictive validity)

To measure child's prosocial behaviors in class, which align conceptually with the Empathic Feeling and Expression (EFE) dimension, we used the prosociality subscale of Child Behavior Scale (Ladd & Profilet, 1996; Italian validation by Marcone & Costanzo, 2013) completed by teachers. For each student in their class, teachers rated the extent to which each of the descriptions of each of the 4 items applies to the child, particularly in the context of their behavior with peers. The evaluation was done on a 3-point scale (0=" Doesn't apply; 1=" Applies sometimes"; 2= "Certainly applies"). The confirmatory factor analysis shows good fit indices ($\chi^2= 10.873$, $df = 2$, $p= 0.004$, CFI= 0.991, RMSEA= 0.136 SRMR= 0.009).

Table 2. CBS items

1.	Cooperative with peers
	Collabora con i compagni

2.	Shows concern for moral issues (e.g. fairness, welfare of others) Mostra preoccupazione per questioni morali (equità, benessere degli altri)
3.	Offers help or comfort when other children are upset Offre aiuto o conforto quando altri bambini sono turbati
4.	Shows a recognition of the feelings of others: is empathic Mostra un riconoscimento dei sentimenti dell'altro; è empatico

To measure child's empathy, we used 5 of the 9 items of the cognitive empathy dimension of the Basic Empathy Scale (BES, Jolliffe & Farrington, 2006; Italian validation by Albiero et al., 2009).

BES is among the most used scales in the world (Cabedo-Peris et al., 2021) and has been administered in several studies, also to children starting from grade 4, showing excellent fit indices (Geng et al., 2012; Sánchez-Pérez et al., 2014; Zych et al., 2022). Given the nature of the scale, which specifically measures the ability to understand and respond to the emotional experiences and different perspectives of individuals from different ethnic and cultural backgrounds, the use of the cognitive empathy subscale of BES was deemed most appropriate to assess and validate the scale

Since the target of our study is children aged 8 to 11, we chose to eliminate the reverse items of the subscale as they were considered too complex; furthermore, item 12 of the original scale ("I can often understand how people are feeling even before they tell me") was also discarded as it was considered too difficult to understand for such young children.

Children were asked to read each sentence and express their own degree of agreement on a 3-point scale (1=" Never/almost never", 2=" Sometimes", 3=" almost always/always"). Also, the response scale was shortened from a 5-point (strongly disagree to strongly agree) to a 3-point scale to make it easier for younger children.

The confirmatory factor analysis shows good fit indices: $\chi^2=2.233$, $df = 5$, $p=0.816$, CFI=1.00, RMSEA=0.00, SRMR=0.02.

Table 3. BES items

1.	I can understand my friend's happiness when she/he does well at something Riesco a capire la felicità di un mio amico quando lui/lei riesce in qualcosa
2.	When someone is feeling down, I can usually understand how they feel Quando qualcuno si sente "giù" riesco solitamente a capire come si sente
3.	I can usually work out when my friends are scared Di solito riesco a capire quando i miei amici sono spaventati
4.	I can usually work out when people are cheerful Di solito riesco a capire quando i miei amici sono allegri
5.	I can usually realize quickly when a friend is angry Di solito mi accorgo subito quando un mio amico è arrabbiato

Procedures

Students completed questionnaire the individually in their classroom. To safeguard the privacy of the students, in line with ethical standards for research involving minors (American Psychological Association, 2017; European General Data Protection Regulation, 2016/679) the sensitive data collected were anonymized. Prior to child questionnaire compilation, teachers associated, for each child, a nickname from a list provided by us created with artificial intelligence. Subsequently, teachers filled out, for each student, a questionnaire in which they were asked for the child's age, gender and ethnic background. Furthermore, for each student, teachers filled out a questionnaire to evaluate the

child's prosociality. During their compilation, the children reported the nickname assigned to them by their teachers. the student profiles and the questionnaire were subsequently associated thanks to the aforementioned nicknames.

Analytic Strategy

The statistical analyses were carried out in Mplus 7.2 (Muthén & Muthén, 2012) and IBM SPSS statistics version 29 (IBM Corp.; Armonk, NY).

The descriptive statistics for the items of the ECE revealed a range of means between 2.08 and 2.64 and standard deviations ranging from 0.49 to 0.62. Skewness values were within the acceptable range for normality (approximately ± 1), and kurtosis values indicated no extreme deviations (approximately ± 2). These results suggest that the item distributions were approximately normal, which aligns with the requirements for conducting analyses using Maximum Likelihood (ML) estimation. We selected ML as the estimation method due to its robustness under the assumption of multivariate normality.

First, a confirmatory factor analysis (CFA) was conducted to assess the fit of various factorial structures, including one-factor, two-factor, and three-factor models. The models were compared through chi-square difference test. However, due to the sensitivity of the chi-square statistic to sample size, additional fit indices were employed to evaluate the adequacy of the models in representing the data. These included the Comparative Fit Index (CFI; Bentler, 1990), the Root Mean Square Error of Approximation (RMSEA; Browne & Cudeck, 1996) along with its 90% confidence intervals (C.I.), and the Standardized Root Mean Square Residual (SRMR). Following the recommendations outlined by Hu and Bentler (1999), the criteria for acceptable model fit were defined as CFI values of $\geq .90$, RMSEA values of $\leq .08$, and SRMR values of $\leq .08$.

Next, we tested for measurement invariance across gender, including configural, metric, and scalar invariance, to confirm that the scale's structure, factor loadings, and latent means were comparable between boys and girls. These analyses allowed us to ensure the scale's applicability across diverse demographic groups.

To evaluate the convergent validity of the scale, we examined its associations with theoretically related constructs. Specifically, we assessed the correlations between the scale's dimensions—Empathic Feeling and Expression (EFE), Empathic Perspective Taking (EP), and Acceptance of Cultural Differences (AC)—and measures of teacher-reported prosociality (CBA) and cognitive empathy (BES). Pearson correlation coefficients were calculated to determine the strength and significance of these relationships.

Results

Confirmatory Factor Analyses

The results of the Confirmatory Factor Analysis (CFA) provided evidence for the improvement in model fit across the tested structures. The fit indices are reported in Table 4.

The one-factor model, in which all items load onto a general factor, suggests a poor fit ($\chi^2=49.210$, $df = 20$, $p=0.0003$, $CFI=0.792$, $RMSEA=0.081$, $SRMR=0.063$). The two-factor model (in which item 1 to 6 load into a factor composed of the prosocial and cognitive components and item 7 and 8 load into a factor representing the acceptance of cultural differences) demonstrated a significant improvement ($\Delta\chi^2 = 9.601$, $\Delta df = 1$, $p = 0.0019$) but the obtained indices are not yet acceptable. Finally, the three-factor model showed a significant improvement in fit ($\Delta\chi^2=11,103$, $\Delta df=2$, $p<.001$) and the indices indicated adequate fit and all factorial loadings were significant ($p <.01$) and exceeded .40. Thus, the factor analyses suggested that the best fitting model was one with three factors of Empathic Feeling and Expression (EFE), Empathic Perspective Taking (EP) and Acceptance of Cultural Differences (AC). The factor loadings for this final model are provided in Table 5.

As shown in the table, the item reliability is low. However, while Cronbach's alpha is a widely used measure of reliability, it is not always the definitive criterion for evaluating the adequacy of a psychometric model. According to Stanley and Edwards (2016), reliability and model fit are distinct concepts that

provide complementary information. Cronbach's alpha assesses the internal consistency of test scores, reflecting the extent to which items are consistently measuring the same construct. However, it does not account for the multidimensionality of constructs, or the specifics of model fit. Authors argue that good model fit can coexist with poor reliability as measured by Cronbach's alpha. This occurs because model fit indices, such as RMSEA, CFI, and TLI, evaluate the extent to which the observed data align with the hypothesized structure of the model, rather than the precision of the scores. A model may fit well in representing the theoretical construct but still produce scores with low reliability due to factors such as short scales, heterogeneity within the construct, or weak item loadings. Therefore, authors argue that high levels of reliability are preferable, but not always necessary.

Table 4. Model Fit indices for confirmatory factor analyses

	chi	p	df	RMSEA	RMSEA (CI)	CFI	SRMR
1-factor model	49.210	0,0003	20	0.081	0.052 - 0.110	0.792	0.063
2-factor model	39.966	0.0033	19	0.070	0.039 - 0.101	0.851	0.056
3-factor model	25.693	0.0802	17	0.048	0 - 0.083	0.938	0.043

Note. *Df* degree of freedom, *CFI* Comparative Fit Index, *SRMR* Standardized Root Mean Square Residual, *RMSEA* Root Mean Square Error of Approximation.

Table 5. Factor loadings from a three-factor model

	Empathic Feeling and Expression (EFE)	Empathic Perspective Taking (EP)	Acceptance of Cultural Differences (AC)
I feel very bad when I see someone being treated badly because of their ethnicity.	0.396***		
If I see someone laughing at someone else's origins, I ask them to stop, even if it doesn't directly affect me.	0.422***		
I like helping people of a different ethnicity than mine if I see that someone is fooling on them.	0.524***		
I can imagine how some people might feel angry that they don't have the same opportunities because of the color of their skin or the country they are from.		0.585***	

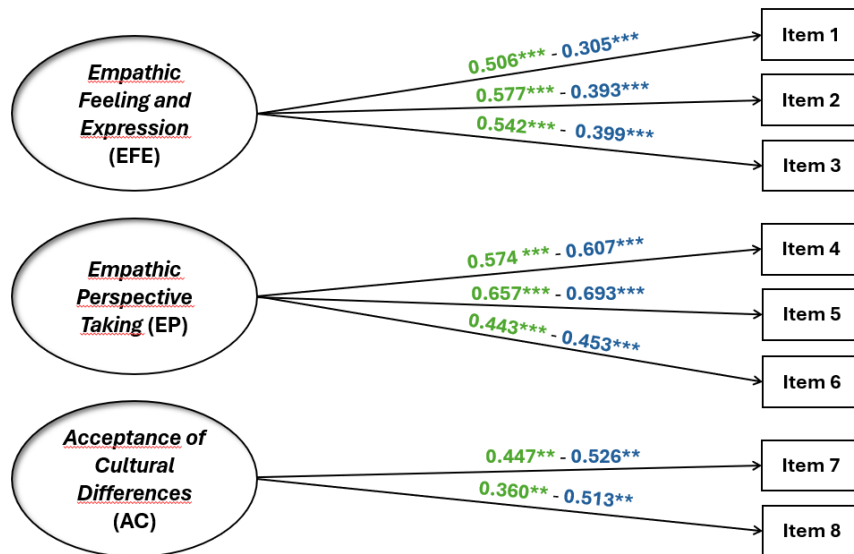
I can easily imagine how it feels to be a foreign child.	0.687***		
It's easy for me to imagine myself in the life stories of people who come from countries other than mine.	0.466***		
It bothers me to talk to someone from a different country than mine, even if they speak my language well. (R)		0.578**	
I don't like that people from other countries or with different origins prefer their traditional clothes over those of my country. (R)		0.366**	
Cronbach's Alpha	0.410	0.595	0.346

Note. * $p < .05$, ** $p < .01$, *** $p < .001$; Items 7 and 8 required reverse scoring before calculation of the total score

Cross-gender invariance

To assess the cross-gender invariance of the measure, three models were estimated and compared: configural, metric, and scalar. The configural model, which represents the baseline level of invariance without imposing equality constraints on parameters across groups demonstrated a good fit to the data ($\chi^2=46.579$, $df = 34$, $p= 0.0737$, $CFI=0.910$, $RMSEA=0.058$, $SRMR= 0.061$). The metric model, which tests whether the factor loadings are the same across the gender groups, also shows a good fit ($\chi^2= 50.304$, $df = 39$, $p= 0.1061$, $CFI= 0.919$, $RMSEA= 0.052$, $SRMR= 0.064$). The scalar model, which includes constraints for the equality of intercepts across groups, showed an acceptable fit ($\chi^2= 27.747$, $df = 30$, $p= 0.5839$, $CFI=1$, $RMSEA=0$, $SRMR= 0.053$). This suggests that the latent means can be meaningfully compared across genders. Model comparisons further supported the invariance assumptions. The comparison between the metric and configural models ($\chi^2= 3.725$, $df = 5$, $p = 0.5897$) indicated that the factor loadings were equivalent across groups, confirming metric invariance. Similarly, the comparison between the scalar and metric models ($\chi^2= 2.653$, $df = 5$, $p = 0.7533$) showed no significant differences, supporting scalar invariance. Overall, these results confirm that the measure exhibits configural, metric, and scalar invariance across gender groups. This means that the construct being measured has the same structure, meaning, and latent mean levels can be reliably compared between genders.

Figure 1. CFA Scalar Model



Note. * $p < .05$, ** $p < .01$, *** $p < .001$; standardized values; males in green, females in blue

Association with prosociality and empathy

The concurrent validity of the Ethnocultural Empathy Scale was examined through its relationships with related constructs such as cognitive empathy (BES) and teacher-reported prosociality (CBS). The descriptive statistics and correlations among the aforementioned variables are summarized in Table 5.

EFE demonstrated a significant positive correlation with the prosociality subscale of CBS ($r = 0.220$, $p < .01$) and BES ($r = 0.380$, $p < .001$). EP also showed a significant association with BES ($r = 0.203$, $p < .05$). EC shows a significant association with BES as well ($r = 0.227$, $p < .001$). However, the relationship between EP and CBS, as well the relationship between AC and CBS did not reach statistical significance.

Table 6. Convergent measures - Pearson correlation index

	Mea n	SD	1	2	3	4
1. Empathic Feeling and expression (Ethnocultur al Empathy)	3,513	0,5703				
2. Empathic Perspective Taking (Ethnocultur al Empathy)	2,162	0,5779	0,235** *			
3. Acceptance of Cultural Differences (Ethnocultur al Empathy)	2,533	0,5357	0,160*	0,5		
4. Cognitive empathy (BES)	2,248	0,3699	0,380** *	0,203 *	0,227** *	
5. Prosociality rated by teachers (CBS)	1,981	0,8889 7	0,220**	0,1	0,033	0,03 6

Note. *p < .05, **p < .01, ***p < .001

Discussion

The present study aimed to adapt and validate the Ethnocultural Empathy Scale (ECE) for children, addressing an important gap in the assessment of empathy directed toward individuals from diverse cultural and ethnic backgrounds in younger populations. Despite the growing emphasis on fostering empathy and social inclusion in multicultural educational settings, the lack of developmentally appropriate tools has hindered empirical research in this domain. This study thus sought to make a meaningful contribution by tailoring an existing instrument, widely used with adults and adolescents, to the cognitive and emotional capacities of children.

The findings offer valuable insights into the psychometric properties of the adapted scale, the internal structure of its dimensions, and its associations with related constructs such as prosociality and cognitive empathy. Taken together, the results provide initial support for the scale's use in research and educational interventions involving primary school-aged children.

Factor Structure and Construct Validity

The first hypothesis concerned the factorial structure of the ECE. It was expected that the scale would reflect a multidimensional framework of ethnocultural empathy, consistent with previous conceptualizations by Wang et al. (2003). The confirmatory factor analysis supported a three-factor model composed of Empathic Feeling and Expression (EFE), Empathic Perspective-Taking (EP), and Acceptance of Cultural Differences (AC). This structure demonstrated a good fit to the data, suggesting that children, even at a relatively young age, are capable of distinguishing between different facets of empathic engagement toward culturally diverse others.

The emergence of these three dimensions aligns with both theoretical and empirical models of empathy in multicultural contexts. EFE represents the affective aspect—children's emotional resonance with others' experiences—while EP reflects the cognitive processes of imagining and understanding

another's perspective. AC, on the other hand, taps into attitudinal dimensions, such as the recognition and respect of cultural differences. These findings underscore the multidimensional nature of ethnocultural empathy in childhood, reaffirming that this construct is not monolithic, but comprises overlapping emotional, cognitive, and attitudinal domains.

However, while model fit indices confirmed the internal structure of the scale, internal consistency reliability scores for some subscales were suboptimal, particularly for EFE and AC. This outcome raises caution regarding the internal coherence of these subdimensions and suggests that further refinement of the scale may be necessary. Nevertheless, as Stanley and Edwards (2016) note, reliability and model fit are distinct indicators. A scale can exhibit strong structural validity—indicating that the observed data align well with the theoretical model—even if some subscales show modest internal consistency, particularly when the construct in question is broad and complex, as is the case with ethnocultural empathy.

Measurement Invariance Across Gender

The second hypothesis posited that the adapted ECE would exhibit measurement invariance across gender, allowing for valid comparisons between boys and girls. The analysis confirmed this expectation: configural, metric, and scalar invariance were all supported, indicating that the scale functions equivalently across gender groups in terms of factor structure, factor loadings, and latent means.

This finding is particularly relevant given the frequent assumption that girls tend to score higher on empathy-related traits. The evidence here suggests that the structure and interpretability of the ECE are not gender-biased, providing a robust foundation for future studies to explore potential mean-level differences in ethnocultural empathy, without concerns over measurement inequivalence.

Convergent Validity with Prosociality and Cognitive Empathy

The third hypothesis addressed the convergent validity of the ECE. It was anticipated that subscales of the ECE would correlate positively with both teacher-rated prosocial behavior (CBS) and cognitive empathy (BES). The results provided partial support for this hypothesis. Specifically:

- Empathic Feeling and Expression (EFE) showed positive correlations with both prosociality and cognitive empathy. This result confirms the emotional component of empathy as a likely precursor to observable helping behavior in children and aligns with previous literature suggesting that affective empathy motivates prosocial responses.
- Empathic Perspective-Taking (EP) was significantly correlated with cognitive empathy, as expected. This is consistent with theoretical frameworks that conceptualize perspective-taking as a higher-order cognitive skill essential to empathic understanding and moral reasoning.
- Interestingly, Acceptance of Cultural Differences (AC) did not show significant associations with either prosociality or cognitive empathy. This may indicate that cultural attitudes form a separate domain from empathic concern and cognitive perspective-taking. While empathy involves sharing or understanding another's emotional state, the recognition and acceptance of cultural diversity may reflect more stable, value-based orientations that do not necessarily emerge from short-term emotional processes. This finding is meaningful, as it suggests that intercultural openness may require different developmental supports—such as direct exposure, dialogic learning, or critical reflection—than those typically used to promote emotional or cognitive empathy.

Limitations and Future Directions

As with any exploratory study, several limitations must be acknowledged. Most notably, the sample size was relatively small, limiting the generalizability and statistical power of the findings. Larger, more diverse samples are needed to

confirm the scale's factorial structure and psychometric properties across varied socio-demographic contexts.

Additionally, although the scale showed gender invariance, it would be valuable to investigate measurement invariance across children with different migratory backgrounds, given the centrality of migration-related diversity to the construct of ethnocultural empathy. Future research might also explore longitudinal applications, evaluating whether and how ethnocultural empathy develops over time and in response to specific educational interventions.

Moreover, qualitative studies could complement the scale's use by exploring how children themselves articulate and make sense of cultural differences, providing richer interpretive context for the quantitative results.

Conclusions and Implications

Despite its limitations, this study contributes to the broader literature on empathy by highlighting the importance of incorporating culturally oriented dimensions in its conceptualization and measurement. The findings resonate with theoretical propositions by Ridley and Lingle (1996) and Wang et al. (2003), who emphasize the necessity of acknowledging cultural frameworks in the development and expression of empathy.

Practically, the adapted and validated ECE offers a valuable tool for researchers and educators, seeking to assess and cultivate empathy in multicultural educational contexts. Its use in schools can support efforts to monitor the effectiveness of inclusion-based programs, evaluate children's readiness for intercultural engagement, and promote broader competencies in global citizenship education.

In a time when classrooms are increasingly diverse, and social divisions are often reflected in everyday interactions, developing and applying such tools can contribute to building more empathetic, reflective, and inclusive learning environments. By supporting children in recognizing and valuing cultural

diversity, educators may help lay the groundwork for more just and equitable intergroup relations in the future.

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Chapter 3: Study II. The Implementation and Evaluation of a Mobile Game to Foster Empathy and Social Inclusion in Multicultural Schools Contexts: The 'JOINclusion' Serious Game

Introduction

In recent years, the field of educational technology and digital interventions has witnessed a paradigm shift, with growing interest in exploring the potential of gamification and serious games in fostering positive psychological and social outcomes (Carissoli & Villani, 2019; Harrington & O'Connell, 2016; Villani et al., 2018). In particular, the emergence of the Positive Technology movement has further reinforced the idea that digital technologies can be designed not merely to prevent negative outcomes but to actively promote psychological growth and well-being (Gaggioli et al., 2019). Positive Technology seeks to leverage digital tools to enhance emotional self-regulation, social connectedness, and overall life satisfaction. Within this framework, serious games have gained increasing recognition as potential catalysts for fostering not only cognitive and emotional skills but also a greater sense of social responsibility and cultural awareness.

Children and adolescents, in particular, are highly receptive to digital and gamified experiences, making game-based interventions an attractive medium for cultivating prosocial skills such as empathy and cooperation (Hainey et al., 2016; Harrington & O'Connell, 2016; Saleme et al., 2020). Unlike traditional educational approaches, which often rely on passive learning strategies, serious games engage users through immersive storytelling, interactive decision-making, and real-time feedback mechanisms, fostering deeper cognitive and emotional engagement. By simulating social scenarios, these games can provide meaningful opportunities for experiential learning, allowing children to practice empathy and intercultural understanding in a controlled yet dynamic environment.

These considerations are especially significant if we take into consideration that, according to ISTAT data from 2020, in Italy more than one million minors have

a migrant family background. The trend does not reflect an exclusively Italian condition: In 2020, people living in a country other than their country of birth are in total 281 million: 3.6% of the world population, or one in 30 people in the world (WMR).

In Italy, this trend is evident in the composition of schools, where the presence of foreign students is a structural feature across all levels of the education system (MIUR, 2020). In particular, primary schools have the highest proportion of foreign students, accounting for approximately 12% of the total.

For this reason, several studies conducted in the Italian context have significantly contributed to the understanding of how ethnic prejudice develops in childhood, particularly within school environments. Zannoni (2007), through qualitative research with primary school children in Reggio Emilia, demonstrated that ethnic stereotypes and prejudices are often absorbed from the surrounding social context, underscoring the importance of early intercultural education. Similarly, Pirchio (2019) examined the role of the school environment and teacher perceptions in shaping children's intergroup attitudes, emphasizing how institutional dynamics can either reinforce or mitigate discriminatory behavior. Cardellini (2011) focused on the association between skin color and prejudice in primary schools in Bologna, highlighting how racialized stereotypes emerge and become embedded in children's social reasoning.

These elements are of particular importance for the social development of primary school children, especially if we want to take into account the development of ethnic-based prejudices. As illustrated in the first chapter, Nesdale (2008) proposed the Social Identity Development Theory (SIDT) as a framework to understand the complex process underlying the formation of discriminatory attitudes and ethnic biases in youth. According to this theory, around age 7, children's prejudices begin to crystallize and, as a result, children express more prejudice toward group members with whom they do not identify

(Stage 4). Especially from the age of 7, children's empathic responses might differ based on the physical characteristics of the target subjects (Eisenberg et al., 2018), with a greater likelihood of showing a positive attitude towards members of their own perceived ethnicity.

Within this framework, serious games have been increasingly recognized as promising tools for social and emotional learning (SEL), particularly in promoting empathy and perspective-taking among children and adolescents. According to the Collaborative for Academic, Social, and Emotional, Learning (CASEL) SEL can be defined as “the process through which all young people and adults acquire and apply the knowledge, skills, and attitudes to develop healthy identities, manage emotions and achieve personal and collective goals, feel and show empathy for others, establish and maintain positive relationships, and make responsible and caring decisions.” This framework, often represented as the "CASEL wheel," outlines five core competencies that are essential for students' development:

1. Self-Awareness: The ability to understand one's own emotions, thoughts, and values and how they influence behavior across contexts. This includes recognizing one's strengths and limitations, leading to a well-grounded sense of confidence and purpose.
2. Self-Management: The capacity to manage one's emotions, thoughts, and behaviors effectively in different situations. This involves managing stress, controlling impulses, and motivating oneself to set and achieve personal and academic goals.
3. Social Awareness: The ability to understand the perspectives of others and empathize with people from diverse backgrounds and cultures. This competency includes recognizing social and ethical norms for behavior and understanding the resources and supports available within the family, school, and community.

4. Relationship Skills: The ability to establish and maintain healthy and rewarding relationships with diverse individuals and groups. This involves clear communication, active listening, cooperation, negotiation, conflict resolution, and seeking or offering help when needed.
5. Responsible Decision-Making: The capacity to make caring and constructive choices about personal behavior and social interactions across diverse situations. This includes considering ethical standards, safety concerns, and the well-being of oneself and others.

SEL skills also positively impact empathy and cooperative learning (De Souza et al., 2022). Empathic students are more cooperative in class, have better relationships with their teachers, and are more engaged in school. Increased empathy can also decrease bullying and aggression among kids and make them more inclusive toward classmates. Besides, students who engage in more frequent cooperative learning are more likely to report performing prosocial behavior toward their classmates (Feshbach et al., 2009).

The Present Study

Based on the literature review presented in the previous chapters, the need has emerged for a tool capable of promoting school inclusion by fostering empathy and prosociality from an ethnocultural perspective. In an effort to bridge this gap, the main objective of the present study is to evaluate both the game experience and the effectiveness of a serious mobile game—JOINclusion—designed within a SEL (Social and Emotional Learning) framework. The game was specifically developed for primary school students (aged 8 to 12) with the primary goal of promoting and enhancing empathic skills in multicultural settings. This study is part of a broader Erasmus+ project called JOINclusion, involving Italy, the Netherlands, and Greece.

In this thesis, I will focus on two main aspects of the project: (1) the design of the game scenarios, which we personally developed to reflect realistic and culturally relevant situations that could stimulate empathic understanding among children; and (2) the evaluation of the game, both in terms of user satisfaction and the effectiveness of the intervention in promoting empathy and social inclusion. The central hypothesis is that the game promotes the social inclusion of children with a migrant background by strengthening the empathic skills of native children.

The central hypothesis is that the game promotes the social inclusion of children with a migrant background, by strengthening the empathic skills of native children.

This study tries to adhere to the Standards of Evidence established by the Society for Prevention Research (Gottfredson et al., 2015), that ensures methodological rigor in intervention research. Specifically, it aligns with the efficacy evaluation standards, employing a structured pre- and post-test design to assess the game's impact on key socio-emotional competencies, including ethnocultural empathy, cognitive empathy, and prosocial behavior. The study also meets the theory-driven intervention criterion by grounding its framework in Social and Emotional Learning (SEL) principles and the Social Identity Development Theory (SIDT, Nesdale, 2008).

Data collection also followed ethical and procedural guidelines, with participants anonymized through AI-generated nicknames. Also, the assessment tools, including the Ethnocultural Empathy Scale, the Basic Empathy Scale (BES), the Sympathy scale and the Prosociality Toward Diverse Others scale, were validated in prior research and adapted for the target age group.

Moreover, this research upholds the external validity and generalizability criteria outlined by Gottfredson et al. (2015) by employing a diverse sample of primary school children with varying ethnic backgrounds. The inclusion of students from different cultural origins enhances the study's applicability to real-world educational settings, particularly in multicultural school environments.

Game description

The game features two different game mode: a "Story Mode" for individual learning and a "Multiplayer Mode" where players can apply the skills they learned in the story mode in a collaborative manner through teamwork.

Story Mode

The Story Mode features two different gameplay scenarios, designed to the aim to strengthen the child's prosocial skills individually. Each of them consists of 4 levels, which presuppose the acquisition of increasingly complex skills, based on SEL framework. For some levels of the game, the player's choice will be designed to impact the outcome.

The identified learning goals are as follows:

- Level 1: Identifying emotions and recognizing expressive (verbal, physical) and social cues (external situations) to understand how others feel;
- Level 2: Feeling self- or other-oriented emotional states and taking others' perspectives;
- Level 3: Demonstrating empathy and compassion and showing concern for the feelings of others;
- Level 4: Caring about and being motivated to contribute to the well-being of others, resolving conflicts constructively, resisting negative social pressure, resisting stereotypes and standing up for the rights of others.

The game environment of both scenarios simulates the basic elements of a classroom environment to the aim to facilitate the players to experience emotions similar to those that the children most frequently experience in their daily school

life. Throughout the game, players, who will mainly deal with negative emotions, will be asked to perceive the emotional states of others and take their perspectives.

Image 1. Illustration of level 1: identification of the emotional state of the target character

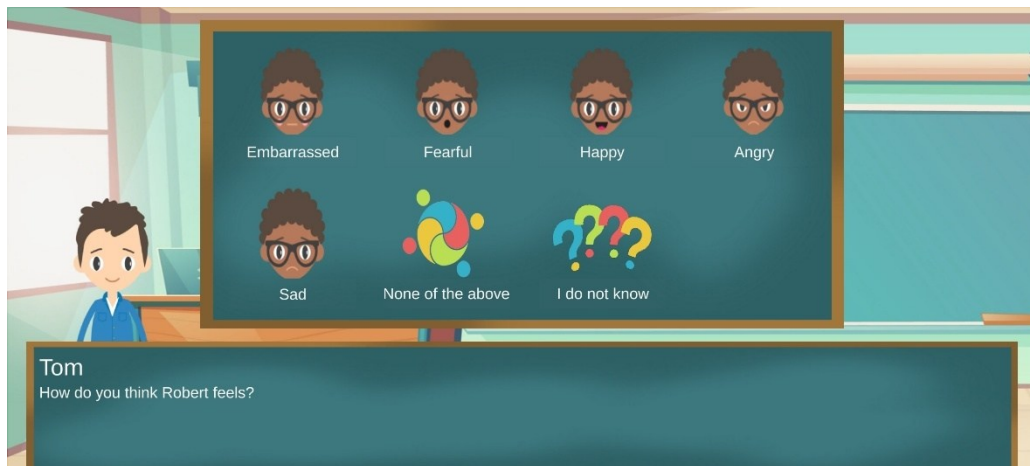
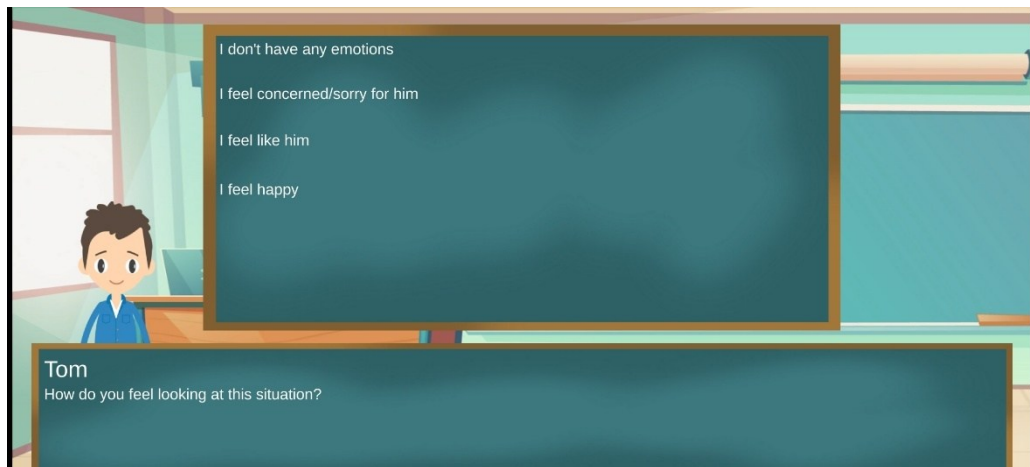


Image 2. Illustration of level 2: taking the target character perspective



A description of the two game scenarios follows.

Scenario 1: “The Dropped Books”

In the first scenario, the target character is deliberately excluded by peers and subsequently harassed by a classmate, who intentionally drops the target character’s books onto the floor.

Environment: Classroom during a break between lessons.

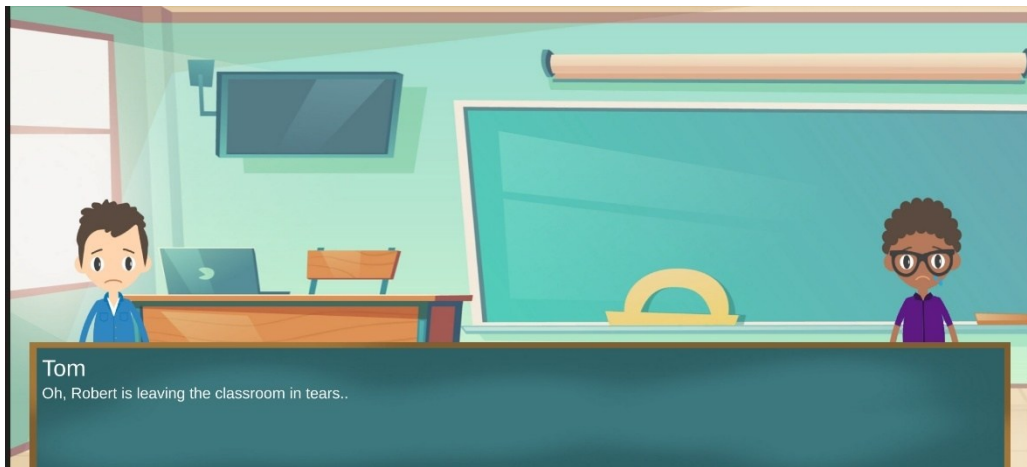
Characters:

- Target character: A child with a migrant background, quiet and reserved.
- Aggressors: Two classmates known for teasing others.
- Player: A peer witnessing the situation.

Choices and Outcomes:

- Choice 1 – Active Intervention: The player confronts the aggressors, asking them to stop and show respect toward the target character.
 - Outcome: The target character smiles, the aggressors stop their behavior and offer an apology. (*Positive ending*)
- Choice 2 – Passive or Negative Response: The player either ignores the situation or joins in the mockery.
 - Outcome: The target character becomes visibly distressed, cries, and leaves the classroom. (*Negative ending*)
- Choice 3 – Minimal Empathic Response: The player shows some concern (e.g., looks uncomfortable or makes a neutral comment) but does not intervene.
 - Outcome: The target character gives a faint smile, suggesting some emotional relief, but remains unsupported. (*Neutral ending*).

Image 3. Scenario 1 negative ending



A feedback system is embedded within the gameplay to facilitate perspective-taking and emotional recognition. In cases where the player neglects to support the target character or engages in behavior that reinforces exclusion, the narrator's character prompts reflection by asking the player to consider how they would feel if they were subjected to a similar experience. The narrator further encourages the player to acknowledge the importance of social support, suggesting that in comparable situations, they too might wish for an ally who would offer reassurance or intervene on their behalf.

If the player fails to correctly identify the target character's emotional state, additional guidance is provided. Specifically, when the target character exhibits sadness, but the player misattributes the emotion, the narrator systematically explains the physical cues associated with sadness (e.g., lowered gaze, downturned mouth, slumped posture). Additionally, the narrator contextualizes the experience, indicating that the target character may also feel anger toward the aggressors as a secondary emotional response to exclusion.

Scenario 2: “The Group Reading”

The second scenario revolves around a group project, in which a foreign student is asked to read aloud in front of the class.

Environment: Classroom during a group project presentation.

Characters:

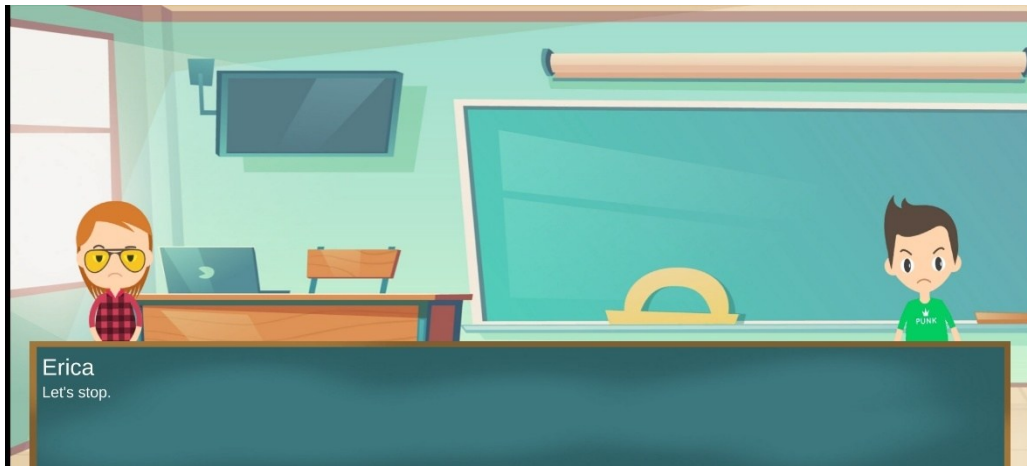
- Target character: A foreign student with limited language proficiency.
- Aggressors: A few classmates who begin to mock the target's accent.
- Teacher: Attempts to maintain classroom order.
- Player: A classmate observing the scene.

Choices and Outcomes:

- Choice 1 – Active Empathic Intervention: The player speaks up, asking the classmates to stop mocking and encourages them to be respectful and understanding.
 - Outcome: The aggressors stop, apologize, and the target character regains composure and completes the reading. (*Positive ending*).
- Choice 2 – Passive or Negative Response: The player joins in the mockery or remains silent and indifferent.
 - Outcome: The target character becomes overwhelmed, is unable to finish reading, and leaves the classroom in tears. (*Negative ending*).
- Choice 3 – Minimal Intervention: The player asks classmates to stop disrupting the lesson, without directly addressing the mockery.

- Outcome: The target character continues reading but with a visibly sad expression, showing lingering discomfort. (*Neutral ending*).

Image 4. Scenario 2 posive ending



As in the previous scenario, the game incorporates emotion recognition guidance. If the player fails to accurately identify the target character's displayed emotion (embarrassment), the narrator provides explicit descriptions of the situational and physiological indicators of embarrassment, such as facial flushing, trembling, and the raising of the inner eyebrows. Moreover, the narrator encourages the player to engage in perspective-taking by reflecting on how they would feel if placed in a similar situation.

In cases where the player neglects to intervene and instead reinforces the bullying behavior, the narrator highlights the lack of self-awareness exhibited by the aggressors, emphasizing that their actions fail to account for the emotional consequences imposed on the target character. The narrator further prompts the player to consider how they might react if subjected to similar circumstances, reinforcing the importance of prosocial intervention and moral responsibility.

Multiplayer Mode

The Multiplayer Mode was designed to enable children to apply and reinforce the skills developed in the individual story mode within a cooperative group setting, thereby fostering teamwork and collaborative problem-solving abilities. At the outset of the game, the narrator informs players that, in order to save the school, they must collect all the scattered gems that have fallen from the scepter of a clumsy witch. Each gem symbolizes a social dilemma, presented either through animation or textual narration. These dilemmas represent prevalent social challenges commonly encountered in school environments, such as bullying, social exclusion, and interpersonal conflicts. To advance in the game and successfully restore the school, players must engage in active collaboration and effective communication, ensuring that they respond accurately to all presented social dilemmas.

The Multiplayer Mode works in synergy with the authoring tool for teachers implemented inside the game, called “Teacher’s Mode”. With this tool, educators can customize the social dilemmas featured in the Multiplayer Mode. However, although it has been implemented in the game, the authoring tool is not the subject of the present study.

Upon entering the Multiplayer Mode, students can create and personalize their avatars, thereby enhancing the immersive nature of the gameplay. To access a game session, they must enter a ROOM CODE provided by the teacher. Educators have control over the number of rooms and participants in each session. Once the teacher initiates the session, all students assigned to a given room are transferred into the collaborative scenario and the narrator introduces the storyline. To progress in the game and ultimately rescue the school, students must actively collaborate and communicate, accurately addressing each social dilemma.

The authoring tool is provided as a web-based application, offering a variety of assets—including characters, interactive objects, and scenarios related to social inclusion—that teachers can utilize to design custom social dilemmas. These

dilemmas are stored on the game servers and can be seamlessly integrated into the Multiplayer Mode. To activate the collaborative environment, the teacher must establish a “server” that facilitates student interaction. These servers, referred to as MODs, are identified by a unique four-digit MOD CODE, which enables teachers to locate and manage them.

Each MOD configuration includes the following attributes:

1. Name: The designated name of the MOD, which appears on the dashboard.
2. Number of Players: The maximum number of participants permitted in the MOD. The minimum is 1, while the maximum is 10.
3. Timer: If desired, teachers can impose a time constraint on a specific MOD by configuring a countdown timer.

Once a MOD is saved, it becomes accessible via the dashboard’s MOD list. From this interface, teachers can publish their MODs and initiate a game session by opening a ROOM, thereby allowing students to engage in the collaborative learning experience.

Methods

Sample

The first pilot, aimed at testing a beta version of the game, was attended by 35 primary school children from Rome. Participants were aged 7 to 11 ($M = 9.14$, $SD = 1.26$) and divided fairly equally between girls and boys (43,3% females, 56,7% males). 45,7% had a migratory background, having at least one foreign-born parent.

For the second study, aimed at testing the game in its complete form (i.e Story Mode and Multiplayer Mode) the sample consisted of 99 primary school children from Rome aged from 8 to 10 (mean = 9,36 $SD = .48$). Overall, the sample is equally divided between girls and boys (52,5% females, 47,5% males) and 15,3% of participants have a migratory background; specifically, about 10% of children

with a migratory background have one parent foreign-born and about 5% have both parents foreign-born.

Measures

Pilot phase 1 – Evaluation of the game experience

To assess the usability and educational impact of the game, we examined children's reported satisfaction regarding various usability factors, including navigation, interaction design, engagement, and overall user experience. The evaluation utilized the Extended Short Feedback Questionnaire (eSFQ, Moser et al., 2012), which captures key aspects such as enjoyment, gaming experience, and curiosity. Additionally, the Instructional Game Evaluation (IGE, Tan et al., 2010) was administered to assess immersion, clarity of instructions, accessibility, educational relevance (alignment with learning objectives), and the degree to which the game environment reflects real-world contexts. The complete set of survey items, along with response formats, is detailed in Table 1.

Table 1. Game experience assessment

Dimensions	Items and response alternatives
Enjoyment	(1) How much did you enjoy the game? Draw a line in the fun thermometer. <i>5-point rating scale: 1 = Yawn, Boring, 5 = Yeah, fun</i>
Game experience	(2) How would you describe the game? <i>Please mark with a cross where applicable: boring, confusing, difficult, ugly, bad, childish, exciting, fun, simple, beautiful, great, surprising</i> (3) Would you like to play again? <i>Please mark a circle: Yes, Maybe, No</i>
Curiosity	(4) I wanted to continue playing because I wanted to see more of the game world (5) I was curious about the next event in the game

	<i>4-point Likert scale where 1=not true at all to</i> <i>4=absolutely true</i>
Immersion	(6) I like the story of the game (7) I like the visuals, animations, and music in the game <i>4-point Likert scale where 1=not true at all to</i> <i>4=absolutely true</i>
Instructions	(8) I could play the game easily without asking for help from an adult (9) The instructions in the game were clear (10) The game was suitable for children like me <i>4-point Likert scale where 1=not true at all to</i> <i>4=absolutely true</i>
Relevance	(11) I learn new things and skills while playing the game <i>4-point Likert scale where 1=not true at all to</i> <i>4=absolutely true</i>
Match between the game system and the real-world	(12) I found the words and phrases of the games easy to understand (13) I found the life problems presented in the game very similar to problems I deal with in my everyday life <i>4-point Likert scale where 1=not true at all to</i> <i>4=absolutely true</i>

Phase 2 – Prosocial outcome

Ethnocultural empathy was assessed both before and after the interaction with the game using a child-adapted version of the Italian version of the Ethnocultural Empathy Scale (Albiero & Matricardi, 2023) illustrated in chapter 2. This scale consists of eight items distributed across three dimensions: *Empathic Expression and Feeling (EFE)*, *Empathic Perspective Taking (EP)*, and *Acceptance of Cultural Differences (AC)*. Participants rated each item on a three-point Likert

scale (1 = "No", 2 = "So-so", 3 = "Yes"), indicating the extent to which each statement reflected their own experiences. The internal consistency of the overall ethnocultural empathy scale, as measured by Cronbach's alpha, was 0.442 in the pre-test and 0.604 in the post-test.

To assess children's empathy, five out of the nine items from the *Cognitive Empathy* subscale of the Basic Empathy Scale (BES) (Jolliffe & Farrington, 2006; Italian validation: Albiero et al., 2009) were utilized. The original scale, designed for individuals aged 15 and older, was modified by removing reverse items and item 12, as these were deemed too complex for younger children. Participants were asked to indicate their level of agreement with each statement using a three-point Likert scale (1 = "Never/almost never", 2 = "Sometimes", 3 = "Almost always/always"). Additionally, the original five-point response scale (ranging from *strongly disagree* to *strongly agree*) was reduced to three points to enhance comprehensibility for younger participants. Cronbach's alpha for this measure was 0.347 in the pre-test and 0.529 in the post-test.

Prosociality from an ethnocultural perspective was evaluated using the *Prosociality Toward Diverse Others* scale (adapted from Padilla-Walker & Christensen, 2011; Peterson & Seligman, 2004). This measure consists of four items, each rated on a three-point scale (1 = "Not like me at all", 2 = "Somewhat like me", 3 = "Very much like me"). The internal consistency, as measured by Cronbach's alpha, was 0.633 in the pre-test and 0.843 in the post-test.

Finally, sympathy was assessed using the *Sympathy Scale* (Eisenberg et al., 1996), a six-item self-report measure. Participants rated the degree to which each statement described them on a three-point Likert scale (1 = "Not at all like me", 2 = "Somewhat like me", 3 = "Very much like me"). Cronbach's alpha for this measure was 0.583 in the pre-test and 0.762 in the post-test.

Design and procedure

Data collection, game implementation and testing were conducted as part of the JOINclusion Erasmus+ project. Prior to data collection, the

experimentation was approved by the Ethical Committee of Psychological Research at the department of Humanities, University of Naples Federico II (n° prot. 16/2023).

In an initial phase, the beta version of the game was tested alongside a set of satisfaction and evaluation questionnaires in a primary school in Rome, who voluntarily participated in the JOINclusion project. This phase took place between February and June 2023. During the interaction with the game, children completed an initial set of questionnaires designed to assess their gaming experience.

A pseudonymization procedure was implemented in line with ethical standards for research involving minors (American Psychological Association, 2017; European General Data Protection Regulation, 2016/679). Indeed, prior to this phase, in order to safeguard participants' privacy, teachers completed a questionnaire for each student, collecting demographic information such as age, gender, and ethnic background. Subsequently, each student was assigned a unique nickname, generated using artificial intelligence, from a predefined list provided by the research team. During the questionnaire completion process, students used the nickname assigned to them by their teachers. These nicknames were then employed to link student profiles with the corresponding questionnaire responses, ensuring anonymity while allowing for data association.

The second phase of the project started in April 2024 and ended in May 2024. This phase saw the participation of a sample of children different from those who participated in the previous phase. Also at this stage, teachers were asked to fill out student profiles for each participant.

The experimentation was structured into two main phases, spanning three weeks.

- Week 1: The initial phase included a pre-assessment, consisting of a short online questionnaire administered via tablet. Following this, participants engaged in Scenario 1 of the game, followed by a collaborative level of the game (i.e the Multiplayer Mode).

- Day 2, Week 3: The second phase involved the completion of Scenario 2 and an additional collaborative level. At the end of this phase, participants completed a post-assessment questionnaire to evaluate their experience and any potential learning outcomes.

Analytic Strategy

The statistical analyses were carried out in IBM SPSS statistics version 29 (IBM Corp.; Armonk, NY).

The analytical approach adopted in this study consisted of two main phases: descriptive analysis of the game's usability and enjoyment and inferential analysis to assess the efficacy of the intervention.

In the first phase, a descriptive statistical analysis was conducted to evaluate the usability and enjoyability of the JOINclusion game. The analysis focused on key user experience dimensions, including enjoyment, curiosity, immersion, clarity of instructions, relevance, and alignment with real-world scenarios. Mean scores and standard deviations were computed for each dimension to assess the overall reception of the game. A qualitative evaluation of game descriptions was also implemented.

To evaluate the efficacy of the game in fostering empathy and prosocial behavior, a repeated-measures analysis of variance (ANOVA) was conducted. This statistical approach was employed to compare pre-test and post-test scores across multiple prosocial dimensions while accounting for within-subject variability. The within-subject factor was time (pre-test vs. post-test), allowing for the assessment of any improvements in the targeted prosocial constructs after gameplay. Effect sizes were calculated using partial eta squared (η^2) to determine the magnitude of the observed effects. Wilks' lambda was used as the multivariate test statistic to evaluate overall model significance.

Additionally, a between-subjects analysis was performed to investigate potential gender differences in the impact of the game. However, no significant

interactions between gender and time were found, suggesting that the intervention was equally effective across male and female participants.

Results

Phase 1 - Evaluation of the game's usability aspects and educational value

Enjoyment: Overall, participants reported a high level of enjoyment while engaging with the game ($M = 4.50$, $SD = 0.67$). Specifically, 88,57% of children reported high levels of fun while playing, suggesting that the game successfully captured their interest and provided an engaging experience. Results are shown in figure 1.

Curiosity: Responses indicated a generally positive level of engagement, with children demonstrating interest and investment in the game's narrative ($M = 3.33$, $SD = 0.83$). Specifically, 88,6% of participants affirmed that they wanted to continue playing, because they wanted to see more of the game world and 87% said that they are curious about the next events in the game. This suggests that the storyline contributed to maintaining players' attention and involvement.

The participants' results are summarized in Figure 2.

Immersion: The majority of participants expressed satisfaction with the game's audiovisual elements, including visuals, animations, and music ($M = 3.20$, $SD = 0.77$). 88,6% of children reported that they liked the story of the game and 63% said that they like the visuals, animations, and music in the game. This suggests that the game provided a stimulating and immersive environment that enhanced the overall user experience.

The participants' immersion evaluation is shown in Figure 3.

Clarity of Instructions: The clarity of instructions was positively evaluated, indicating that the game mechanics were generally intuitive and easy to comprehend ($M = 3.34$, $SD = 0.60$). Specifically, 68,6% of participants affirmed that they could play the game easily without asking for help from an adult, 83% said that the instructions in the game were clear and 77,2% said that the game

was suitable for children. This suggests that children were able to navigate and play the game independently, without requiring significant adult assistance.

Figure 4 shows the participants' clarity of instructions evaluation.

Relevance: The feedback suggested that the game provided a meaningful learning experience, as a considerable number of participants reported acquiring new knowledge and skills while playing (65,7%, $M = 3.28$, $SD = 0.89$). This highlights the game's potential in fostering cognitive and social development.

The evaluation of participants' perceived relevance is illustrated in Figure 5.

Match between the Game System and Real-World Scenarios: Participants' feedback indicated a moderate alignment between the game system and real-life experiences ($M = 2.99$, $SD = 0.69$). While 85,7% of children said that they found the words and phrases of the games easy to understand, approximately 57.1% of children felt that the scenarios presented in the game closely reflected real-life challenges, whereas others found them less applicable to their personal experiences. This divergence suggests that the game's relatability may be influenced by individual differences in background and lived experiences.

Participants' perceived match between the game system and real-world scenarios is presented in Figure 6.

Game Experience: The majority of children described the game as Simple (68.57%) and Beautiful (68.57%), suggesting that the design and mechanics were well-received and easy to understand. Additionally, a significant proportion found the game to be Fun (51.43%), Great (48.57%), and Exciting (48.57%), indicating a generally positive emotional engagement. A notable percentage of children also expressed that the game was Surprising (40%), which may reflect unexpected elements in the gameplay. Despite the predominantly positive reception, a small proportion of participants described the game as Childish (2.86%), Boring (11.43%), Difficult (2.86%), or Confusing (5.71%). Overall, 94.29% of children said they would be interested in playing again.

Participants' overall evaluation of the game experience is illustrated in Figure 7.

Figure 1. Feedback on the enjoyment dimension of the game experience

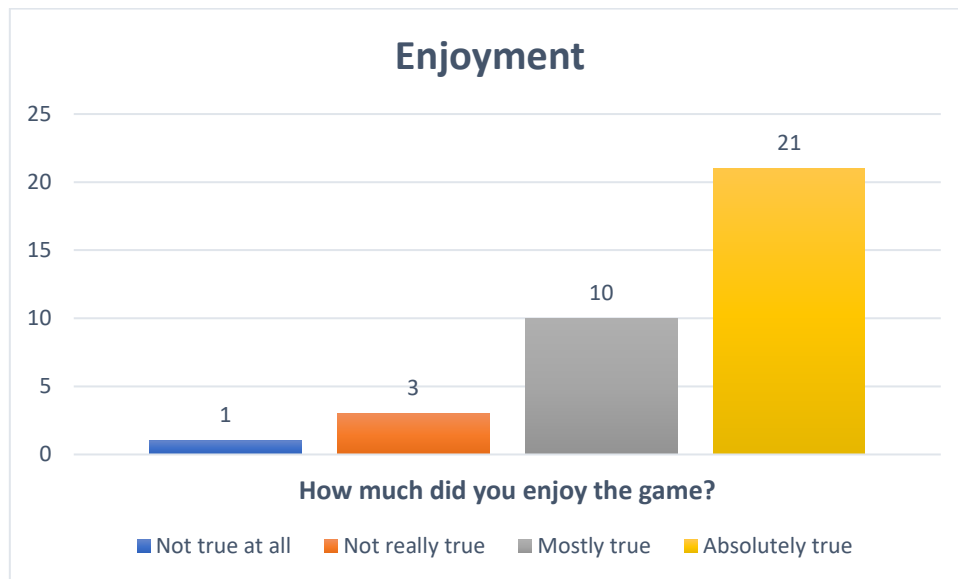


Figure 2. feedback on the curiosity dimension of the game experience

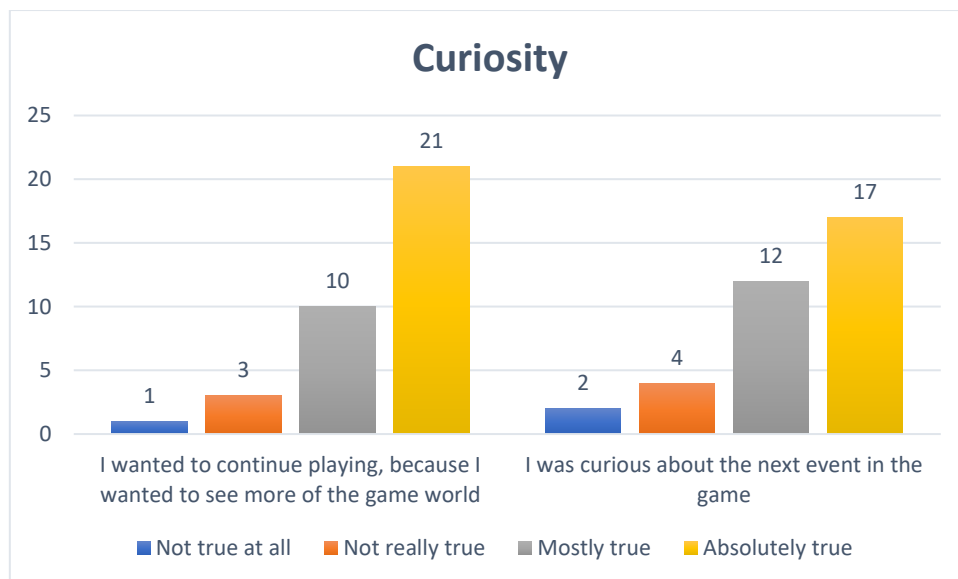


Figure 3. feedback on the immersion dimension of the game experience

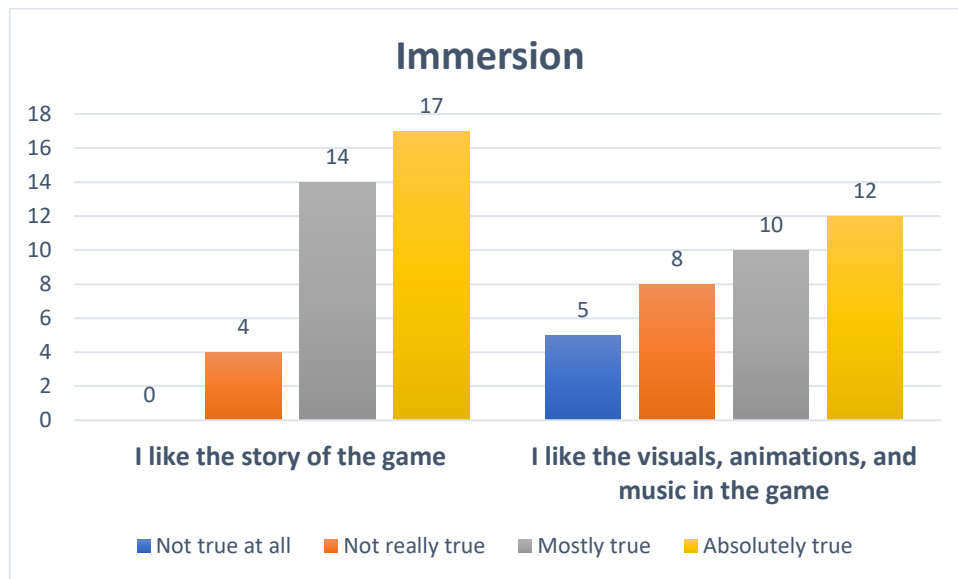


Figure 4. feedback on the clarity of instructions dimension of the game experience

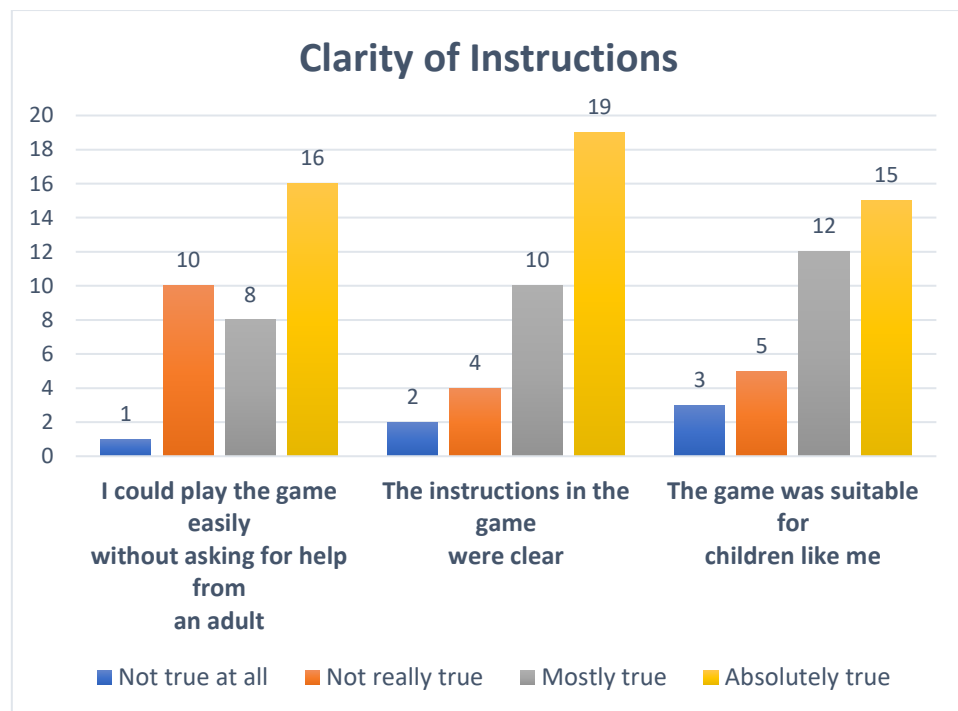


Figure 5. feedback on the relevance dimension of the game experience

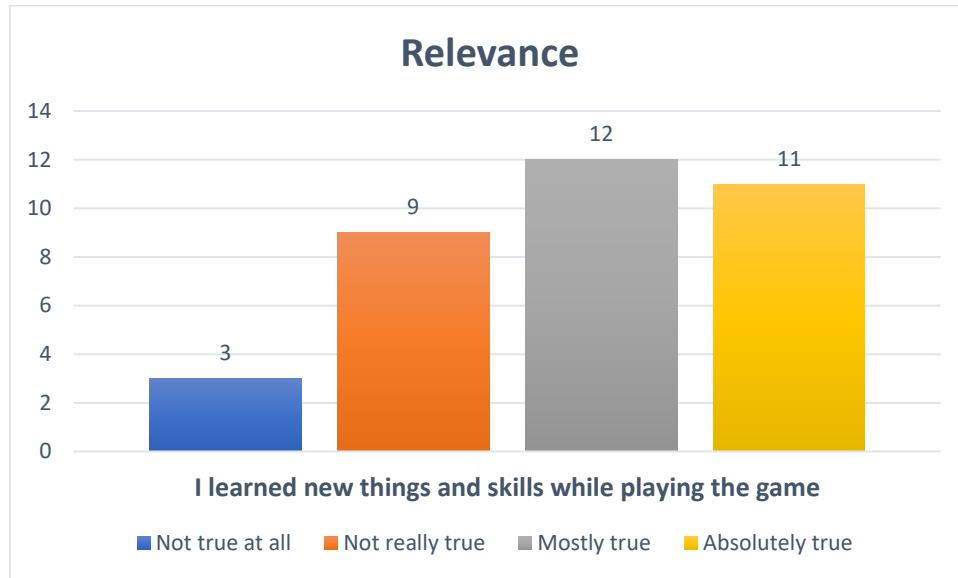


Figure 6. feedback on the match between the game system and real-world scenario
dimension of the game experience

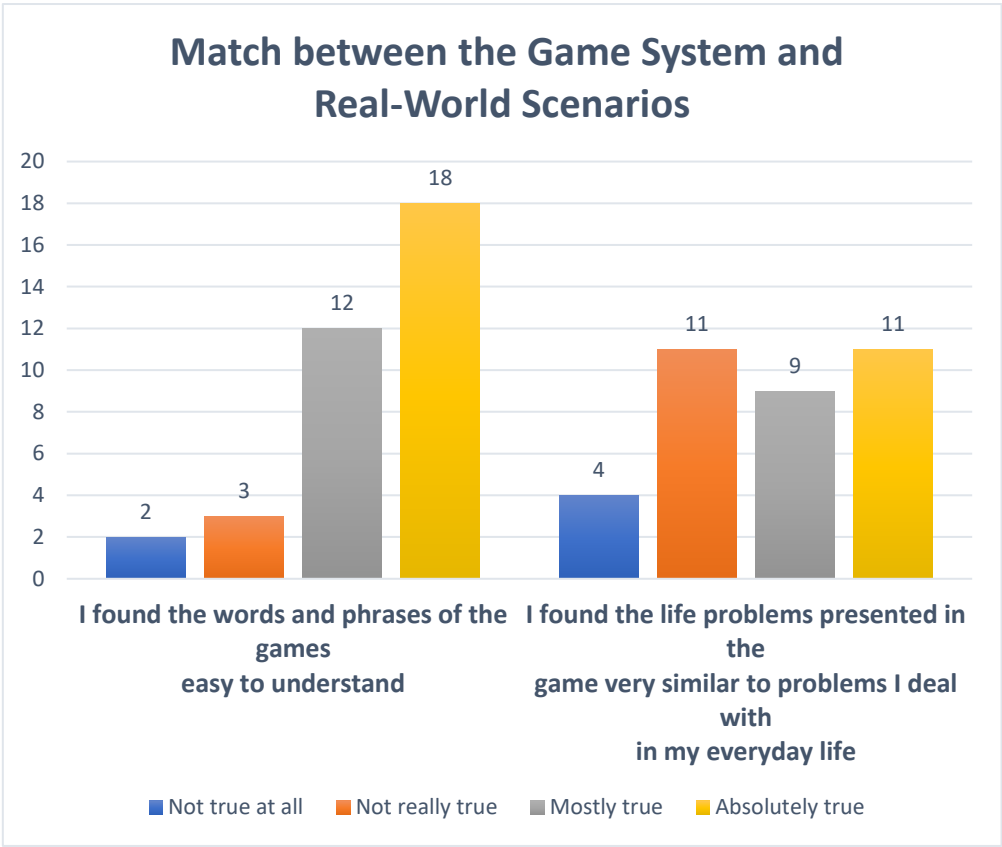
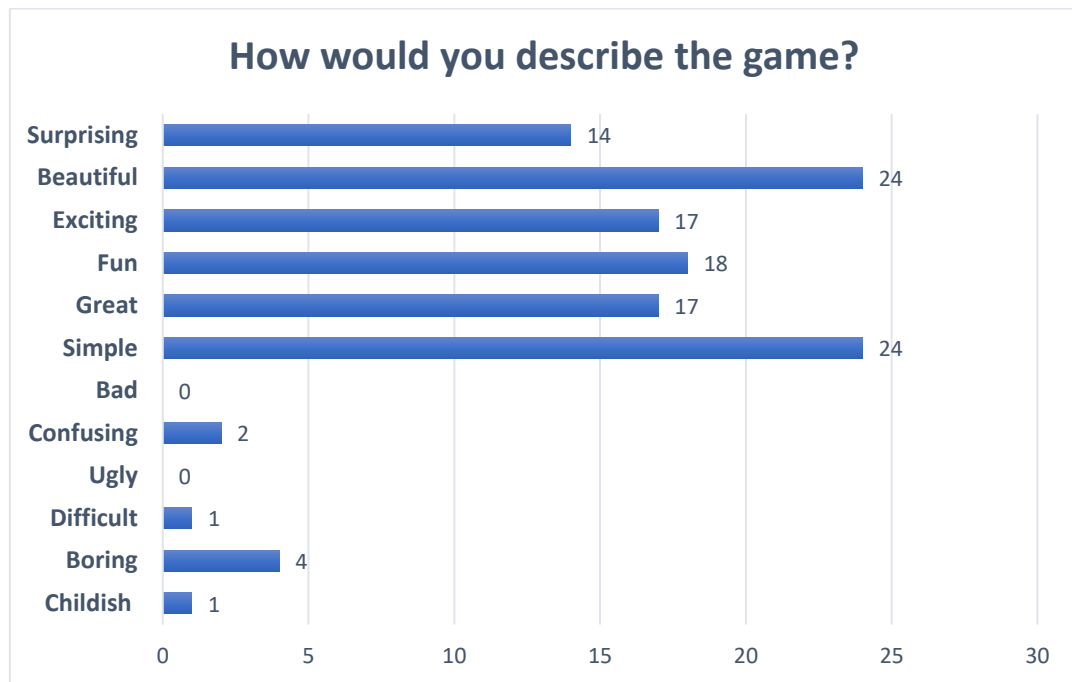


Figure 7. Participants' feedback on the game experience



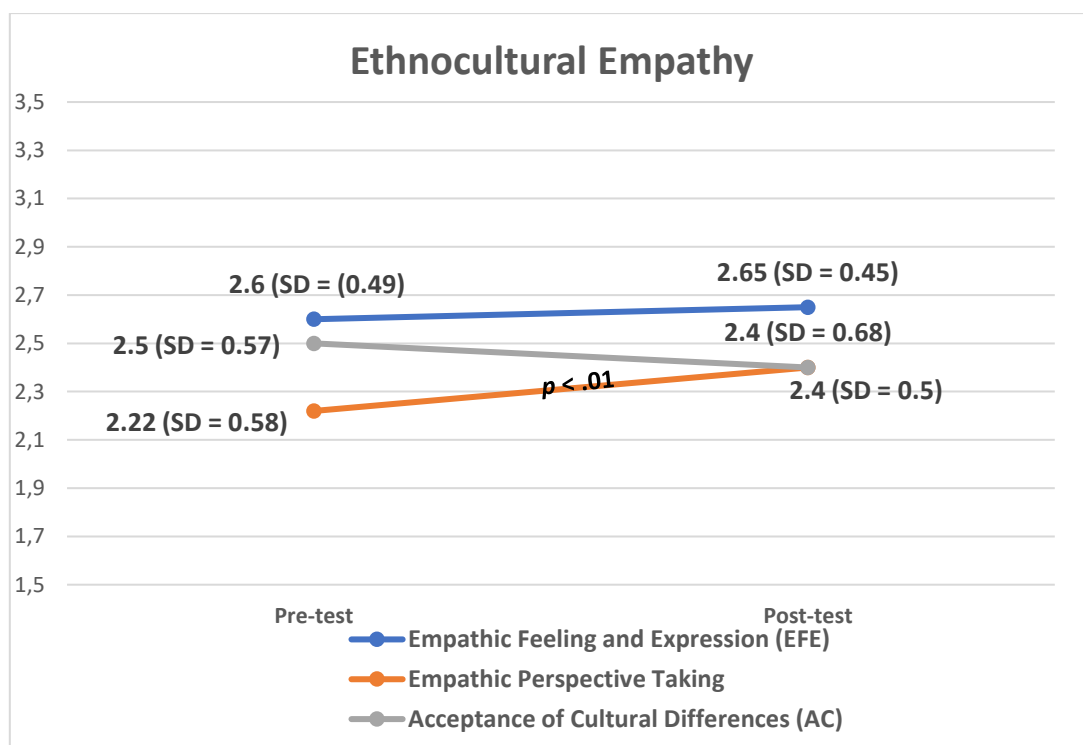
Effects of the game intervention on empathy and prosociality: comparison between pre-and post-test datas

Repeated-measures analysis of variance (R-ANOVA) was conducted to assess the effectiveness of the serious game in enhancing empathy and prosocial behavior. Both game scenarios were included within a single model to evaluate the overall effect of the intervention across the different contexts presented in the game. Results are shown in Figures 8 to 11.

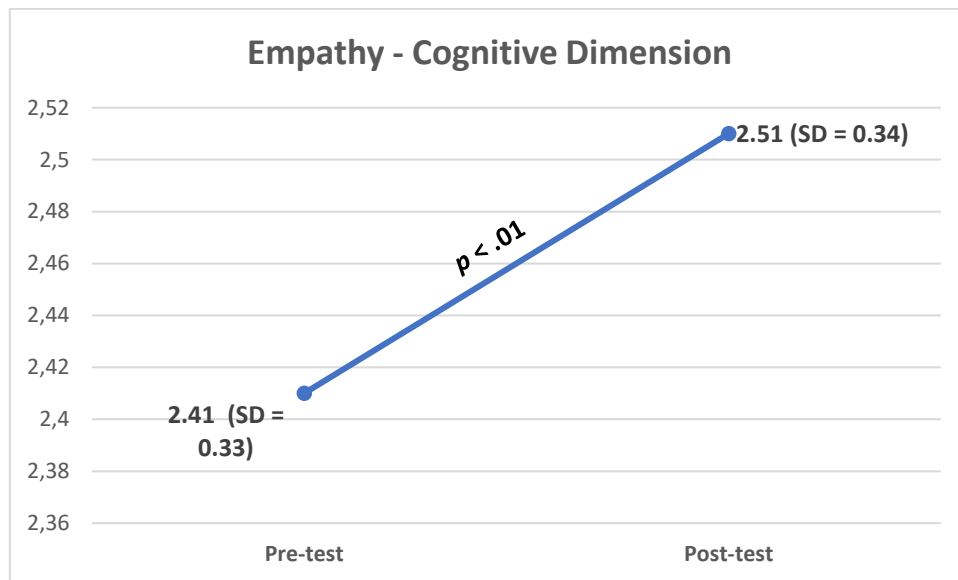
The R-ANOVA revealed a significant improvement in only one of the subscales of the Ethnocultural Empathy Scale, i.e the Empathic Perspective Taking [Wilks' $\lambda = .925$, $F(1,98) = 7.969$, $p < .01$, $\eta^2 = 0.75$] and in the cognitive dimension of empathy measured with BES [Wilks' $\lambda = .93$, $F(1,98) = 7.333$, $p < .01$, $\eta^2 = 0.70$], indicating that the game effectively enhanced children's ability to understand and adopt others' perspectives. No significant

differences were observed for other ECE subscales, i.e Empathic Feeling and Expression [Wilks' Lambda = .993, $F(1, 98) = 0.664$, $\eta^2 = 0.007$] and Acceptance of Cultural Differences [Wilks' Lambda = .974, $F(1, 98) = 2.653$, $\eta^2 = 0.26$]. Similarly, the increase in Sympathy scores [Wilks' Lambda = .969, $F(1, 98) = 3.184$, $\eta^2 = 0.31$] and in Prosociality Toward Diverse Others [Wilks' Lambda = .991, $F(1, 98) = 0.902$, $\eta^2 = 0.009$], did not reach statistical significance. No gender differences emerged from the analysis.

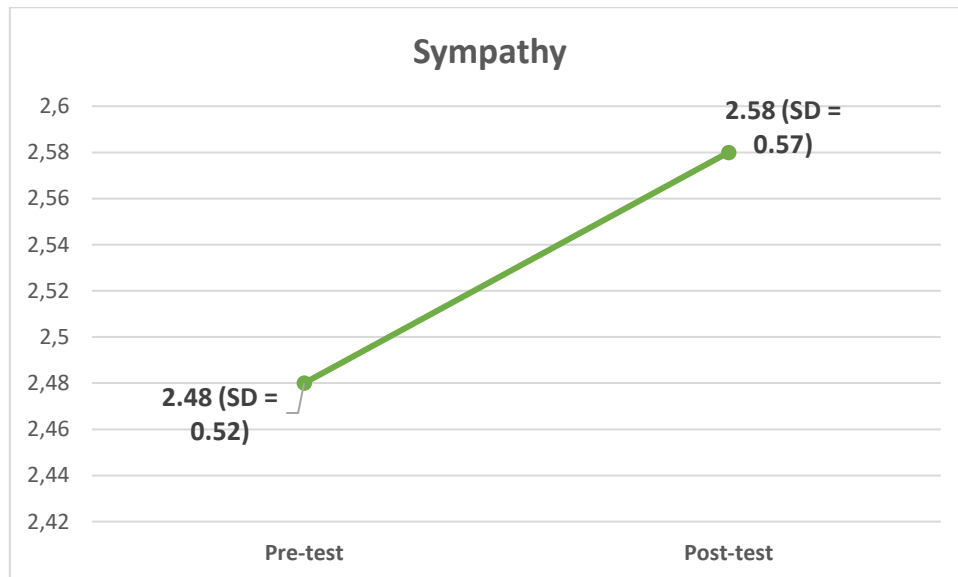
Figures 8. Trends for Ethnocultural Empathy subscales



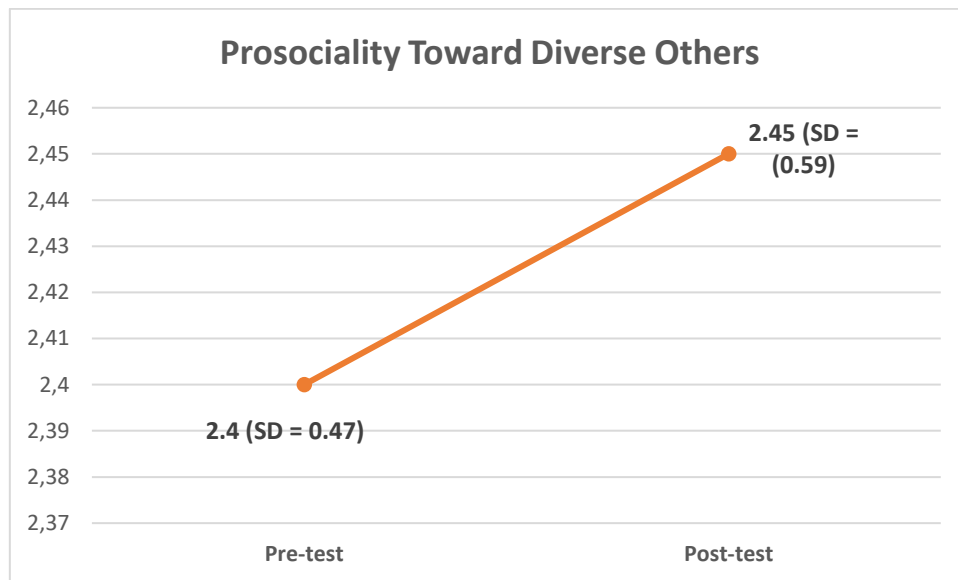
Figures 9. Trends for the cognitive empathy subscale



Figures 10. Trends for the Sympathy dimension



Figures 11. Trends for Prosociality Toward Diverse Others



Discussion

The present study aimed to evaluate both the game experience and the effectiveness of the *JOINclusion* serious game in fostering empathy and prosocial behavior among primary school children in multicultural educational contexts. Drawing on the principles of Positive Technology and Social and Emotional Learning (SEL), the intervention sought to enhance specific socio-emotional competencies through an engaging and developmentally appropriate serious mobile game.

Engagement and Perceived Value of the Gaming Experience

Children reported high levels of Enjoyment, with this dimension receiving the highest mean score, indicating that the game successfully captured and maintained their attention and emotional involvement. This is a crucial element

in any intervention targeting younger populations, as engagement is a necessary condition for learning and behavioral change.

Furthermore, Curiosity and Immersion scores indicate that the narrative structure and audiovisual components were effective in creating a compelling and cohesive experience. These findings suggest that the game's storytelling mechanics and interactive design successfully supported sustained attention and emotional engagement—key factors in serious games aiming to foster perspective-taking. Participants also reported positive ratings on the Clarity of Instructions, indicating that the game was accessible and easy to navigate even without adult supervision. This supports the notion that *JOINclusion* is developmentally appropriate and user-friendly for children aged 8–11. In terms of Perceived Relevance, children rated the learning experience positively, suggesting that they recognized the game's educational intent and understood its broader themes.

However, one area requiring attention is the alignment between in-game scenarios and children's real-world experiences, which received comparatively lower scores. This finding may reflect a perceived distance between the social situations portrayed in the game and those encountered in everyday school life. Enhancing the realism and contextual relevance of the scenarios may improve not only engagement but also the transferability of empathic and inclusive behaviors to real-life settings.

Emotional Responses and Aesthetic Appreciation

Participants frequently described the game as *Simple, Beautiful, Fun, Great, Surprising, and Exciting*, highlighting the game's success in generating positive emotional reactions. These affective descriptors suggest that the game design struck a balance between ease of use and stimulating content, key factors in children's motivation to engage with digital learning tools.

Only a small proportion of children used negative descriptors such as *Boring, Confusing, Difficult, or Childish*, indicating areas for potential refinement, especially in calibrating challenge levels and maintaining cognitive stimulation.

Notably, the vast majority of participants expressed a willingness to play the game again, affirming its acceptability and the likelihood of continued use in classroom or home settings.

Development of Empathic Competencies

The findings from the repeated-measures ANOVA indicated that the game was particularly effective in promoting cognitive aspects of empathy.. Statistically significant improvements were observed in the cognitive dimension of empathy, particularly in Empathic Perspective-Taking (EPT) and cognitive empathy as measured by the BES. This suggests that the game effectively supported the development of perspective-taking abilities, which are foundational to inclusive social interactions and moral reasoning in childhood.

However, no statistically significant changes were observed in other empathy-related dimensions such as Empathic Feeling and Expression (EFE) and Acceptance of Cultural Differences (AC). These findings suggest that while the game was effective in promoting cognitive empathy, its impact on emotional engagement and attitudinal change may require further enhancement. Similarly, Sympathy and Prosociality Toward Diverse Others did not show significant improvements from pre- to post-intervention, indicating that changes in emotional or behavioral responses may require longer exposure or additional reinforcement beyond a single short-term intervention.

It is important to note that emotional and attitudinal components of empathy often develop over extended periods and may be less immediately responsive to short interventions compared to cognitive skills. This aligns with developmental research indicating that affective resonance and attitudinal openness to diversity are shaped by repeated social experiences and contextual modeling (Malti & Latzko, 2012; Killen et al., 2011).

Invariance across gender groups

Analysis of intervention effects revealed no significant gender differences, suggesting that the game was equally engaging and effective for both boys and girls. This is an important finding, as many empathy-based interventions tend to show greater effects among female participants. The gender-invariant results support the broad applicability of the *JOINclusion* game and suggest that it addresses empathic development in a balanced and inclusive manner.

Limitations and Future Directions

Despite the encouraging results, several limitations should be acknowledged. First, the short duration of the intervention limits the scope of the findings to immediate post-intervention effects. It remains unclear whether the observed improvements in perspective-taking persist over time or translate into real-world behavior. Longitudinal studies are necessary to assess the stability and durability of the game's effects on empathy and prosociality.

Second, the absence of a control group in the study design prevents definitive conclusions regarding the causal impact of the intervention. Although repeated-measures data show improvement in certain variables, future research should adopt a randomized controlled trial design to isolate the effects of the *JOINclusion* game.

Conclusions and implications

In conclusion, the *JOINclusion* serious game appears to be a promising digital intervention for enhancing specific components of ethnocultural empathy, particularly cognitive perspective-taking, in multicultural school contexts. Its high levels of engagement, clarity, and emotional appeal support its feasibility and acceptability among primary school-aged children.

While further development and controlled evaluations are necessary, the current findings reinforce the value of Positive Technology in promoting psychological growth, social awareness, and inclusive attitudes. The study contributes to a

growing body of literature advocating for the integration of serious games into educational settings to support social-emotional learning and intercultural competence from an early age.

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Chapter 4: Study III. Equity or Equality? Children's Moral Responses to Ethnic-Based Resource Inequalities

Introduction

Social disparities—defined as systematic differences in access to resources, opportunities, authority, prestige, and status among various social groups—constitute a significant impediment to the equitable treatment of individuals within societal frameworks (Anderson, 1999; Duncan & Murnane, 2011; Reardon & Firebaugh, 2002; Wilkinson & Pickett, 2009). Most social systems are inherently structured around unequal distributions of resources, often along categorical lines such as race and gender. These structural inequities are frequently reinforced through ingrained social hierarchies and perpetuated by prevailing biases and negative stereotypes toward marginalized communities (Levy, West, & Ramirez, 2005). Nonetheless, individuals possess the cognitive and moral capacity to critically assess and, in some instances, challenge or transform the inequalities they perceive as unjust (Smetana et al., 2013).

Addressing these enduring societal issues requires a thorough understanding of the psychological mechanisms that underlie the emergence, persistence, and reinforcement of inequality (Brown, 2017; Ruck et al., 2019). Research indicates that even at a young age, children display aversion to unequal resource distribution when it appears unjustified, such as when one child hoards resources to the exclusion of others (Margoni & Surian, 2018).

As their social reasoning matures, children begin to discern conditions under which unequal distribution may be considered fair—for example, when it reflects differential effort or contribution (Baumard, Mascaro, & Chevallier, 2012; Rizzo, Elenbaas, Cooley, & Killen, 2016). However, considerably less empirical attention has been devoted to understanding how children interpret structural disadvantage in resource access, or how they come to recognize situations in which redressing intergroup inequality (such as racial disparities) would be morally appropriate.

Contrary to some studies (Smetana, Jambon, & Ball, 2013) Blake and colleagues (2015) conducted a study involving participants aged 4 to 15, who engaged in a set of economic games that manipulated their relative advantage or disadvantage in resource distribution. In these scenarios, children were either allocated more (advantaged) or fewer (disadvantaged) resources than a peer, without any justification for the discrepancy. Findings revealed that by middle childhood, most children refused disadvantageous allocations. However, a reluctance to reject advantageous inequities emerged only at later developmental stages, and even then, with notable cross-cultural variation (see also Blake & McAuliffe, 2011; Sheskin et al., 2016).

These findings suggest that while concerns for fairness, equity, and merit manifest early in development, children simultaneously contribute to the reinforcement of inequalities that benefit themselves and their social groups. This tendency to sustain advantageous disparities can be driven by several factors: a self-interested desire for resources, endorsement of meritocratic principles when effort is perceived (Kanngiesser & Warneken, 2012), or difficulty in discerning others' deservingness due to limited insight into their intentions (Li et al., 2014). Furthermore, group membership can intensify the motivation to prioritize one's ingroup, with such actions often reflecting efforts to express loyalty and affiliation (Abrams & Rutland, 2008; Spears-Brown & Bigler, 2005).

Research has demonstrated that even young children often allocate more desirable resources—such as candy or toys—to individuals who share their racial, gender, or arbitrarily assigned group identity, rather than to those from outgroups (Benozio & Diesendruck, 2015; Dunham, Baron, & Carey, 2011; Renno & Shutts, 2015). This pattern of preferential distribution reflects early-emerging ingroup bias based on social categorization. Similar tendencies have been documented among older children, who not only continue to favor ingroup members in resource allocation (Gummerum, Takezawa, & Keller, 2009) but also invoke group-based stereotypes to justify these unequal distributions (McGillicuddy-De Lisi, Daly, & Neal, 2006). For example, Olson, Dweck,

Spelke, and Banaji (2011) investigated whether children between the ages of 3 and 11 would challenge or perpetuate a pre-established inequality in cookie distribution between recipients of different racial backgrounds. The results indicated a strong tendency to reinforce the status quo, with children frequently awarding more cookies to the recipient who had already been shown receiving more, and who belonged to the racially advantaged group.

Additional studies support the idea that when children observe unequal distributions between racial or novel social groups, they often infer that such disparities are justified, subsequently mirroring these patterns in their own resource allocations by favoring members of the higher-status group (Horwitz, Shutts, & Olson, 2014). Moreover, evidence suggests that children are more inclined to reject resource inequalities when those inequalities place their minimal ingroup at a disadvantage, compared to when the disadvantaged party belongs to a minimal outgroup (Jordan, McAuliffe, & Warneken, 2014). Over the course of development, children begin to incorporate these experiences into more sophisticated moral reasoning, differentiating between principles of equality and equity (Essler et al., 2020; Rizzo & Killen, 2016; Wörle & Paulus, 2018). In contexts marked by existing inequalities, *equality* involves distributing identical resources to all parties, thereby maintaining the disparity, while *equity* involves allocating additional resources to the less advantaged, in an effort to correct the initial imbalance.

Social Reasoning Developmental Model (SRD)

The Social Reasoning Developmental (SRD) model (Killen & Rutland, 2011) integrates key insights from developmental psychology—specifically social domain theory—and social psychology, particularly social identity theory, to explain how children make decisions regarding intergroup inclusion and exclusion. According to this framework, children's social judgments are informed by a combination of moral reasoning, sensitivity to social norms, and considerations of group identity (Smetana et al., 2014; Turiel, 2002; Nesdale,

2004; Tajfel & Turner, 1978). Contrary to the notion that children consistently favor ingroup members, the SRD model posits that children's decisions about peer group membership are nuanced and context-dependent.

When evaluating whether to include or exclude peers from different social groups, children draw on a range of considerations. These include moral principles—such as the importance of fairness and equal treatment—as well as group-oriented concerns, such as maintaining group cohesion, preserving group identity, and adhering to stereotypical beliefs about social roles and hierarchies. Moral justifications, particularly those centered on fairness and justice, are frequently employed by children when they advocate for intergroup inclusion (Cooley et al., 2019). Conversely, when children justify exclusion or selective inclusion, they often rely on reasoning tied to group identity, functionality, or stereotypes (Burkholder, D'Esterre, et al., 2019). As children grow older and gain more complex social experiences, they increasingly integrate multiple social dimensions—such as race and socioeconomic status—into their evaluations of interpersonal dynamics and peer group interactions (Mulvey, 2016).

Individually-based vs structurally-based inequalities

Critical to understanding how children evaluate inequality requires acknowledging that inequalities vary in their origins and are not uniformly experienced across individuals. Rizzo and Killen (2020) make a key distinction between *individually-based* inequalities—those stemming from legitimate variations in effort, choices, or abilities—and *structurally-based* inequalities, which arise from systemic constraints within the social structure that limit equitable access to resources and opportunities. That means that structurally-based inequalities are fundamentally distinct from individually-based inequalities in that they systematically disadvantage individuals on the basis of socially constructed group memberships—such as gender, race, or sexual orientation—rather than as a consequence of personal choices, abilities, or achievements (Crenshaw et al., 1995; Haslanger, 2016; Ridgeway, 2015).

For instance, Baumard, Mascaro, and Chevallier (2011) investigated how young children distribute resources in a scenario involving a diligent character and a lazy one. Their findings revealed that even children as young as three to four years old tended to allocate larger cookies—or greater portions of a resource pool—to the character who exerted more effort. Subsequent research has deepened these insights, illustrating that between the ages of six and eight, children increasingly prioritize merit in distribution decisions. At this developmental stage, they are more inclined to allocate resources based on individual contribution, evaluate such allocations as fair, and explicitly justify their decisions by referencing the importance of rewarding effort and productivity (Rizzo et al., 2016).

Emerging evidence indicates that by the preschool years, children begin to develop cognitive representations of social group structures (Vasilyeva & Ayala, 2019), and they show an early sensitivity to the moral implications of discriminatory treatment, often judging overt group-based exclusion as unjust (Killen et al., 2002). As they mature, children's awareness of systemic inequalities becomes more refined; for example, by ages 5 to 6, they are inclined to correct racial disparities that negatively affect members of their own racial group. By 10 to 11 years of age, this concern extends more broadly, with children rectifying racial inequalities irrespective of group membership (Elenbaas et al., 2016).

Taken together, these strands of research suggest that children's responses to inequality are not guided by a blanket rejection of unequal outcomes. Rather, they engage in context-sensitive evaluations that reflect an understanding of the origins and implications of the inequality. To directly assess children's ability to distinguish between inequalities arising from individual effort and those embedded within social structures, Rizzo, Elenbaas, and Vanderbilt (2018) designed an experimental paradigm in which children were presented with scenarios that were identical in outcome but differed in causal attribution—either task-based performance (individual) or gender-based bias (structural). Their

findings revealed that even at 3 to 5 years of age, children were more likely to correct inequalities rooted in structural bias, while tending to maintain those perceived as merit-based. By ages 6 to 8, children demonstrated a more explicit understanding of the systemic dimensions of structural inequality. These findings provide compelling evidence that children possess a developing capacity to differentiate between the underlying causes of inequality and respond accordingly.

The Present Study

The present study aims to examine, through the implementation of a specifically designed computerized task, how children morally evaluate situations of inequality between pre-existing (i.e. ethnic) social groups. Moreover, it seeks to investigate how children allocate resources within contexts characterized by intergroup inequality, and whether variations in allocation strategies emerge depending on the nature of the resources involved. Additionally, the study intends to explore the relationship between resource allocation patterns and other prosocial variables. The present study is structured around three key dimensions. The first dimension concerns the nature of inequality, distinguishing between individual inequality—arising from personal characteristics or actions—and structural inequality, which is rooted in broader social or institutional systems. The second dimension pertains to group status, contrasting participants who belong to an advantaged group with those from a disadvantaged group. In the context of resource distribution, individuals are often described as either advantaged or disadvantaged, reflecting disparities in access to or control over resources. Although these terms are frequently employed to describe economic inequalities, their relevance extends to broader social and institutional domains, where the implications of such disparities may vary significantly depending on the specific context. Finally, the third dimension involves the type of resources being distributed, differentiating between luxury goods, which are non-essential and symbolically valued (i.e. sweets), and necessity goods, which are

fundamental to well-being (i.e. school supplies). The distribution of educational resources represents a particularly salient context for the analysis, as persistent societal disparities in access to quality education based on group membership—such as racial identity—remain well documented (Duncan & Murnane, 2011). When encountering inequalities in educational resources between peers from different racial backgrounds, children may respond in different ways. One possibility is that they reproduce existing inequalities by allocating more resources to the already advantaged group, especially when they themselves identify with that group. Alternatively, as children develop, they may show an increasing sensitivity to fairness and the well-being of others, leading them to distribute resources in a manner that addresses and potentially rectifies the inequality - following the moral principle of *equity* – or distributing identical resources to all parties, thereby maintaining the disparity – following the principle of equality.

Supporting this interpretation, Rizzo et al. (2016) found that by the age of eight, children differentiate between luxury and necessity resources in merit-based allocation scenarios: while luxury items were allocated based on merit (favoring the more hardworking individual), necessary resources were distributed equally, reflecting a concern for the basic needs of all recipients.

Building on this line of research, the present study extends these insights by examining how children evaluate and respond to inequalities between pre-existing groups, specifically exploring how group status (advantaged vs. disadvantaged), the type of inequality (individual vs. structural), and the nature of the resources (luxuries vs. necessities) jointly influence children's moral reasoning and allocation behaviors. Finally, the study examines whether patterns of resource allocation—namely, the perpetuation of inequality, adherence to the principle of equity, or adherence to the principle of equality—are associated with prosocial dimensions, such as ethnocultural empathy and teacher-reported prosocial behavior.

Method

Participants

The sample consisted of 71 primary school children from Naples aged from 9 to 11 (mean = 9.5 SD = .56). The sample is distributed fairly evenly between girls and boys (45.1% males, 54.9% females). 12 children (16,9%) had a migratory background.

Measures

Ethnic Inequality Task (EIT)

The computerized task was developed and administered using the Qualtrics platform. It was designed as an interactive, narrative-based procedure in which participants were presented with a story accompanied by visual stimuli, created using AI-generated images. Throughout the narrative, children encountered key decision points at which they were prompted to respond to a series of questions. These included moral judgment items—requiring participants to evaluate whether specific events or actions depicted in the story were right or wrong—and resource allocation tasks, in which children were asked to distribute different types of materials. The task was structured to assess children’s moral reasoning and distributive behavior within scenarios involving intergroup inequality.

The task is presented below.

“In the afternoon, the children enrolled in your school are required to participate in a club activity. Each club can have a maximum of five members.

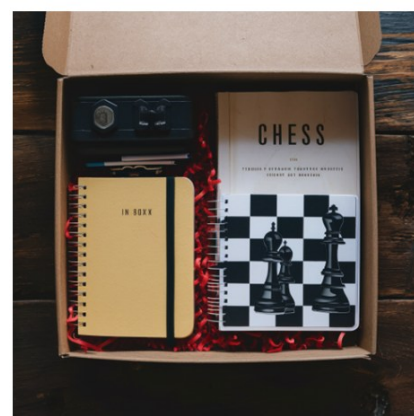
Below are the members of the only two chess clubs at the school”

Image 1. First picture shown in the EIT



“The school provides the RED club with new materials to help them improve their chess skills and prepare for the city championship, while the BLUE club receives one box of supplies.”

Image 2a-b. Stimuli shown in the EIT



Subsequently a set of questions is presented. All questions are adapted from the work of Elenbaas and colleagues (2016) and have a 4-point response scale (1 = "Definitely unfair" to 4 = "Definitely fair").

Table 1. Questions presented in the task

-
- | |
|--|
| 1. Do you think it is fair or unfair that the school gave the RED club more learning materials than the BLUE club? |
|--|
-

-
2. What if the person in charge of distributing materials to the chess clubs always gave more boxes to the RED club because they had always received more in the past?
-
3. What if the person in charge of distributing materials gave more boxes to the RED club because they had won more chess championships than the BLUE club?
-

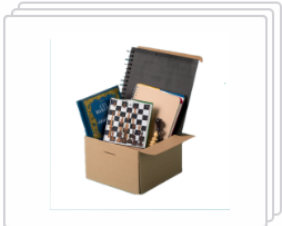
“Now imagine that you are the new head of the school where the two clubs, BLUE and RED, are. One day, you receive 6 extra boxes of chess materials. You are free to divide them between the two clubs however you prefer. Remember: the RED club has already received 5 boxes, and the BLUE club has received 1 box (picture shown). How do you distribute them?”

Subsequently, using the same images previously shown to illustrate the distribution of materials, children are asked to actively allocate additional resources to the two clubs.

Image 3. Screenshot of the resource allocation (necessary resources) phase of the task implemented on qualtrics

TRASCINA gli scatoloni in base a come vuoi dividere tra i due gruppi il materiale extra per la preparazione al torneo di scacchi:

Voci



CLUB dei ROSSI

CLUB dei BLU

The story continues and, once again, children are asked to actively allocate resources by dividing them between the two clubs. In this case, however, the resources are not presented as essential for the group's well-being, but rather as luxury goods.

“One day, you receive 6 boxes of candies and chocolates. All the children in both clubs love sweets. You are free to divide them between the two clubs however you prefer, but remember: previously, the RED club received 5 boxes of chess materials and the BLUE club has received 1 box (picture shown). How would you distribute them? “

Image 4. Screenshot of the resource allocation (luxury resources) phase of the task implemented on qualtrics

TRASCINA le scatole di dolci in base a come vuoi dividerle tra i due gruppi:

Voci

CLUB dei ROSSI

CLUB dei BLU

Finally, two characters are introduced: Alex and Max. It is explained that Alex has won the chess championship twice. Max, on the other hand, has always played chess but has never won anything. Their pictures are shown and it is explained that they will be the new chess players at the school and that they will join the two clubs. These characters were added to the story to show children that being a champion in something is not associated with a certain ethnicity.

Image 5. New characters (Alex and Max) introduced at the end of the story.

Alex



Max



Operationalization of task variables

Children's fairness evaluations across different types of inequality	
<i>General inequality</i>	<i>"Do you think it is fair or unfair that the school gave the RED club more learning materials than the BLUE club?"</i>
<i>Structural Inequality</i>	<i>"What if the person in charge of distributing materials to the chess clubs always gave more boxes to the RED club because they had always received more in the past?"</i>
<i>Individual Inequality</i>	<i>"What if the person in charge of distributing materials gave more boxes to the RED club because they had won more chess championships than the BLUE club?"</i>

Children's own allocation	
<i>Equality</i>	<i>Uniform distribution of resources across different groups (i.e 3 boxes to the RED club and 3 to the BLUE club)</i>
<i>Equity</i>	<i>Allocation of greater resources to disadvantaged groups to reduce pre-existing inequalities (i.e 1 box for the RED club and 5 box to the BLUE club)</i>
<i>Inequality</i>	<i>Allocation of more resources to already advantaged groups (i.e 5 to the RED club and 1 to the BLU club or 4 to the RED club and 2 for the BLUE club)</i>

Ethnocultural empathy

Ethnocultural empathy was measured using a child adaptation of the Italian version of the Ethnocultural Empathy Scale (Albiero & Matricardi, 2023) illustrated in chapter 2. The instrument includes eight items, which are distributed across three core dimensions: Empathic Expression and Feeling (EFE), Empathic Perspective Taking (EP), and Acceptance of Cultural Differences (AC). Children responded to each item using a three-point Likert scale (1 = “No”, 2 = “So-so”, 3 = “Yes”), indicating how much each statement corresponded to their personal thoughts or experiences.

Prosocial behavior

To assess prosocial behavior, teachers completed, for each student in their class, the prosociality subscale of the Child Behavior Scale (Ladd & Profilet, 1996; Italian validation by Marcone & Costanzo, 2013). They were asked to evaluate

the extent to which four behavioral descriptors applied to each child, with particular reference to the child's interactions with peers. Responses were provided on a three-point scale (0 = "Does not apply", 1 = "Applies sometimes", 2 = "Certainly applies"), allowing for the assessment of the child's social and prosocial behaviors in the school context.

Procedure

Data collection was carried out in May 2024.

Prior to data collection, the questionnaires were approved by the Ethical Committee of Psychological Research at the department of Humanities, University of Naples Federico II (n° prot. 16/2023).

In order to ensure participants' privacy while maintaining the ability to match questionnaire responses with data obtained from the experimental task, a pseudonymization procedure was implemented in line with ethical standards for research involving minors (American Psychological Association, 2017; European General Data Protection Regulation, 2016/679). Each child was assigned a unique, non-identifying nickname, created by the AI and associated with each participant by the classroom teachers, which was used consistently across all phases of data collection. This procedure allowed for the secure linkage of multi-source data without compromising the confidentiality of the participants. The experimental procedure followed a within-subjects design and was conducted individually with each child, using a one-on-one administration format to ensure controlled conditions and individualized support. A trained experimenter guided each participant through a computerized task specifically developed for the study. Before beginning the task, children were asked to enter their assigned nickname to ensure accurate data matching across instruments. Following the experimental task, children completed a set of self-report questionnaires with the assistance of the experimenter to account for variability in learning ability and to reduce potential misunderstanding of items.

Simultaneously, teachers contributed to the study's multi-informant design by entering each child's demographic data (i.e., gender, age, and migratory background) and completing a questionnaire for assessing each child's prosocial behavior in the school context.

At the conclusion of data collection, a group debriefing session was held with all participants. This session aimed to foster reflection on the activities conducted and to promote dialogue around themes of fairness, diversity, and the importance of challenging prejudice. Particular attention was given to discussing stereotypes and biases related to ethnicity.

Analytic Strategy

All statistical analyses were conducted using IBM SPSS statistics version 29 (IBM Corp.; Armonk, NY). To examine differences in children's fairness evaluations across different types of inequality (general, structural, individual), a one-way repeated measures ANOVA was performed, with pairwise comparisons (general vs individual; individual vs structural; general vs structural), with gender and migratory background included as covariates to control for potential interaction effects. Assumptions of normality and sphericity were assessed prior to analysis.

To explore children's resource allocation strategies across different types of materials (necessary vs. luxury goods), categorical responses were coded into three distribution patterns: equality (i.e uniform distribution of resources across different groups, regardless of any existing disparities or prior conditions), equity (i.e the allocation of greater resources to disadvantaged groups in order to address and reduce pre-existing inequalities) and inequality (i.e allocation of disproportionate resources to already advantaged groups, thereby sustaining or exacerbating existing disparities)

Frequencies across conditions were analyzed using chi-square tests of independence, allowing for the examination of associations between allocation choices and resource type.

Furthermore, to assess the relationship between allocation strategies and individual differences in prosocial behavior and ethnocultural empathy, participants were grouped according to their allocation pattern. Given the non-parametric distribution of these measures, Kruskal-Wallis tests were used to compare the three allocation groups (equality, equity, inequality) across teacher-reported prosociality and the three subscales of the Ethnocultural Empathy Scale: Empathic Feeling and Expression (EFE), Empathic Perspective Taking (EP), and Acceptance of Cultural Differences (AC).

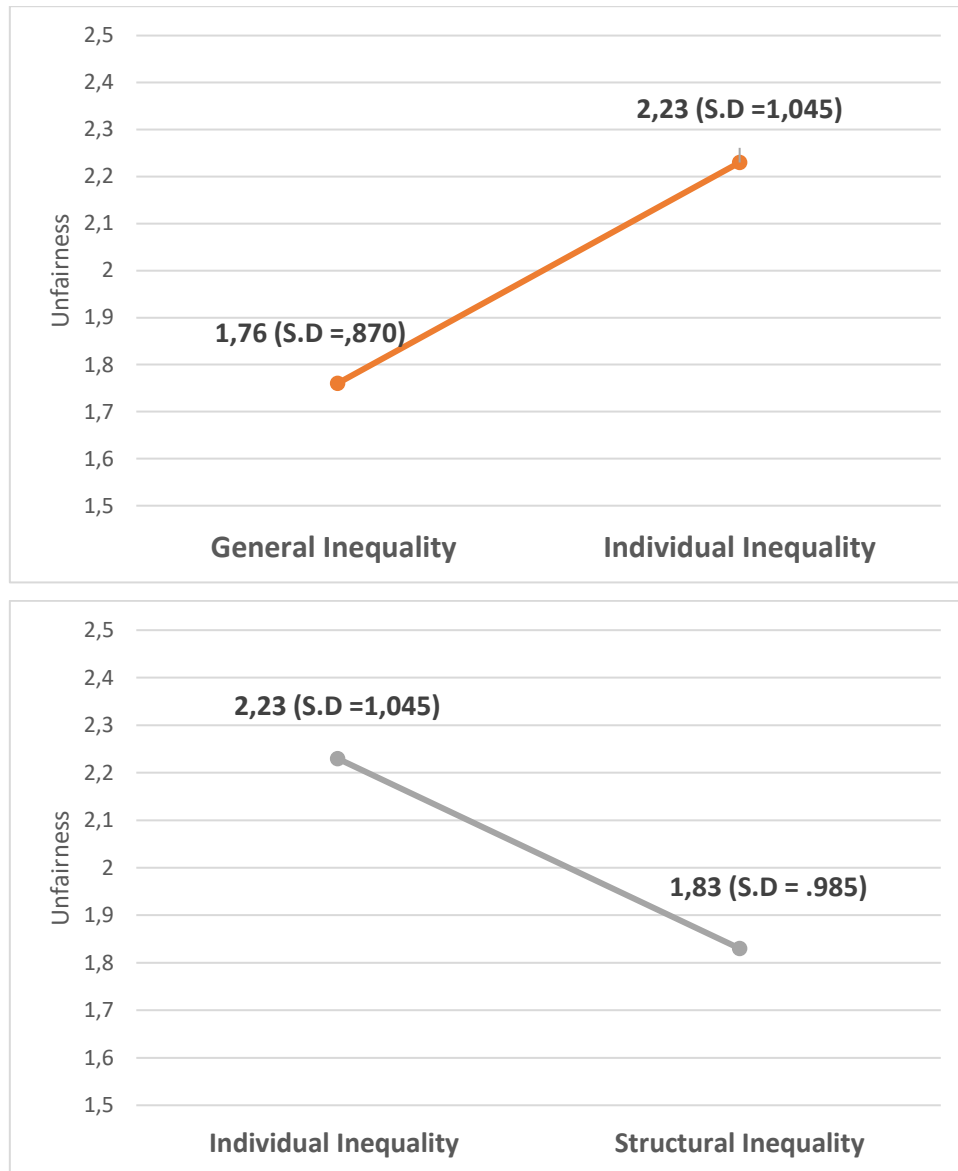
Results

Children's Fairness Judgments Across Different Types of Inequality

To examine differences in children's fairness evaluations across various types of inequality, a repeated measures ANOVA was conducted, comparing responses across three conditions: general inequality, structural inequality, and individual inequality. Gender and migratory background were included in the model as covariates; however, neither had a statistically significant effect on fairness judgments.

The results are shown in figures 1a-b. Results indicated that children judged both general inequality and structural inequality as significantly more unfair than individual inequality. Specifically, fairness ratings for general inequality were significantly lower than for individual inequality ($F(1, 70) = 584.96, p < .001, \eta^2_p = .893$), and structural inequality was also judged as less fair than individual inequality ($F(1, 70) = 417.71, p < .001, \eta^2_p = .856$). However, the difference between general inequality and structural inequality was not statistically significant ($F(1, 70) = 0.236, p = .629, \eta^2_p = .003$).

Figure 1a-b. Significant Differences in Fairness Judgments Between Inequality Conditions



Allocation Strategies Across Necessary and Luxury Resources

To further investigate children's resource allocation strategies in contexts of intergroup inequality, responses were classified into three categories: equality (equal distribution of resources between groups, Independent of the pre-existing

distribution), equity (allocating more resources to the disadvantaged group to reduce pre-existing inequality), and inequality (allocating more resources to the advantaged group, thus maintaining the disparity). These strategies were examined in relation to two types of resources: *necessary resources* (chess materials) and *luxury goods* (candies and chocolates).

When distributing necessary resources, most children adopted an equity-based strategy ($N = 35$), followed by equality ($N = 31$), and a small minority who perpetuated inequality ($N = 5$). A similar pattern emerged for luxury goods, with an even higher number of children choosing equity ($N = 32$), followed by equality ($N = 38$), and only one case of inequality.

A chi-square goodness-of-fit test was conducted to examine whether the allocation of two different types of resources—necessary and luxury—differed significantly across the three groups (Equity, Equality, Inequality). For the necessary resource, the chi-square test revealed a significant deviation from equal distribution [$\chi^2(2) = 22.243, p < .001$]. Similarly, for the luxury resource, the deviation was even more pronounced [$\chi^2(2) = 33.28, p < .001$]. This indicates that, for both types of resources, the distribution was significantly different from what would be expected under a uniform distribution.

To further examine the nature of the observed distribution, pairwise comparisons were conducted using Chi-square tests to assess differences between the three allocation conditions: *equity*, *equality*, and *inequality*. The comparison between equity and equality revealed no statistically significant difference, [$\chi^2(1) = 0.242, p = .626$] suggesting that these two principles were endorsed at comparable rates. In contrast, the comparison between equity and inequality yielded a highly significant result [$\chi^2(1) = 22.500, p < .001$] indicating that allocations reflecting *inequality* were substantially less preferred than those based on *equity*. Finally, also the comparison between equality and inequality yielded a significant result [$\chi^2(1) = 20.455, p < .001$]. These findings underscore a marked aversion to inequality and a relatively balanced preference between equity and equality among participants.

Another chi-square test was performed to assess whether there were differences between the allocation methods and the types of resources. Results revealed a significant association between allocation patterns across the two resource types, $\chi^2(4) = 36.758, p < .001$. These results suggest that children tend to apply a consistent moral principle across contexts: those who adopted an equitable or equal strategy when allocating necessary resources were likely to maintain that same approach when distributing luxury goods.

Comparison Between Allocation Strategies and Prosocial Variables

To examine the relationship between children's allocation strategies of necessary resources and prosocial variables, participants were categorized based on their resource distribution choices—equality, equity, or inequality—and compared across measures of prosociality and ethnocultural empathy. A Kruskal-Wallis test was used due to the non-parametric nature of the data. Results are illustrated in figures 2a-c.

For the prosociality variable, while differences between the inequality group and the others were not statistically significant, the comparison between the equality and equity groups reached significance ($H = 2.171, p < .01$), suggesting that children that belong to the group that distributed the resources following the equity principle were perceived as more prosocial by their teachers.

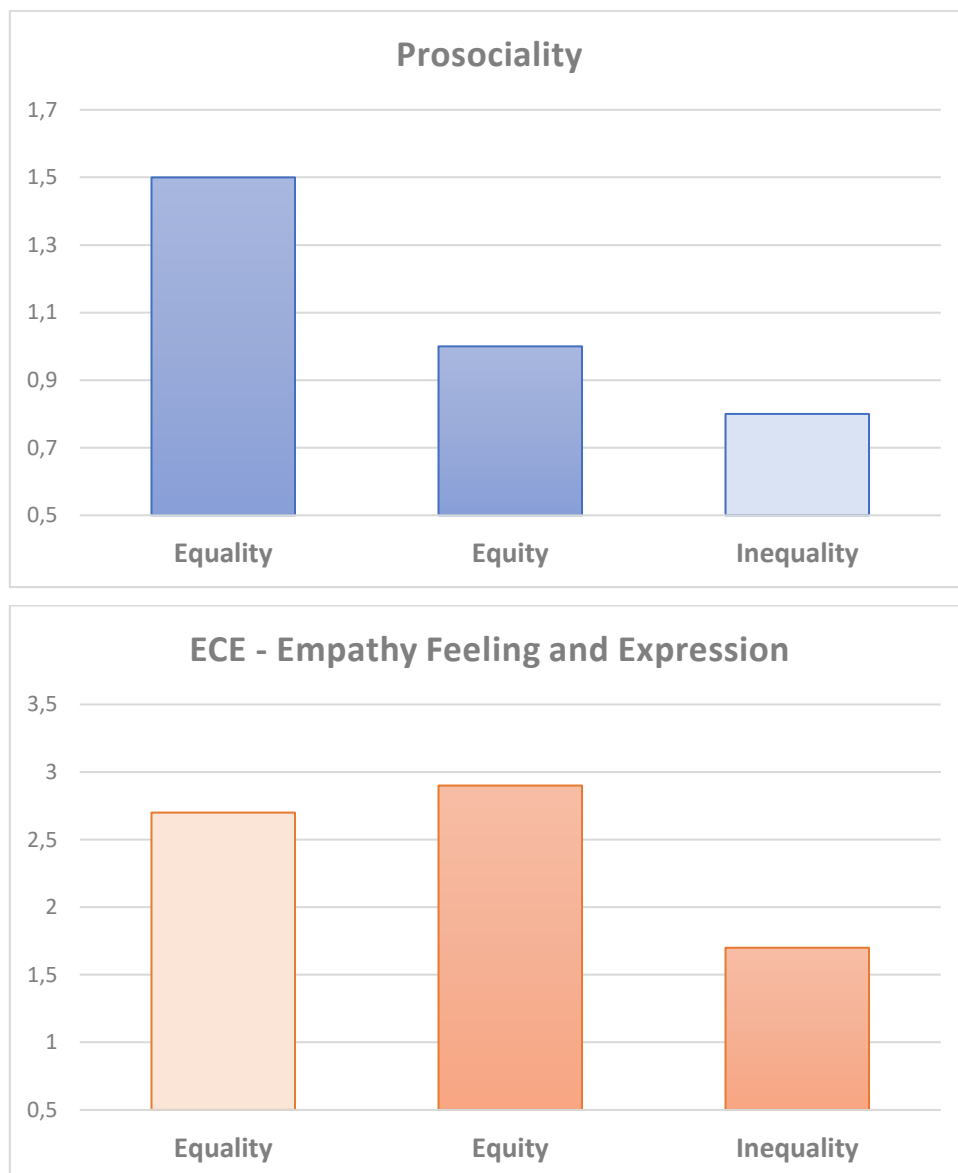
A statistically significant difference was found on the Empathic Feeling and Expression subscale of the Ethnocultural Empathy Scale between children who adopted inequality-based versus equity-based allocation strategies ($H = 2.627, p < .01$), suggesting that those who acted according to the moral principle of equity reported a stronger tendency to emotionally resonate with others and express concern towards people with different ethnocultural background compared to those who decide to perpetuate inequality.

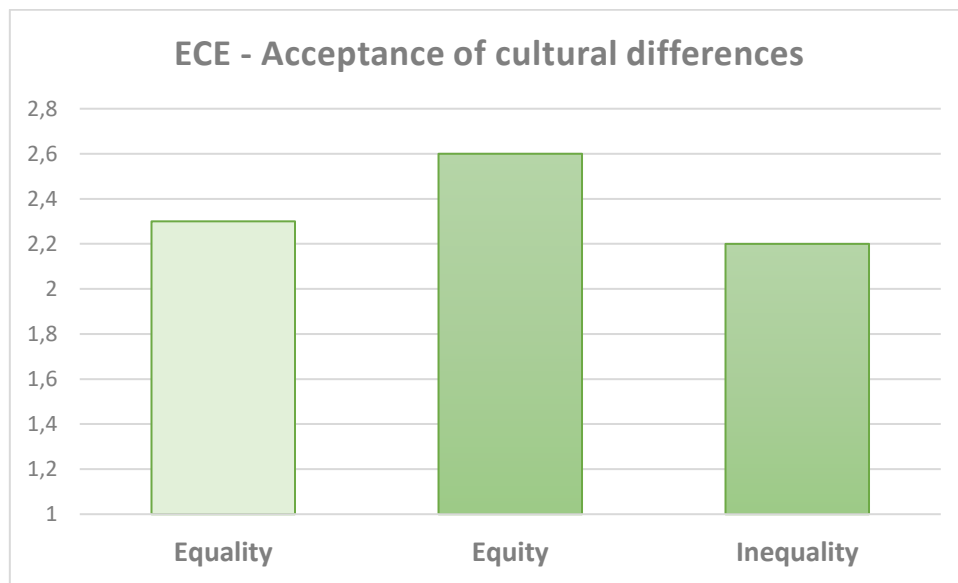
Similarly, for the Acceptance of Cultural Differences subscale, a statistically significant difference was observed between the inequality and equity groups ($H = 2.070, p < .05$). This result suggests that, once again, children who allocate

resources based on the principle of equity tend to exhibit higher levels of acceptance of cultural diversity compared to those who maintain existing inequalities.

Figure 2a-c Mean Differences in Prosocial Variables Across Allocation Strategies.

Darker colors represent significant comparisons





Discussion

The present study aimed to investigate how children morally evaluate different types of inequality and how they allocate resources in intergroup contexts, with a particular focus on whether allocation strategies are influenced by the nature of the inequality (individual vs. structural), the type of resource (necessities vs. luxuries), and group status (advantaged vs. disadvantaged). Moreover, the study explored whether different resource allocation strategies—equality, equity, or perpetuation of inequality—are associated with prosocial dispositions such as ethnocultural empathy and teacher-reported prosocial behavior.

Moral Evaluation of Different Types of Inequality

Consistent with prior literature (Elenbaas et al., 2016; Rizzo & Killen, 2020), children in this sample demonstrated greater tolerance for inequality when it was framed as individual (i.e., merit-based), as opposed to general or structurally embedded forms. This suggests an emerging sensitivity to the underlying causal architecture of inequity, wherein children begin to appreciate the normative distinctions between deserved and undeserved outcomes. Notably, however, the lack of a significant distinction between general and structural inequality

highlights a critical developmental point: while children may detect the unfairness of outcomes not attributable to personal effort, their conceptual differentiation of structural injustice—rooted in institutional bias or historical disadvantage—may still be nascent during middle childhood. This is in line with theoretical perspectives that posit a gradual integration of socio-cognitive schemas related to systemic causality and social hierarchies (Killen & Rutland, 2011; Vasilyeva & Ayala, 2019).

Allocation Strategies and Moral Reasoning in Intergroup Contexts

Children's distributive behavior was primarily characterized by equity-based allocation, particularly when existing inequalities were made salient. This finding substantiates the view that, by late childhood, many children exhibit an appreciation for contextual fairness—that is, a recognition that equal treatment may perpetuate pre-existing disadvantages, and that moral action may require compensatory distribution (Rizzo et al., 2016). The robustness of this equity orientation across both luxury and necessity resources further supports the notion that children apply moral reasoning consistently across domains, rather than calibrating it to the perceived essentialness of the good.

The Role of Resource Type: Necessities vs. Luxuries

An unexpected finding lies in the minimal differentiation between distribution decisions involving necessity versus luxury goods. While prior work has suggested that children may be more egalitarian when basic needs are at stake (Rizzo et al., 2016), the current findings indicate that many participants adhered to equity principles even when distributing non-essential items. This suggests that the perceived moral imperative to redress inequality transcends the value of the resource, aligning with models that emphasize the integration of justice reasoning with affective empathy and social identity considerations (Killen & Rutland, 2011).

Group Status and Ingroup-Outgroup Considerations

While the present study did not directly manipulate participants' own group membership, the consistent application of equity strategies—even in scenarios where the advantaged group had already received more—suggests a degree of impartiality that counters expectations of strong ingroup bias (Dunham et al., 2011; Olson et al., 2011). One possible explanation is that the moral salience of the inequality—made explicit in the task—may have overridden implicit ingroup favoritism. Alternatively, it is plausible that children's growing awareness of systemic injustice facilitated a more justice-oriented stance that transcended group boundaries. These findings underscore the importance of context in modulating group-based biases, and support SRD-based predictions that children's intergroup behavior is highly contingent on the salience of moral versus identity-related concerns.

The Link Between Moral Action and Prosocial Dispositions

A particularly compelling aspect of the findings lies in the observed association between allocation strategies and prosocial orientations. Children who adopted equity-based distributions scored higher on teacher-reported prosociality and reported greater ethnocultural empathy—particularly in the domains of emotional resonance (Empathic Feeling and Expression) and openness to diversity (Acceptance of Cultural Differences). This aligns with social-cognitive developmental theories that view moral action as deeply interwoven with socio-emotional competencies (Eisenberg, 2015) and supports the idea that empathy—especially in its culturally attuned form—functions as a motivational substrate for redressing inequality. These findings also substantiate claims that empathy is not merely a dispositional trait but a socially situated capacity that enables children to recognize and respond to injustice.

Limitations and Future Directions

Despite the contributions of the present study, several limitations should be acknowledged. First, the restricted sample size and limited age range represent methodological constraints that may affect both the statistical power and the external validity of the findings. Moreover, while the computerized task employed offered a degree of ecological validity through its narrative and visual components, it nevertheless relied on hypothetical scenarios. As such, it may not fully reflect children's real-life behaviors or decisions in actual intergroup contexts.

Another noteworthy limitation concerns the use of a single type of photographic stimulus, depicting a contrast between only two ethnic groups. This narrow representation may have limited the generalizability of the findings, potentially restricting the variety of empathic or moral responses children could exhibit. Future studies should aim to incorporate a broader range of visual stimuli, including more diverse ethnic and cultural representations, to better capture the complexity of children's moral evaluations in multicultural settings.

In addition, longitudinal approaches may help clarify the directionality and potential causal relationships between empathy-related dispositions and equity-oriented moral action. Investigating the role of contextual factors, such as school climate, parental attitudes, or peer dynamics, may also provide deeper insights into the mechanisms driving children's reasoning about fairness and group-based disparities.

Conclusions and Implications

Overall, the present findings offer valuable insights into how children navigate morally complex situations involving intergroup inequality. By distinguishing between types of inequality—particularly structural versus individual—and observing a consistent tendency toward equity-based allocation strategies, this study contributes to a more nuanced understanding of children's developing moral reasoning and its links with prosocial dispositions.

These results emphasize that even in middle childhood, children demonstrate a sophisticated awareness of fairness principles, and that their moral evaluations are not merely driven by equality or self-interest, but often reflect deeper concern for justice and the correction of group-based disadvantage. From an applied perspective, these findings reinforce the importance of promoting empathy and moral reasoning in educational settings, particularly in multicultural environments where children must frequently navigate intergroup differences. Educational programs that explicitly address structural inequality and cultural diversity may play a pivotal role in supporting the emergence of inclusive and equity-sensitive moral orientations.

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