



“From observing empathy to understanding empathy”: A film and activity based intervention to foster emotional and cognitive empathy in primary school children

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ABSTRACT

The present study aimed to examine the effectiveness of an integrated, short-term intervention program based on animated films and follow-up activities designed to enhance emotional and cognitive empathy among fourth-grade elementary school students. The study sample consisted of 37 fourth-grade students from a public elementary school, with 19 students, assigned to the experimental group and 18 to the control group. A quasi-experimental pretest–posttest control group design was employed. Prior to and following the intervention, both groups completed the KA-SI Empathy Tendency Scale (child form). The six-week intervention program involved weekly exposure of the experimental group to a short, empathy-themed animated film, followed by structured activities aimed at reinforcing empathic understanding, such as drama, role-playing, storytelling, and drawing. Quantitative data analysis techniques were used to evaluate the outcomes. The findings indicated that, following the intervention, students in the experimental group demonstrated statistically significant increases in both cognitive and emotional empathy scores compared to those in the control group. Additionally, analyses based on gender revealed that female students exhibited slightly higher empathy scores than male students. Overall, the results support the effectiveness of short, media- and activity-based intervention programs reported in the existing literature and provide exploratory evidence suggesting that brief, structured interventions may serve as a functional approach for fostering empathy development within educational settings.

1. Introduction

1.1. The concept and dimensions of empathy

Empathy is defined as the ability to recognize, understand, and share the emotions of others and is widely regarded as a core socio-emotional skill that enhances the quality of interpersonal relationships while supporting social adjustment and moral development (Bryant, 1982; Decety & Cowell, 2014). Within the psychological literature, empathy is most commonly conceptualized as comprising two primary dimensions: emotional empathy and cognitive empathy. Emotional empathy refers to an individual's capacity to vicariously experience or emotionally resonate with the feelings of others, whereas cognitive empathy denotes the ability to intellectually comprehend and evaluate others' emotional states and perspectives (Decety et al., 2018; Hua et al., 2021; Schwenck et al., 2014).

1.2. Empathy development in childhood

The development of empathy during childhood is a multifaceted process in which cognitive and affective systems mature in a dynamic interplay. Both neurobiological foundations and environmental influences play a decisive role in shaping this process (Eisenberg & Strayer, 1987). From the early stages of development, children begin to demonstrate sensitivity to others' emotional expressions. With increasing cognitive maturation and social experience, this sensitivity gradually evolves from basic emotional awareness to more advanced forms of perspective-taking (Cheng et al., 2014; Laghi et al., 2018).

Empathic capacity is built upon an innate tendency and, with age, takes on an increasingly complex structure under the influence of cognitive maturation. In infancy, empathy manifests as “emotional contagion,” an automatic and primitive response to another person's emotional state. As the developmental process progresses, these responses give way to higher-level cognitive and emotional processes such as perspective taking and sympathy. In this context, empathy is

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considered not only a response to feeling another person's emotion, but also a structure that forms the emotional basis of moral behavior (Eisenberg & Miller, 1987; Hoffman, 2000).

This multidimensional structure of empathy encompasses both emotional sharing and the ability to understand the mental state of others; these two components are supported by different but interconnected systems in the brain (Decety & Jackson, 2004). In particular, the maturation of brain regions such as the prefrontal cortex, anterior insula, and amygdala is critical for children's capacity to recognize others' emotional states and respond to them in an appropriate manner (Zaki, 2020).

However, the development of empathy is not limited to biological processes alone; it is also strongly shaped by environmental factors. Parental attitudes, attachment relationships, and social learning opportunities contribute significantly to the development of children's empathic skills; in particular, emotional responses learned through modeling reinforce the ability to recognize others' emotions and respond appropriately (Eisenberg et al., 2006; Eisenberg et al., 2015).

A growing body of research indicates that empathy skills fostered during childhood contribute to positive character development, the emergence of prosocial behaviors, and the establishment of healthy social relationships later in life (Barnett & McCoy, 1989; Eisenberg, 2007; Spinrad & Gal, 2018). For children at the elementary school level, the development of empathy plays a critical role not only in interpersonal relationships but also in academic achievement, self-regulation, and psychological well-being (Akos, 2000; Braun et al., 2020; Durlak et al., 2011; Kaspar & Massey, 2023). Accordingly, empathy has a direct influence on children's levels of engagement, cooperation, and motivation within the school context.

In conclusion, empathy development represents a dynamic process in which innate biological predispositions are interwoven with environmental and social experiences. Parenting practices, educational interventions, and social contexts that support this process constitute the foundation of individuals' lifelong emotional and social competencies.

1.3. Empathy education

Empathy training in children systematically supports the development of empathic skills, which is critical not only for individual emotional development but also for establishing healthy social relationships and strengthening social integration. Research shows that children with high levels of empathy exhibit less aggressive and extroverted behavior, show a lower tendency toward peer bullying, and more frequently adopt prosocial behaviors such as cooperation and helpfulness (Eisenberg et al., 2006; Jolliffe & Farrington, 2006). These findings highlight the importance of addressing empathy education in a planned and structured manner from an early age.

Empathy education refers to structured instructional approaches designed to foster emotional awareness, perspective-taking, and prosocial behavior skills in children (Schonert-Reichl et al., 2012). Traditionally, empathy education has sought to strengthen children's perspective-taking abilities and emotional awareness through methods such as drama, storytelling, role-playing, and film-based learning (Muravevskaia et al., 2024; Ornaghi et al., 2014).

Theoretical perspectives proposed by Bandura and Evans also occupy an important place in discussions of methods and techniques applicable to empathy education. However, these approaches are not directly included to explain empathy development; instead, they are incorporated as complementary pedagogical frameworks that support the learning rationale underlying film- and activity-based empathy education programs. In this regard, Bandura's (1986) Social Cognitive Learning Theory posits that individuals can learn and internalize others' emotional responses through observation and imitation. This theoretical framework provides a strong justification for the use of film-based media in empathy education, as films visually model emotions and social responses that children can observe, imitate, and internalize.

Conversely, Evans's (2008) Dual-Process Theory suggests that learning processes operate through both fast, automatic emotional responses and slower, cognitively mediated evaluative mechanisms. The integration of these two theoretical perspectives supports the notion that combining film-based and activity-based instructional approaches may be more effective in promoting the development of empathy.

Given the central role of childhood in shaping empathic capacities, educators and researchers have increasingly turned toward designing school-based approaches aimed at deliberately fostering empathy at early ages. Among the methods that can be employed within such designs, animated films stand out as practical tools for emotional communication due to their engaging visual narratives and story-based structures (Chapman, 2019; Parmar et al., 2022). In particular, emotions experienced by film characters—such as joy, happiness, sadness, and fear—help children recognize and make sense of their own emotional experiences (Habib & Soliman, 2015).

Moreover, animated films, through their capacity to educate while entertaining, provide children with opportunities to observe diverse emotional states and model appropriate emotional responses. This modeling function contributes to the development of empathic abilities by enabling children to interpret emotional cues and respond in socially meaningful ways (Friesem, 2016; Slovák & Fitzpatrick, 2015).

In addition, activities such as creative drama, role-playing, storytelling, drawing, and creative writing are widely recognized for their significant contributions to the development of empathy skills. For instance, creative drama and role-playing techniques offer children opportunities to experience diverse perspectives and reflect on what others might be feeling (Muravevskaia et al., 2024; Sindre et al., 2018). Through these concrete experiential practices, drama and role-playing facilitate the development of empathy. At the same time, storytelling, creative writing, and drawing enable children to express and reflect upon these experiences through language and imagination. Accordingly, empathy education moves beyond being a purely cognitive process of understanding and becomes a holistic learning experience reinforced by emotional engagement.

1.4. School-based empathy studies in Turkey and the international context

A review of the literature indicates that school-based empathy development studies conducted in Turkey have predominantly relied on classroom practices grounded in drama or storytelling, whereas film-based materials have been used to a limited extent (Çetin & Aytar, 2012; Erk & Öner Sünkür, 2024; Gürsoy, 2021; Yüksel, 2004). In contrast, recent international research suggests that film-based, multi-modal interventions have emerged as increasingly promising tools for promoting social-emotional learning (Aini & Rini, 2024; Fan et al., 2021; Lankhuizen, 2025).

Globally, empathy education is increasingly recognized as a central component of social-emotional learning (SEL) frameworks (Malti et al., 2016; Meyers et al., 2019). In particular, programs such as Roots of Empathy in Canada, Empathy Studios across Europe, and SEE Learning (Social, Emotional, and Ethical Learning) in the United States, as well as multimedia-based interventions implemented in Italy and Spain, highlight the potential of integrating visual media with active learning to promote empathy (Grazzani, 2024; Schonert-Reichl et al., 2012; Tarvainen et al., 2015).

However, much of the existing evidence derives from Western educational contexts, and research examining comparable integrative models in non-Western settings remains limited. In collectivist cultural contexts such as Turkey, emotional expressions are known to be more tightly regulated by social norms, and empathic responses are often shaped by gender roles (Semiz Türkoğlu & Türkoğlu, 2022; Trommsdorff, 2012). This cultural configuration renders the examination of empathy education through culturally specific pathways both theoretically and practically necessary.

1.5. Present study

The primary aim of this study is to examine the effectiveness of an integrated, school-based intervention program grounded in film and activity-based practices and designed to enhance emotional and cognitive empathy among elementary school children concurrently. Accordingly, the study conceptualizes empathy not merely as an emotional reaction or a cognitive skill, but as a multidimensional construct addressed through a multimodal instructional approach that simultaneously targets both components, and seeks to determine the effects of this approach on children's levels of empathy.

Although the literature includes a substantial number of studies on empathy education, a considerable proportion of this research focuses exclusively on either emotional or cognitive empathy. At the same time, interventions that address both components within a holistic framework remain limited. This gap underscores the growing need for intervention models that integrate both observational and experiential learning processes to effectively support the development of empathy.

The significance of the present study lies in its integration of social-cognitive and experiential learning approaches by combining observation-based (film) and action-based (activity) components within a unified framework. From an applied perspective, the program offers a model that is implementable by teachers in standard classroom settings, replicable, culturally adaptable, and low in cost. Accordingly, the study may be regarded as an original example of a school-based intervention that supports empathy development by jointly addressing cognitive and emotional processes.

2. Method

2.1. Research design

This study employed a quasi-experimental pretest–posttest control group design to investigate the effects of an intervention program designed to support the development of empathy among elementary school students. While students in the experimental group participated in a six-week program designed to foster empathy, students in the control group continued with their regular curriculum during the same period. They did not receive any specific empathy-focused intervention.

The research design was structured as a 2 (Group: Experimental/Control) $\times$ 2 (Time: Pretest/Posttest) mixed design. Due to administrative and ethical constraints, it was not deemed feasible to assign individual students randomly; therefore, intact classrooms were assigned to the experimental and control conditions rather than individual students. For this reason, the study was classified as exploratory in nature and employed a quasi-experimental research design. Exploratory studies are typically used in contexts where a given phenomenon has not yet been sufficiently investigated or where validated measurement instruments are limited, to identify new variables and relationships (Stebbins, 2001). Within this framework, the present study does not aim to establish definitive causal inferences but rather to provide preliminary evidence that may inform future, large-scale, and entirely experimental research (Creswell & Plano Clark, 2018).

Recognizing the inherent limitations of this design—particularly potential confounding effects at the classroom or teacher level—a range of methodological precautions was implemented to strengthen internal validity. Both classes followed the same instructional schedule and were matched in terms of teacher experience, class size, and socioeconomic characteristics. In addition, the researcher provided standardized implementation guidelines for all sessions and monitored procedural fidelity throughout the intervention.

Although quasi-experimental designs are limited in their capacity for causal inference due to the absence of complete randomization, they are widely employed in educational research to examine intervention effects while preserving natural classroom conditions and ecological validity (Creswell, 2012; Shadish et al., 2002). Accordingly, despite the lack of

random assignment, methodological rigor was maintained through the use of matched classrooms and controlled implementation conditions.

To assess the effectiveness of the program, the KA-SI Empathy Tendency Scale (Child Form) was administered to students in both groups at the beginning and end of the intervention period. By collecting and comparing quantitative data across measurement points, the study examined whether the changes in empathy levels associated with the intervention were statistically significant. Such classical experimental and quasi-experimental designs are commonly used in educational research to evaluate intervention effects with acceptable levels of internal and external validity (Creswell, 2012).

2.2. Study group

Prior to defining the study sample, a power analysis was conducted using GPower to determine the required sample size. In this process, effect sizes were estimated based on findings reported in comparable studies conducted by Yüksel (2004) and Yılmaz-Bingöl and Uysal (2015). The analysis indicated that, assuming a Cohen's *d* effect size of 1.19, an alpha level of 0.05, and a statistical power of 0.80, each of the experimental and control groups should include a minimum of 13 participants (i.e., a total of at least 26 participants). The noncentral *t*-distribution plots generated by the GPower analysis are presented in Fig. 1.

Following the determination of the sample size, a total of 37 students enrolled in two independent fourth-grade classrooms of a public elementary school located in the central district of Kırşehir province, Turkey, were deemed eligible to participate in the study. The selection of fourth-grade students was based on the recognition that this developmental period represents a critical stage for the emergence and consolidation of both emotional and cognitive empathy in children (Decety & Jackson, 2004; Hoffman, 2000). In addition, the choice of this age group was informed by the fact that the KA-SI Empathy Tendency Scale (Child Form) has demonstrated established validity and reliability for students at the third- and fourth-grade levels (Kaya & Siyez, 2010).

The school was selected from the provincial public school directory based on convenience criteria, including administrative approval, accessibility, and comparable socioeconomic neighborhood conditions. Because the intervention was designed to be implemented at the classroom level, students were assigned within their existing class structures rather than through individual randomization. Accordingly, a quasi-experimental pretest–posttest control group design was adopted. One of the intact classrooms was assigned to the experimental group ($n = 19$; 11 girls, 8 boys), and the other to the control group ($n = 18$; 10 girls, 8 boys).

Participation in the study was voluntary and followed an informational meeting attended by students, teachers, and parents from both classrooms. As all students in both classrooms agreed to participate, the participation rate was 100%. Prior to data collection, written informed consent was obtained from parents, and all necessary approvals were secured from the school administration. No financial incentives were provided. The intervention was implemented during the second academic term of the school year (April–May). The pretest was administered one week prior to the start of the program (first week of April), and the posttest was administered following the completion of the intervention (last week of May).

Inclusion criteria required that students demonstrate regular school attendance and have no officially identified learning or developmental disorders, as reported by their teachers. Intervention sessions were conducted outside regular class hours under the supervision of the classroom teacher and with oversight from the researcher. During the same period, students in the control group continued their usual classroom activities without exposure to any empathy-specific content.

Assigning the two intact classrooms as experimental and control groups aimed to control for potential confounding variables through comparable classroom environments and instructional consistency, thereby supporting the validity of the quasi-experimental design.

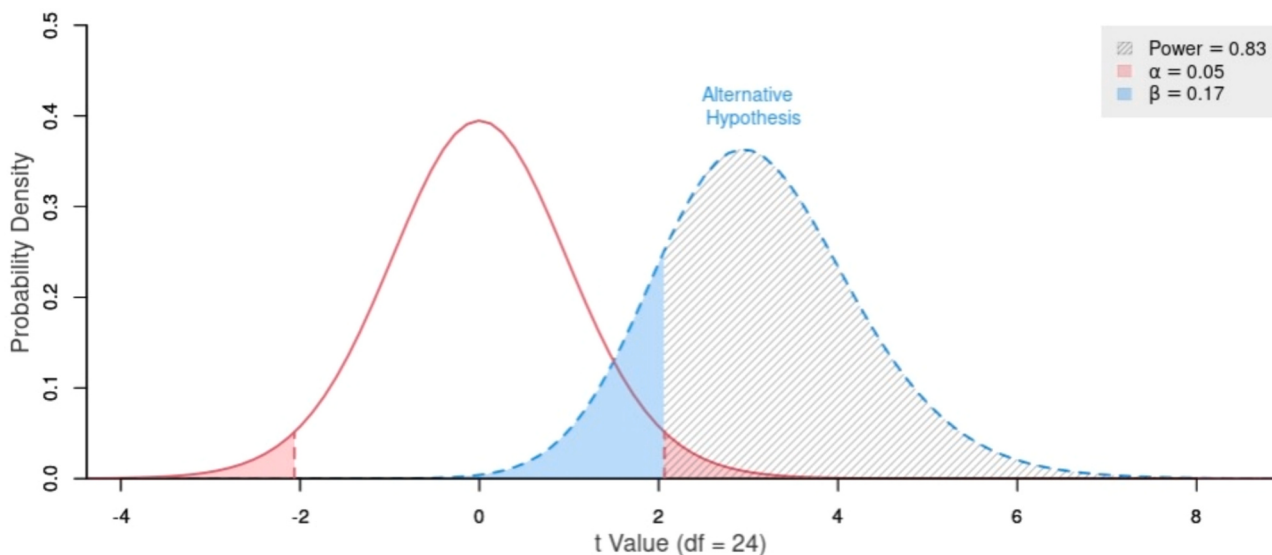


Fig. 1. Noncentral t-distributions derived from the GPower analysis for determining sample size.

Although the sample size was relatively small, this structure allowed for intensive observation and close monitoring of the intervention process.

2.3. Data collection instrument

Data were collected using the KA-SI Empathy Tendency Scale (Child Form), developed by Kaya and Siyez (2010) to assess empathic tendencies among third- and fourth-grade students. The scale consists of 13 items organized into two dimensions: emotional empathy, measured by 7 items (example item; “I feel sad when a friend of mine is treated unfairly”), and cognitive empathy, measured by 6 items (example item; “I can understand how my friend who was left alone feels”). It is a four-point Likert-type scale, with total scores ranging from 13 to 52. Higher scores indicate higher levels of empathic tendency. The Cronbach's alpha coefficients for the scale are as follows: Emotional Empathy Pre-Test = 0.68, Cognitive Empathy Pre-Test = 0.50, Total Scale Pre-Test = 0.74, Emotional Empathy Post-Test = 0.86, Cognitive Empathy Post-Test = 0.82, Total Scale Post-Test = 0.92. The scale was found to demonstrate a high level of reliability, particularly in the post-test application. However, it can be said that the pre-test showed a relatively low level of internal consistency only in the cognitive empathy subscale (0.50), but this level is tolerable in exploratory measurements (George & Mallery, 1999).

2.4. Data analysis

The analysis process began with an examination of potential influential cases in the dataset. Cook's distance values (Cook's Distance < 1) and leverage values (Leverage < 2 k / n) were calculated for all participants, and all observations were found to fall within acceptable limits. In addition, standardized residuals were inspected, revealing that no participant had values exceeding ± 3 . In the present study, outliers were defined as observations located more than ± 3 standard deviations from the mean; based on these criteria, no extreme or outlying values were identified. Consequently, no data were excluded, and all analyses were conducted using the complete dataset.

Next, the assumption of normality was evaluated. Skewness and kurtosis coefficients, along with their standard errors, were used to compute z values, which were then examined to determine whether they fell within the ± 1.96 range. The results indicated that all variables were normally distributed, thereby satisfying the assumptions required for the use of parametric statistical analyses (Tabachnick & Fidell, 2020).

After confirming the normality assumption, an Analysis of

Covariance (ANCOVA) was conducted to compare posttest empathy levels between the experimental and control groups in line with the primary aim of the study. In the ANCOVA model, posttest scores were treated as the dependent variable, group (experimental/control) as the independent variable, and pretest scores as the covariate. The inclusion of pretest scores as a covariate aimed to statistically control for potential baseline differences between groups and to strengthen internal validity. This approach enabled a more accurate assessment of whether the observed group differences could be attributed to the intervention. Using pretest scores as covariates is a commonly recommended strategy in quasi-experimental research to statistically equate initial group differences and provide a more reliable estimate of the independent variable's effect (Field, 2013; Tabachnick & Fidell, 2020).

Prior to conducting the ANCOVA, the assumption of homogeneity of variances was tested using Levene's test. The results indicated that the variances were homogeneous ($p > .05$). During the covariance analysis, results were evaluated based on model significance, effect size (η^2), and statistical power (observed power). To reduce the risk of Type I error in multiple comparisons, the Bonferroni adjustment was applied. All statistical analyses were performed using SPSS version 21, with a significance level set at $p < .05$ (Büyükoztürk, 2024).

2.5. Intervention procedure

A six-week intervention program was implemented with students in the experimental group under the supervision of their classroom teachers and with overall coordination by the researcher. The selection of this duration was informed by evidence from prior comparable studies (e.g., Lankhuizen, 2025; Raz & Hendler, 2014; Zupan & Babbage, 2017), which demonstrated measurable increases in children's empathy levels. Additionally, the six-week timeframe aligned well with the school calendar and instructional workload, facilitating practical implementation while allowing for meaningful learning experiences to occur without inducing cognitive fatigue among students. Accordingly, the selected duration represented a balanced structure between theoretical considerations and practical constraints.

During the development of the program, a systematic review of the literature on the development of emotional and cognitive empathy in children was conducted, and preliminary selections of films and activities to be included in the intervention were made. The researcher initially shortlisted a total of 10 short animated films and subsequently evaluated them in collaboration with two subject-matter experts. Through consensus, six short animated films—three domestic (Turkish)

and three international—were identified as suitable for inclusion in the study.

The criteria for film selection included a duration of 5 to 15 min, content suitability for elementary school children, relevance to reinforcing both cognitive and emotional aspects of empathy, and availability for public viewing on YouTube without copyright restrictions. In terms of language accessibility, films included Turkish-dubbed versions, subtitled versions, and silent films.

Following each film viewing, creative activities were incorporated into the program to reinforce empathy and emotional awareness, aligning with the film's central theme. These activities included creative drama, role-playing, storytelling, emotion mapping, emotion circles, emotion balloons, drawing, and creative writing. The selection of post-film activities was likewise determined through consultation with the same two experts, and consensus was reached regarding their appropriateness. Summary information regarding the films selected for the study, along with the corresponding post-film activities, is presented in Table 1.

Table 1 presents six animated films with a combined total duration of 61 min. As shown in the table, three of the selected films are Turkish productions, and all films were released between 2014 and 2020. Additionally, the table outlines the activities to be implemented after screening each film. Taken together, these considerations indicate that the selection was appropriate in terms of overall duration, cultural sensitivity, recency of release years, and the alignment between each film and its corresponding post-viewing activities.

3. Findings

3.1. Preliminary analyses

Prior to conducting inferential analyses, the assumptions of normality and homogeneity of variance were examined. To assess whether the data met the assumption of normal distribution, the skewness and kurtosis coefficients for the emotional and cognitive empathy dimensions were analyzed, and the results were evaluated using z-scores. The findings obtained from these analyses are presented in Table 2.

Based on the z values calculated using the findings presented in Table 2, the skewness and kurtosis coefficients for the four variables included in the study, when standardized by their respective standard errors, fall within the ± 1.96 range. This pattern indicates that the data are typically distributed at the 95% confidence level. In particular, the skewness z-values for the pretest and posttest scores of the emotional and cognitive empathy scales range between -1.84 and 1.45 , while the

kurtosis z-values range from -1.64 to 0.08 . The fact that all values remain within the ± 1.96 threshold suggests that the data do not exhibit significant deviations from normality and are therefore suitable for the application of parametric statistical tests (Tabachnick & Fidell, 2020).

After verifying the standard distribution assumption, the analysis proceeded to the application of Analysis of Covariance (ANCOVA) to examine the effects of the intervention program, titled “From Observing Empathy to Understanding Empathy” on the emotional and cognitive empathy levels of fourth-grade elementary students. The Levene Test was used to determine the assumption of variance homogeneity prior to analysis. The results obtained indicate that the assumption of variance homogeneity, one of the basic assumptions of covariance analysis, is satisfied ($p > .05$). In this case, there is no statistical obstacle to continuing with covariance analysis for both variables.

3.2. Effects of the intervention program on emotional and cognitive empathy

An Analysis of Covariance (ANCOVA) was conducted to examine the effects of the six-week empathy education program on students' levels of emotional and cognitive empathy. After confirming that the analysis assumptions were met, the ANCOVA procedure was carried out to evaluate the effects of the intervention program, titled “From Observing Empathy to Understanding Empathy” on the emotional and cognitive empathy levels of fourth-grade elementary students.

Within this framework, posttest scores were treated as the dependent variable, group membership (experimental vs. control) as the independent variable, and pretest scores as the covariate. The results of the ANCOVA are presented in Table 3.

The results of the Analysis of Covariance (ANCOVA) revealed that the intervention program, titled “From Observing Empathy to Understanding Empathy” had a statistically significant effect on the levels of both emotional and cognitive empathy in fourth-grade elementary students. For posttest emotional empathy scores, after controlling for pretest scores as a covariate, the effect of group membership (experimental vs. control) was found to be statistically significant, $F(1, 34) = 80.395$, $p < .001$. The effect size was substantial ($\eta^2 = 0.703$), and the model accounted for 87.8% of the total variance. These findings indicate that the intervention program was highly effective in enhancing students' emotional empathy levels.

Similarly, the ANCOVA conducted for posttest cognitive empathy scores yielded a significant group effect, $F(1, 34) = 107.763$, $p < .001$. The associated eta squared value ($\eta^2 = 0.760$) indicates a large effect size, and the model explained 83.6% of the total variance. In both analyses, the observed power was exceptionally high (Observed Power =

Table 1
List of films and activities.

Week	Film Title	Country / Year	Duration	Director	Synopsis	Empathy Theme	Post-Film Activity
1	Children's Aslan Empathy Room Story	Turkey, 2020	10 min.	Erdem Çocuk & Türkan Çolak	Aslan and his friends try to understand others' emotions through the “Empathy Room.”	Recognizing emotions; perspective-taking	Creative drama: Empathy Room role-play; Group discussion: Seeing through others' eyes
2	Nasreddin Hodja: Time Traveler	Turkey, 2019	11 min.	Mustafa Murat Boyacı	Nasreddin Hodja's children embark on a time-travel journey to foster empathy between the past and present.	Cultural and intergenerational understanding	Creative drama: Dialogue with the main character; Emotional balloon activity
3	Rafadan Tayfa – Put Yourself in Their Shoes	Turkey, 2018	14 min.	İsmail Fidan	Children try to understand their friends' feelings.	Empathic bonding; recognizing peer emotions	Emotion circle: Peer emotion mapping
4	Cuerdas	Spain, 2014	10 min.	Pedro Solís García	María is friends with a classmate with a disability and helps him.	Empathy toward disability; inclusion	Disability simulation; Creative writing: A letter to María
5	Umbrella	Brazil, 2019	8 min.	Helena Hilario & Mario Pece	A touching story about our fan Joseph's emotional journey into his past.	Recognizing unspoken emotions	Umbrella-themed drama and drawing; Storytelling: “If I were Joseph...”
6	Lou	USA, 2017	8 min.	Dave Mullins	Lou helps transform a child who bullies others.	Effects of bullying; transformation through empathy	Role-playing: “What if I lost my belongings?” Creative writing: “If I were J.J.”

Table 2

Normality assumption for emotional and cognitive empathy cores.

Measure	N	M	SD	Skewness	SE (Skewness)	Kurtosis	SE (Kurtosis)
Emotional Empathy Pretest	37	21.11	3.09	-0.17	0.39	-0.11	0.76
Emotional Empathy Posttest	37	23.24	3.72	-0.72	0.39	0.04	0.76
Cognitive Empathy Pretest	37	17.89	2.30	0.56	0.39	0.06	0.76
Cognitive Empathy Posttest	37	20.35	3.17	-0.35	0.39	-1.24	0.76

N = number of participants; M = mean; SD = standard deviation; SE = standard error.

Table 3

Effects of the “from observing empathy to understanding empathy” intervention program on emotional and cognitive empathy levels of fourth-grade students.

DependentVariable	Source	Sum of Squares	df	MeanSquare	F	p	η^2	Power (1- β)
Emotional Empathy Posttest	Adjusted Model	436.097	2	218.049	122.109	0.000*	0.878	1.000
	Intercept	44.288	1	44.288	24.801	0.000*	0.422	0.998
	Pretest (Covariate)	161.520	1	161.520	90.452	0.000*	0.727	1.000
	Group	143.561	1	143.561	80.395	0.000*	0.703	1.000
	Error	60.714	34	1.786				
	Total	20,486.000	37					
	Adjusted Total	496.811	36					
Cognitive Empathy Posttest	Adjusted Model	302.998	2	151.499	86.667	0.000*	0.836	1.000
	Intercept	64.093	1	64.093	36.665	0.000*	0.519	1.000
	Pretest (Covariate)	50.355	1	50.355	28.806	0.000*	0.459	0.999
	Group	188.378	1	188.378	107.763	0.000*	0.760	1.000
	Error	59.434	34	1.748				
	Total	15,687.000	37					
	Adjusted Total	362.432	36					

* = $p < .05$.

1.000), suggesting that the sample size was sufficient to detect the observed effects. Overall, the results demonstrate that the From Observing Empathy to Understanding Empathy intervention program led to significant improvements in both emotional and cognitive empathy. The mean scores of the experimental and control groups are illustrated in Fig. 2.

Fig. 2 indicates that, for emotional empathy, the experimental group's mean pretest score ($M = 22.00$) increased substantially at posttest ($M = 25.89$). In contrast, the control group exhibited only a marginal increase in emotional empathy, with mean scores rising from $M = 20.17$ at pretest to $M = 20.44$ at posttest.

Similarly, for cognitive empathy, the experimental group's mean pretest score ($M = 18.42$) increased significantly at the posttest ($M = 22.89$). By comparison, the control group's cognitive empathy scores remained largely stable, with a minimal change from $M = 17.33$ at pretest to $M = 17.67$ at posttest.

Overall, the experimental group demonstrated substantial gains in both emotional and cognitive empathy, whereas changes observed in the control group were minimal. These findings suggest that the From Observing Empathy to Understanding Empathy program may be effective in enhancing empathy levels among students in the experimental group.

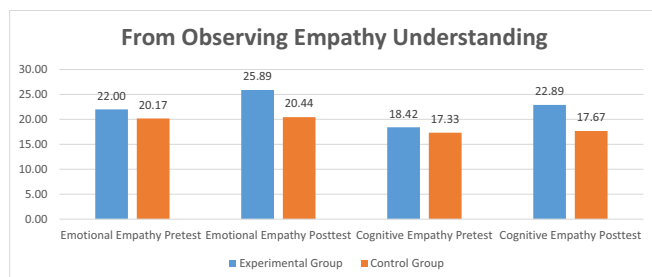


Fig. 2. Effectiveness of the from observing empathy to understanding empathy program.

3.3. Findings related to gender

To examine whether emotional and cognitive empathy scores differed by gender among members of the experimental and control groups, participants were recorded by gender, yielding four groups. To determine gender-based differences in pretest and posttest scores across these groups, parametric analyses were conducted using One-Way Analysis of Variance (ANOVA). Prior to the analyses, the assumptions were evaluated through Levene's Test of Homogeneity of Variances.

Inspection of Levene's test results indicated that variances were not homogeneous for posttest emotional empathy and posttest cognitive empathy scores ($p < .05$). In contrast, variance homogeneity was satisfied for pretest emotional empathy and pretest cognitive empathy scores. In cases where the assumption of homogeneity of variances was violated, the Games–Howell post hoc test was employed for multiple comparisons.

Accordingly, One-Way ANOVA was applied to examine whether pretest and posttest scores of the experimental and control groups differed by gender. The results of these analyses are presented in Table 4.

According to the findings presented in Table 4, one-way analyses of variance (ANOVA) were conducted on pretest and posttest scores across four groups (Experimental Female, Experimental Male, Control Female, Control Male) to examine whether emotional and cognitive empathy levels differed as a function of gender and group membership. For emotional empathy pretest scores, no statistically significant differences were observed among the groups, $F(3,33) = 1.81, p = .164$. In contrast, a statistically significant group difference emerged for emotional empathy posttest scores, $F(3, 33) = 15.739, p < .001$.

Similarly, no significant differences were found among the groups for cognitive empathy pretest scores, $F(3, 33) = 1.614, p = .205$. However, the analysis revealed a significant difference in cognitive empathy posttest scores across groups, $F(3, 33) = 28.249, p < .001$. Taken together, these results indicate that differences in empathy levels became evident primarily at posttest, reflecting variations associated with both group assignment and gender.

Table 4

Differences in pretest and posttest scores of the experimental and control groups by gender.

	Group	N	Ort.	SS.	F	p	Fark
Emotional Empathy Pretest	A	11	21,545	2207	1811	,164	
	B	8	22,625	3583			
	C	10	20,900	2470			
	D	8	19,250	3808			
Emotional Empathy Posttest	A	11	26,455	1293	15,739	,000*	A > C
	B	8	25,125	2100			A > D
	C	10	21,100	2331			B > C
	D	8	19,625	3926			B > D
Cognitive Empathy Pretest	A	11	19,091	2548	1614	,205	
	B	8	17,500	2507			
	C	10	17,600	1897			
	D	8	17,000	1852			
Cognitive Empathy Posttest	A	11	23,455	,820	28,249	,000*	A > C
	B	8	22,125	1808			A > D
	C	10	17,700	2214			B > C
	D	8	17,625	1996			B > D

A = Experimental Group Female, B = Experimental Group Male, C = Control Group Female, D = Control Group Male.

* = $p < .05$.

4. Discussion

The primary aim of this study was to examine the effects of an intervention program titled “From Observing Empathy to Understanding Empathy” which integrates short animated films with complementary activities, on the emotional and cognitive empathy levels of fourth-grade elementary students. Pretest and posttest assessments conducted before and after the six-week implementation period indicated that students in the experimental group demonstrated significant increases in both emotional and cognitive empathy. These findings provide exploratory evidence suggesting that short-term, structured, and multimethod interventions effectively support the development of empathy in children.

The results are consistent with prior research, which demonstrates that visual- and activity-based programs can enhance children's empathic understanding and prosocial behaviors (Aini & Rini, 2024; Friesem, 2016; Garandeau et al., 2022; Grazzani, 2024). Film-based interventions, in particular, have been shown to facilitate children's identification with characters and the internalization of emotional experiences by integrating narrative flow with mechanisms of emotional resonance (Coulombe et al., 2019; Fan et al., 2021; Tonks et al., 2009).

In addition, the present study offers preliminary support for the applicability of Bandura's (1986) Social Learning Theory within educational contexts. The findings highlight the importance of observation, modeling, and reinforcement processes in promoting empathic understanding and prosocial behavior. In this regard, watching empathy-themed short films allowed students to observe the emotions, behaviors, and consequences of characters, thereby enabling them to model empathic responses (Bussey & Bandura, 1999). The post-film activities—such as drama, role-playing, and storytelling—further supported the translation of observational learning into behavioral expression. Indeed, Hoffman (2000) and Decety and Jackson (2004) conceptualize empathy development as grounded in social-cognitive mechanisms that are reinforced through observational learning processes.

The holistic, film- and activity-based approach implemented in this study is also consistent with evidence derived from Evans's (2008) Dual-

Process Theory regarding the mechanisms underlying learning processes. Accordingly, integrating the core principles of Bandura's (1986) Social Learning Theory and Evans's (2008) Dual-Process Theory may offer a more effective framework for designing content in empathy education programs.

Another important finding of the present study is that short-term intervention programs can be effective in empathy education. This finding aligns with prior research demonstrating the effectiveness of brief interventions in fostering empathy. Raz and Hendler (2014) reported that structured, short animated film- and activity-based programs designed to enhance both the cognitive and affective components of empathy stimulate children's perspective-taking and emotional resonance skills, while also facilitating the processing of emotional stimuli in memory. Similarly, Lankhuizen (2025) emphasized that short, film-based interventions enhance student engagement and strengthen the retention of emotional content in emotional memory. This effect may be explained by the capacity of short films and animations to elicit “emotional resonance” and “observer perspective-taking,” thereby facilitating identification with film characters and supporting the learning of empathic responses in children (Coulombe et al., 2019; Fan et al., 2021; Tonks et al., 2009). Zupan and Babbage (2017) further noted that short films and video clips evoke stronger emotional responses than static images, suggesting that their integration into intervention programs may yield additional benefits.

Overall, the findings suggest that low-cost, teacher-led programs that integrate observation, reflection, and creative engagement represent a practical and feasible option for educational settings. This is particularly advantageous in contexts where implementing long-term or resource-intensive programs is challenging.

Another finding of this study is the differences obtained in the context of gender. According to the findings; while no significant difference was found in the pre-test scores for emotional and cognitive empathy in terms of gender, a statistically significant difference in favor of girls was found in the post-test scores for both emotional empathy and cognitive empathy. It was observed that the post-test scores of female students in the experimental group for both cognitive and emotional empathy were higher than the post-test scores of male students for emotional and cognitive empathy. However, this difference is limited. Furthermore, the sample size and study design necessitate that these results be interpreted cautiously without generalizing.

Consistent with the present results, several studies conducted in Turkey (Çetin & Aytar, 2012; Şakar, 2020; Topcu & Erdur-Baker, 2012; Yüksel, 2004; Yurdakul et al., 2021) have similarly reported higher empathy scores among female students. The broader literature suggests that girls tend to display greater sensitivity in empathic responses. This pattern has been associated with a combination of biological differences, social learning processes, cultural norms, parenting practices, and gender role socialization (Bussey & Bandura, 1999; Chaplin et al., 2005; Eisenberg & Strayer, 1987; Fortier et al., 2018; Hua et al., 2021; Löffler & Greitemeyer, 2021; Rochat, 2023).

5. Conclusion

The present study demonstrates that holistic, film- and activity-based intervention programs can support the development of empathy among elementary school children. The findings provide exploratory evidence indicating that short-term, structured interventions can strengthen both the emotional and cognitive dimensions of empathy, promoting children's social-emotional development within educational settings. In addition, the results provide preliminary support for the applicability of Bandura's Social Learning Theory in educational contexts, underscoring the role of observation, modeling, and reinforcement processes in fostering empathetic understanding and prosocial behavior.

Minor gender-related differences were observed within the scope of the study, with female students exhibiting slightly higher empathy scores than their male peers. However, given the modest magnitude of

these differences and the limited sample size, the findings should not be interpreted as generalizable. Rather than reflecting a fixed gender effect, this observed pattern may be associated with contextual or developmental factors that influence how girls and boys engage with empathy-focused activities. Accordingly, future research employing larger and more diverse samples would be valuable in elucidating the mechanisms underlying these differences.

Overall, the results suggest that multimodal, low-cost pedagogical interventions that integrate observational activities with creative modes of expression provide practical and feasible tools for teachers. Such culturally grounded, experiential learning-based models can be adapted to diverse classroom contexts and aligned with local values and instructional practices to support the effective development of empathy.

6. Contributions, limitations, and future directions

6.1. Contributions

The findings of this study offer important practical contributions for teachers, school counselors, and program developers seeking to promote empathy and social-emotional learning at an early age. Integrating short, structured film-based activities with creative and experiential exercises provides an engaging and developmentally appropriate pathway for enhancing both emotional awareness and the ability to understand others' perspectives in children.

Because the program requires minimal materials and limited teacher training, it can be readily implemented across diverse classroom settings, including schools with constrained resources. Moreover, by encouraging reflective discussions and emotional expression, the model has the potential to strengthen classroom relationships and contribute to improvements in the overall school climate. Adapting this culturally grounded, multimodal intervention model to national social-emotional learning (SEL) curricula may further support the development of essential life skills, such as emotional literacy and empathy, among children.

6.2. Limitations and future directions

This study has several limitations that should be acknowledged. First, the relatively small sample size ($n = 37$) and the exclusive focus on fourth-grade students limit the generalizability of the findings. In addition, the quasi-experimental design—characterized by the assignment of intact classrooms rather than individual randomization and therefore exploratory in nature—constrains the strength of causal inferences. This design may also be susceptible to potential confounding influences at the classroom or teacher level. Future studies would benefit from employing larger, randomly selected samples across multiple schools to enhance external validity.

Moreover, the six-week duration of the intervention and the absence of follow-up assessments restrict the evaluation of the long-term sustainability of empathy gains. The exclusive reliance on self-report data (i.e., the KA-SI Empathy Tendency Scale-Child Form) may have increased the likelihood of socially desirable responding. To address these limitations, future research should incorporate longitudinal follow-up measures and utilize multiple data sources, such as teacher ratings, peer reports, or direct behavioral observations, to provide a more comprehensive assessment of program outcomes.

Another limitation concerns the combined implementation of film screenings and complementary activities, which makes it difficult to disentangle the unique contributions of each component. Future research could experimentally isolate film-based and activity-based elements to compare their independent and interactive effects on empathy development.

Gender-related differences observed in the present study were modest and should be interpreted with caution. Accordingly, future investigations employing larger samples with balanced gender

representation, as well as mixed-methods designs that integrate quantitative and qualitative approaches, are recommended to more deeply examine the processes underlying these differences.

In conclusion, this study offers promising preliminary evidence that short-term, multimethod empathy interventions can be effective in school settings. However, the findings should be interpreted within the context of the methodological limitations outlined above. Addressing these limitations in future research will contribute to the development of stronger empirical foundations for empathy education and support the design of culturally sensitive, developmentally informed intervention models.

CRedit authorship contribution statement

Ertuğrul Talu: Writing – review & editing, Writing – original draft, Visualization, Validation, Software, Resources, Methodology, Data curation, Conceptualization.

Declaration of competing interest

The author declare no competing interests.

Data availability

Data will be made available on request.

References

- Aini, K., & Rini, H. P. (2024). Effectiveness of animation media in enhancing empathy to prevent bullying behavior in maduresse adolescents. *BIO Web of Conferences*, 146, Article 01064. <https://doi.org/10.1051/bioconf/202414601064>
- Akos, P. (2000). Building empathic skills in elementary school children through group work. *The Journal for Specialists in Group Work*, 25(2), 214–223. <https://doi.org/10.1080/01933920008411462>
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Barnett, M. A., & McCoy, S. J. (1989). The relation of distressful childhood experiences and empathy in college undergraduates. *The Journal of Genetic Psychology*, 150(4), 417–426. <https://doi.org/10.1080/00221325.1989.9914607>
- Braun, S. S., Schonert-Reichl, K. A., & Roeser, R. W. (2020). Effects of teachers' emotion regulation, burnout, and life satisfaction on student well-being. *Journal of Applied Developmental Psychology*, 69, Article 101151. <https://doi.org/10.1016/j.appdev.2020.101151>
- Bryant, B. K. (1982). An index of empathy for children and adolescents. *Child Development*, 53(2), 413–425. <https://doi.org/10.2307/1128984>
- Bussey, K., & Bandura, A. (1999). Social cognitive theory of gender development and differentiation. *Psychological Review*, 106(4), 676–713. <https://doi.org/10.1037/0033-295X.106.4.676>
- Büyükoztürk, Ş. (2024). *Handbook of data analysis for social sciences statistics, research design spss applications and interpretation* (31st ed.). Pegem Academy Publishing <http://depo.pegem.net/9789756802748.pdf>
- Çetin, C. N., & Aytar, A. G. (2012). Study on the empathic skill levels of elementary school fourth grade students and the parental attitudes perceived by them. *Kastamonu Education Journal*, 20(2), 473–488. <https://dergipark.org.tr/tr/download/article-file/806956>
- Chaplin, T. M., Cole, P. M., & Zahn-Waxler, C. (2005). Parental socialization of emotion expression: Gender differences and relations to child adjustment. *Emotion*, 5(1), 80–88. <https://doi.org/10.1037/1528-3542.5.1.80>
- Chapman, S. N. (2019). When caring counts: Fostering empathy and compassion through the arts using animation. In *compassion and empathy in educational contexts* (pp. 121–141). Cham: Springer international publishing. <https://doi.org/10.1007/978-3-030-18925-97>
- Cheng, Y., Chen, C., & Decety, J. (2014). An EEG/ERP investigation of the development of empathy in early and middle childhood. *Developmental Cognitive Neuroscience*, 10, 160–169. <https://doi.org/10.1016/j.dcn.2014.08.012>
- Coulombe, B. R., Rudd, K. L., & Yates, T. M. (2019). Children's physiological reactivity in emotion contexts and prosocial behavior. *Brain and Behavior*, 9(10), Article e01380. <https://doi.org/10.1002/brb3.1380>. Epub 2019 Sep 15. PMID: 31523938; PMCID: PMC6790335.
- Creswell, J. W. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (4th ed.). Boston, MA: Pearson <https://www.scribd.com/document/713796239/Creswell-2012-educational-research>
- Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and conducting mixed methods research* (3rd ed.). SAGE Publications.
- Decety, J., & Cowell, J. M. (2014). The complex relation between morality and empathy. *Trends in Cognitive Sciences*, 18(7), 337–339. <https://doi.org/10.1016/j.tics.2014.04.008> (PMID: 24972506).

- Decety, J., & Jackson, P. L. (2004). The functional architecture of human empathy. *Behavioral and Cognitive Neuroscience Reviews*, 3(2), 71–100. <https://doi.org/10.1177/1534582304267187>
- Decety, J., Meidenbauer, K. L., & Cowell, J. M. (2018). The development of cognitive empathy and concern in preschool children: A behavioral neuroscience investigation. *Developmental Science*, 21(3), Article e12570. <https://doi.org/10.1111/desc.12570>
- Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A Meta-analysis of school-based universal interventions. *Child Development*, 82, 405–432. <https://doi.org/10.1111/j.1467-8624.2010.01564.x>
- Eisenberg, N. (2007). Empathy-related responding and prosocial behaviour. *Novartis Foundation Symposium*, 278(71–80), 216–221. discussion 80–96. PMID: 17214311-PubMed.
- Eisenberg, N., & Miller, P. A. (1987). The relation of empathy to prosocial and related behaviors. *Psychological Bulletin*, 101(1), 91–119. <https://doi.org/10.1037/0033-2909.101.1.91>
- Eisenberg, N., Spinrad, T. L., & Knafo-Noam, A. (2015). Prosocial development. In R. M. Lerner (Ed.), *Handbook of child psychology and developmental science* (pp. 610–656). Hoboken, NJ: Wiley. <https://doi.org/10.1002/97811118963418.childpsy315>
- Eisenberg, N., Spinrad, T. L., & Morris, A. S. (2006). Empathy-related responding in children. In M. Killen, & J. G. Smetana (Eds.), *Handbook of moral development* (pp. 517–549). Lawrence Erlbaum Associates.
- Eisenberg, N., & Strayer, J. (1987). *Empathy and its development*. Cambridge university press. https://books.google.com.tr/books?id=PVQ4AAAIAAJ&hl=tr&source=gbs_navlinks_s
- Erk, E., & Öner Sünkür, M. (2024). An investigation of the levels of empathic tendency and the ability to say “no” of 4th grade primary school students. *Cumhuriyet Journal of International Education*, 13(1), 261–281. <https://doi.org/10.30703/cije.1189590>
- Evans, J. S. (2008). Dual-processing accounts of reasoning, judgment, and social cognition. *Annual Review of Psychology*, 59, 255–278. <https://doi.org/10.1146/annurev.psych.59.103006.093629> (PMID: 18154502).
- Fan, L., Zhan, M., Qing, W., Gao, T., & Wang, M. (2021). The short-term impact of animation on the executive function of children aged 4 to 7. *International Journal of Environmental Research and Public Health*, 18(16), 8616. <https://doi.org/10.3390/ijerph18168616>, 15.
- Field, A. (2013). *Discovering statistics using SPSS* (4th Ed.). Sage Publications.
- Fortier, J., Besnard, J., & Allain, P. (2018). Theory of mind, empathy and emotion perception in cortical and subcortical neurodegenerative diseases. *Revue Neurologique (Paris)*, 174(4), 237–246. <https://doi.org/10.1016/j.neuro.2017.07.013>
- Friesen, Y. (2016). Empathy for the digital age. In S. Y. Tettegah, & D. L. Espelage (Eds.), *Emotions, technology, and behaviors* (pp. 21–45). Elsevier.
- Garandeau, C. F., Laninga-Wijnen, L., & Salmivalli, C. (2022). Effects of the KiVa anti-bullying program on affective and cognitive empathy in children and adolescents. *Journal of Clinical Child and Adolescent Psychology*, 51(4), 515–529. <https://doi.org/10.1080/15374416.2020.1846541>. Epub 2021 Jan 15. PMID: 33448897.
- George, D., & Mallery, P. (1999). *SPSS® for windows® step by step: A simple guide and reference*. Allyn & Bacon.
- Grazzani, I. (2024). Promoting theory of mind and emotion understanding in preschool settings: An exploratory training study. *Frontiers in Psychology*, 15, Article 1439824. <https://doi.org/10.3389/fpsyg.2024.1439824>
- Gürsoy, G. (2021). Digital storytelling: Developing 21st century skills in science education. *European Journal of Educational Research*, 10(1), 97–113. <https://doi.org/10.12973/eu-er.10.1.97>
- Habib, K., & Soliman, T. (2015). Cartoons' effect in changing children mental response and behavior. *Open Journal of Social Sciences*, 3(9), 248–264. <https://doi.org/10.4236/jss.2015.39033>
- Hoffman, M. L. (2000). *Empathy and moral development: Implications for caring and justice*. Cambridge University Press.
- Hua, A. Y., Wells, J. L., Brown, C. L., & Levenson, R. W. (2021). Emotional and cognitive empathy in caregivers of persons with neurodegenerative disease: Relationships with caregiver mental health. *Clinical Psychological Science: A Journal of the Association for Psychological Science*, 9(3), 7. <https://doi.org/10.1177/2167702620974368>
- Jolliffe, D., & Farrington, D. P. (2006). Examining the relationship between low empathy and bullying. *Aggressive Behavior*, 32(6), 540–550. <https://doi.org/10.1002/ab.20154>
- Kaspar, K. L., & Massey, S. L. (2023). Implementing social-emotional learning in the elementary classroom. *Early Childhood Education Journal*, 51, 641–650. <https://doi.org/10.1007/s10643-022-01324-3>
- Kaya, A., & Siyez, D. M. (2010). Child and adolescent KA-Si empathic tendency scale: Development, validity and reliability study. *Education and Science*, 35(156), 110–125. <https://educationandscience.ted.org.tr/article/view/865>
- Laghi, F., Lonigro, A., Pallini, S., & Baiocco, R. J. (2018). Emotion regulation and empathy: Which relation with social conduct? *Genetic Psychology Monographs*, 179(2), 62–70. <https://doi.org/10.1080/00221325.2018.1424705>, 2018.
- Lankhuizen, T. (2025). *From frames to feelings: Visual form, empathy, and narrative engagement in Hollywood cinema*. [PhD-thesis - research and graduation Internal, Vrije Universiteit Amsterdam]. <https://doi.org/10.5463/thesis.985>
- Löffler, C. S., & Greitemeyer, T. (2021). Are women the more empathetic gender? The effects of gender role expectations. *Current Psychology*, 42, 220–231. <https://doi.org/10.1007/s12144-020-01260-8>
- Malti, T., Chaparro, M. P., Zuffianò, A., & Colasante, T. (2016). School-based interventions to promote empathy-related responding in children and adolescents: A developmental analysis. *Journal of Clinical Child and Adolescent Psychology*, 45(6), 718–731. <https://doi.org/10.1080/15374416.2015.1121822>
- Meyers, D. C., Domitrovich, C. E., Dissi, R., Trejo, J., & Greenberg, M. T. (2019). Supporting systemic social and emotional learning with a schoolwide implementation model. *Evaluation and Program Planning*, 73, 53–61. <https://doi.org/10.1016/j.evalprogplan.2018.11.005>. Epub 2018 Nov 10. PMID: 30513463.
- Muravevskaia, E., Kuriappan, B., Markopoulos, P., Lekshmi, S., Krishnaveni, M., & Schrier, K. (2024). Exploring empathic design for children based on role-play activities: Opportunities and challenges within the indian context. In *Proceedings of the 23rd annual ACM interaction design and children conference (IDC '24)* (pp. 715–719). New York, NY, USA: Association for Computing Machinery. <https://doi.org/10.1145/3628516.3659382>
- Ornaghi, V., Brockmeier, J., & Grazzani, I. (2014). Enhancing social cognition by training children in emotion understanding: A primary school study. *Journal of Experimental Child Psychology*, 119, 26–39. <https://doi.org/10.1016/j.jecp.2013.10.005>
- Parmar, D., Olafsson, S., Utami, D., Murali, P., & Bickmore, T. (2022). Designing empathic virtual agents: Manipulating animation, voice, rendering, and empathy to create persuasive agents. *Autonomous Agents and Multi-Agent Systems*, 36(1), Article 17. <https://doi.org/10.1007/s10458-021-09539-1> (Epub 2022 Feb 22. PMID: 35387204; PMID: PMC8979496).
- Raz, G., & Hendler, T. (2014). Forking cinematic paths to the self: Neurocinematically informed model of empathy in motion pictures. *Projections*, 8(2), 89–114. <https://doi.org/10.3167/proj.2014.080206>
- Rochat, M. J. (2023). Sex and gender differences in the development of empathy. *Journal of Neuroscience Research*, 101(5), 718–729. <https://doi.org/10.1002/jnr.25009>
- Şakar, G. N. (2020). Supporting empathy development in children. *Journal of Development and Psychology*, 1(2), 201–223. <https://dergipark.org.tr/en/pub/gpd/issue/54914/813722#article.cite>
- Schonert-Reichl, K. A., Smith, V., Zaidman-Zait, A., & Hertzman, C. (2012). Promoting children's prosocial behaviors in school: Impact of the “roots of empathy” program on the social and emotional competence of school-aged children. *School Mental Health: A Multidisciplinary Research and Practice Journal*, 4(1), 1–21. <https://doi.org/10.1007/s12310-011-9064-7>
- Schwenck, C., Göhle, B., Hauf, J., Warnke, A., Freitag, C. M., & Schneider, W. (2014). Cognitive and emotional empathy in typically developing children: The influence of age, gender, and intelligence. *European Journal of Developmental Psychology*, 11(1), 63–76.
- Semiz Türkoğlu, H., & Türkoğlu, S. (2022). An analysis on gender roles, mold jurisdictions and the fiction distribution of characters in cartoons: The example of TRT children's channel. *Selçuk University Social Sciences Institute Journal*, 49, 48–65. <https://doi.org/10.52642/susbed.1111484>
- Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and quasi-experimental designs for generalized causal inference*. Houghton, Mifflin and Company.
- Sindre, B., Skaraas, B. S., Gomez, J., & Jaccheri, L. (2018). Playing with empathy through a collaborative storytelling game. In *In entertainment computing – ICEC 2018: 17th IFIP TC 14 international conference, held at the 24th IFIP world computer congress, WCC 2018, Poznań, Poland, September 17–20, 2018, proceedings*. Springer-Verlag, Berlin, Heidelberg (pp. 254–259). https://doi.org/10.1007/978-3-319-99426-0_26
- Slovák, P., & Fitzpatrick, G. (2015). Teaching and developing social and emotional skills with technology. *ACM Transactions on Computer-Human Interaction*, 22(4), 1–34. <https://doi.org/10.1145/2744195>
- Spinrad, T. L., & Gal, D. E. (2018). Fostering prosocial behavior and empathy in young children. *Current Opinion in Psychology*, 20, 40–44. <https://doi.org/10.1016/j.copsyc.2017.08.004>. Epub 2017 Aug 9. PMID: 28830005
- Stebbins, R. A. (2001). *Exploratory research in the social sciences*. SAGE Publications.
- Tabachnick, B. G., & Fidell, L. S. (2020). *Using multivariate statistics* (6th ed.). Nobel Academic Publishing https://www.nobelyayin.com/cok-degiskenli-istatistiklerin-ku llanimi-using-multivariate-statistics_10642.html
- Tarvainen, J., Westman, S., & Oittinen, P. (2015). The way films feel: Aesthetic features and mood in film. *Psychology of Aesthetics, Creativity, and the Arts*, 9, 254–265. <https://doi.org/10.1037/a0039432>
- Tonks, J., Slater, A., Frampton, I., Wall, S. E., Yates, P., & Williams, W. H. (2009). The development of emotion and empathy skills after childhood brain injury. *Developmental Medicine and Child Neurology*, 51(1), 8–16. <https://doi.org/10.1111/j.1469-8749.2008.03219.x>
- Topcu, Ç., & Erdur-Baker, Ö. (2012). Affective and cognitive empathy as mediators of genderdifferences in cyber and traditional bullying. *School Psychology International*, 33(5), 550–561. <https://doi.org/10.1177/0143034312446882>
- Trommsdorff, G. (2012). Culture and development of self-regulation. *Social and Personality Psychology Compass*, 6(6), 355–369. <https://doi.org/10.1111/j.1751-9004.2009.00209.x>
- Yılmaz-Bingöl, T., & Uysal, R. (2015). The effect of empathy development group guidance program on the empathy levels of second grade primary school students. *Primary Education Online*, 14(2), 430–437. <https://doi.org/10.17051/peo.2015.90489>
- Yüksel, A. (2004). The effect of the empathy education program on the empathic skills of primary school students. *Uludağ University Journal of Education*, 17(2), 341–554. <http://search.trdizin.gov.tr/tr/yayin/detay/44176>
- Yurdakul, Y., Beyazit, U., & Ayhan, A. B. (2021). The examination of the relationship between emotional regulation and interactive play skills in preschool children. *Afyon*

- Kocatepe University Journal of Social Sciences, 23(4), 1291–1307. <https://doi.org/10.32709/akusosbil.874538>
- Zaki, J. (2020). Integrating empathy and interpersonal emotion regulation. *Annual Review of Psychology*, 71, 517–540. <https://doi.org/10.1146/annurev-psych-010419-050830>
- Zupan, B., & Babbage, D. (2017). Film clips and narrative text as subjective emotion elicitation techniques. *The Journal of Social Psychology*, 157(2), 194–210. <https://doi.org/10.1080/00224545.2016.1208138>